Proceedings of the American Mathematical Society

This Journal is devoted entirely to research in pure and applied mathematics, and the publication of original papers of moderate length. The maximum length of an acceptable paper is about 8 printed pages. Since a page of the Proceedings contains about 400 words, a rule of thumb is that under 10 typed pages is probably within the limit, but that over 12 typed pages is probably too long.

Shorter notes. Very short notes not to exceed 1 printed page of an unusual nature are also accepted, and appear under the heading Shorter Notes. Items deemed suitable include an elegant new proof of an important and well-known theorem, an illuminating example or counterexample, or a new viewpoint on familiar results. New results, if of a brief and striking character, might also be acceptable, though in general a paper which is merely very short will not be suitable for the Shorter Notes department.

Preparation of the manuscript. Articles for insertion should be typewritten and double spaced. Ditto is not generally satisfactory, although other modes of multiple reproduction may be. The Manual for Authors, available from the Society, should be consulted for symbols and style conventions. Authors should take the greatest possible care in preparing the original manuscript. Hand drawn symbols are satisfactory, if clearly done; directions to the printer should be included where necessary on a separate sheet, not in the accompanying letter. Authors must keep a complete copy of their manuscript, and editors will acknowledge receipt; manuscripts can therefore be sent by ordinary mail and any other kind (registered, certified) is entirely unnecessary. Submission of two copies of the manuscript is helpful, but by no means necessary.

Form of manuscript. The first page should consist of a descriptive title, followed by an abstract which summarizes the article in language suitable for workers in the general field (algebra, analysis, etc.). The descriptive title should be short, but informative; useless or vague phrases such as “some remarks about” or “concerning” should be avoided. Also avoid proper names unless mathematical usage associates them with the work. The abstract should be at least one complete sentence, and at most 150 words. Included with the footnotes to your paper, but placed before the first footnote, there should be first the AMS (MOS) subject classification numbers representing the primary and secondary subjects of the article. This may be followed by a list of key words and phrases describing the subject matter of the article and taken from it. The AMS (MOS) Subject Classification Scheme (1970) with instructions for its use can be found as an appendix to Mathematical Reviews, Index to Volume 39 (June 1970). See the June 1970 Notices for more details, as well as illustrative examples.

Submission of manuscripts, Reprints and Address changes. See the last page of this issue.

Subscription information. Four volumes are planned for 1971. The subscription price is $72. Back issues of volumes 1-16 are available at a price of $14 each. Volumes 17-19 at a price of $18 each, and Volumes 20-30 at a price of $30 each.

The Proceedings of the American Mathematical Society is published monthly. Subscriptions, orders for back numbers and inquiries in regard to nondelivery of current numbers should be addressed to the American Mathematical Society, P.O. Box 6248, Providence, R.I. 02904. Second-class postage paid at Providence, Rhode Island, and additional mailing offices.

Copyright © American Mathematical Society 1972
Printed in the United States of America
PROCEEDINGS
OF THE
AMERICAN MATHEMATICAL SOCIETY

INDEX
VOLUMES 21-30
April 1969 – December 1971

CONTENTS

<table>
<thead>
<tr>
<th>CONTENTS</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Editorial Staff</td>
<td>616</td>
</tr>
<tr>
<td>Author Index</td>
<td>617</td>
</tr>
<tr>
<td>Subject Index</td>
<td>713</td>
</tr>
</tbody>
</table>
This 10-VOLUME INDEX includes both an author and a subject listing. In the author index each entry gives complete information including title, volume, page, and subject classifications; the AMS(MOS) subject classification scheme (1970) is used. Primary subject classification numbers are given for all articles; if there are secondary subject classifications, they are separated from the primary classifications by a semicolon.

In the subject index the papers are identified by author's name and sequence number. Each entry is followed by a P or an S, indicating whether the subject classification is Primary or Secondary.
AUTHOR INDEX

Aarnes, Johan F.
46L05

Aberth, Oliver
1 A chain of inclusion relations in computable analysis, 22 (1969), 539-548.
02E15

2 The failure in computable analysis of a classical existence theorem for differential
equations, 30 (1971), 151-156.
02E15; 26A03

Abian, Alexander
13A99; 06A40 06A70 13A10

Abramowich, John
1 Stability of solutions of linear systems with retarded arguments, 26 (1970), 60-64.
34K20

Accola, Robert D. M.
1 Riemann surfaces with automorphism groups admitting partitions, 21 (1969), 477-482.
30A48 30A58

2 Two theorems on Riemann surfaces with noncyclic automorphism groups, 25 (1970), 598-602.
30A48

12F10

Adams, Robert A.
46E35

Adler, Andrew
1 Some recursively unsolvable problems in analysis, 22 (1969), 523-526.
02E99 02G05

2 The cardinality of ultrapowers -- An example, 28 (1971), 311-312.
02H13 02K35 04A10

Agoston, Max K.
1 A classification of immersed knots, 24 (1970), 710-715.
57D40 57D60 57F20

Agrawal, Bhagwan Das
33A45 33A65

Aizley, Paul
1 Multiplicative linear functionals on convolution algebras, 28 (1971), 65-66.
10A20

Akcoglu, M. A.
28A65

2 (with Chacon, Rafael V. and Schwartzbauer, T.) Commuting transformations and
28A65

Akemann, Charles A.
46L10

Al-Amiri, Hassoon S.
1 On $p$-close-to-star functions of order $a$, 29 (1971), 103-108.
30A32

Alder, Henry L.
1 Proof of Andrew's conjecture on partition identities, 22 (1969), 688-689.
617
Alexander, Charles C.
1 An extension of Morita's metrization theorem, 30 (1971), 578-582.
54E35; 54D20 54E30

Alin, J. S.
16A64; 16A46 16A62

Allan, G. R.
1 A note on the holomorphic functional calculus in a Banach algebra, 22 (1969), 77-81.
46J05; 32B05

Allegretto, Walter
35B05 35J70
35B05 35J60

Allen, Paul J.
1 A fundamental theorem of homomorphisms for semirings, 21 (1969), 412-416.
16A78

Al-Salam, Waleed A.
1 (with Verma, Arun) Some orthogonality preserving operators, 23 (1969), 136-139.
42A52; 34A35

Amberg, Bernhard
20F25

Amoroso, S.
05B30 68A25

Andersen, G. R.
1 Large deviation probabilities for positive random variables, 24 (1970), 382-384.
60F10 60G50; 26A12 60E05 62E20

Andersen, Tage Bai
46L05; 47C10

Anderson, Bruce A.
1 (with Stewart, D. G.) T₁-complements of T₁ topologies, 23 (1969), 77-81.
54A10; 06A25
54A05 54A10

Anderson, R. D.
58B05

Andrews, George E.
1 On Ramanujan's summation of \( \psi_1(a; b; z) \), 22 (1969), 552-553.
33A30
10J20 33A30

Antonelli, Peter L.
55F55
Apostol, Tom M.
1 Results of cyclotomic polynomials, 24 (1970), 457-462. 12E10
2 Euler’s $\phi$-function and separable Gauss sums, 24 (1970), 482-485. 10G05

Appel, K. I.
1 On two variable equations in free groups, 21 (1969), 179-184. 20F10

Appling, William D. L.
1 Addendum to: Some integral characterizations of absolute continuity, 24 (1970), 788-793. 28A10

Arkowitz, Martin
1 Associative, abelian $H$-spaces have trivial Postnikov invariants, 25 (1970), 460-461. 55D45 55G45

Armacost, David Lee
1 Well-known LCA groups characterized by their closed subgroups, 25 (1970), 625-629. 20K45 22B05 06A05
2 Can an LCA group be anti-self-dual, 27 (1971), 186-188. 22B05 43A40

Armendariz, Efraim P.
1 On finite-dimensional torsion-free modules and rings, 24 (1970), 566-571. 16A52 16A12 16A46

Arnold, Jimmy T.

Arora, Kasturi L.
1 (with Kulshreshtha, S. K.) An infinite integral involving Meijer $G$-function, 26 (1970), 121-125. 30A86 33A35 44A45 33A15 33A30

Arsove, Maynard G.
1 A correction to ‘Some boundary properties of the Riemann mapping function’, 22 (1969), 711-712. 30A30

Asimow, Leonard
1 Decomposable compact convex sets and peak sets for function spaces, 25 (1970), 75-79. 46E15 46J20

Atalla, Robert E.
1 (with Bustoz, Joaquin) On sequential cores and a theorem of R. R. Phelps, 21 (1969), 36-42. 40C05 40H05 46A45 54A25 54C10 54C15 54E50; 46E10
2 An example in the Weil theory of measurable groups, 25 (1970), 816-819. 22A05 28A70; 22A10 43A05
3 On the multiplicative behavior of regular matrices, 26 (1970), 437-446. 40C05 47B99; 40D20 46E15 54D35

Athreya, Krishna Balasundaram
1 On the absolute continuity of the limit random variable in the supercritical Galton-Watson branching process, 30 (1971), 563-565. 60E05 60J80 62E10; 39A15 60F15

Aull, C. E.
1 Topological spaces with a $\sigma$-point finite base, 29 (1971), 411-416. 54D15 54D20 54E30 54E35

Auslander, Bernice
1 Central separable algebras which are locally endomorphism rings of free modules, 30 (1971), 395-404. 13A20

Au-yeung, Yik-hoi
1 Some theorems on the real pencil and simultaneous diagonalization of two hermitian bilinear functions, 23 (1969), 246-253. 15A57 15A63
2 On matrices whose nontrivial real linear combinations are nonsingular, 29 (1971), 17-22. 15A30 15A57; 15A33

Bachelis, Gregory F.
1 On the ideal of unconditionally convergent Fourier series in \( L_p(G) \), 27 (1971), 309-312. 43A15 43A20 43A50

Bacon, Philip
1 Compact means in the plane, 22 (1969), 242-246. 54D05 54E99 55B05 57A05; 55D45

Baggett, Larry
1 Hilbert-Schmidt representations of groups, 21 (1969), 502-506. 22D10; 22D25 22E30

Bagley, Robert W.
1 (with Weddington, D. D.) Products of \( k' \)-spaces, 22 (1969), 392-394. 54D50
2 (with Lau, K. K.) Semidirect products of topological groups with equal uniformities, 29 (1971), 179-182. 22A05 22D05

Bainsab, A. P.

Baker, J. M.
1 Weak sequential completeness in spaces of operators, 25 (1970), 193-198. 47D15; 46M05

Baker, James D.
1 (with Wright, Fred M.) On integration-by-parts for weighted integrals, 22 (1969), 42-52. 26A42

Baker, John Warren
1 (with Rothman, Neal J.) Separating points by semicharacters in topological semigroups, 21 (1969), 235-239. 22A15 22A20
2 Convolution measure algebras with involution, 27 (1971), 91-96. 43A10; 43A20

Balbes, Raymond
1 The center of the free product of distributive lattices, 29 (1971), 434-436. 06A35; 08A10

Ballantine, Charles S.
1 Stabilization by a diagonal matrix, 25 (1970), 728-734. 15A18

Banchoff, Thomas F.
1 High codimensional 0-tight maps on spheres, 29 (1971), 133-137. 53C40 53C45; 52A25 57C35 57D40

Bang, Chang Mo
1 Direct sums of countably generated modules over complete discrete valuation rings, 28 (1971), 381-388. 13C05 16A64 20K25

Bank, Steven
1 On the growth of certain meromorphic solutions of arbitrary second order algebraic differential equations, 25 (1970), 791-797. 30A70 34A20
Banks, Dallas O.
 1 Inequalities for the eigenvalues of powers of functions, 23 (1969), 356-358. 34B25

Barnes, Bruce Alan
 1 Irreducible algebras of operators which contain a minimal idempotent, 30 (1971), 337-342. 46L05 46L20

Barr, Michael
 1 (with Knus, Max-Albert) Extensions of derivations, 28 (1971), 313-314. 16A72

Barros-Neto, Jose
 1 On the existence of fundamental solutions of boundary problems, 24 (1970), 75-78. 35E05 35G15

Barshay, Jacob
 1 A characterization of regular local rings, 29 (1971), 437-439. 13H05 15A78

Barth, K. F.
 1 (with Schneider, W. J.) An asymptotic analog of the F. and M. Riesz radial uniqueness theorem, 22 (1969), 53-54. 30A76; 30A88
 2 (with Schneider, W. J.) A short proof of a lemma of G. R. MacLane, 20 (1969), 604-605. 30A72

Barth, Theodore J.
 1 Taut and tight complex manifolds, 24 (1970), 429-431. 32C10

Bağgoze, Türkân
 1 (with Keogh, F. R.) The Hardy class of a spiral-like function and its derivative, 26 (1970), 266-269. 30A30 30A32; 30A78

Basmaji, B. G.
 1 On the isomorphisms of two metacyclic groups, 22 (1969), 175-182. 20D10

Bauman, Steven F.
 1 A note on cover and avoidance properties in solvable groups, 21 (1969), 173-174. 20D10

Baumslag, Gilbert
 1 (with Karrass, Abraham and Solitar, Donald) Torsion-free groups and amalgamated products, 24 (1970), 688-690. 20E30

Baxter, J. R.
 1 A class of ergodic transformations having simple spectrum, 27 (1971), 275-279. 28A65; 47A35

Beaumont, Ross A.
 1 A note on products of homogeneous torsion free abelian groups, 22 (1969), 434-436. 20K20

Beauregard, Raymond A.
 1 (with Johnson, R. E.) Primary factorization in a weak Bezout domain, 25 (1970), 662-665. 16A02; 13G05
 2 Right LCM Domains, 30 (1971), 1-7. 16A02

Bebernes, J. W.
 1 (with Fraker, Ross) A priori bounds for boundary sets, 29 (1971), 313-318. 34B15; 34A40

Becker, James C.
 1 (with Glover, H. H.) Note on the embedding of manifolds in Euclidean space, 27 (1971), 405-410. 57D40 57D99; 55F25 55G40
<table>
<thead>
<tr>
<th>Author</th>
<th>Contributions</th>
<th>Years</th>
<th>References</th>
<th>Mathematics Subject Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bellamy, David P.</td>
<td>1 (with Davis, Harvey S.) <em>Continuum neighborhoods and filterbases</em>, 27 (1971), 371-374.</td>
<td>1971</td>
<td>04A05 04A10 06A05 06A10 06A20; 02F10 04A20 20M35 68A25 94A30</td>
<td></td>
</tr>
<tr>
<td>Beller, E.</td>
<td>1 (with Newman, Donald J.) <em>An $l_1$ extremal problem for polynomials</em>, 29 (1971), 474-481.</td>
<td>1971</td>
<td>30A06 42A04</td>
<td></td>
</tr>
<tr>
<td>Benard, Mark</td>
<td>2 *Polynomial extremal problems in $L^p$, 30 (1971), 249-259.</td>
<td>1971</td>
<td>30A06 42A04; 30A40</td>
<td></td>
</tr>
<tr>
<td>Belna, Charles L.</td>
<td>1 <em>A necessary condition for principal cluster sets to be void</em>, 24 (1970), 90-91.</td>
<td>1970</td>
<td>30A72</td>
<td></td>
</tr>
<tr>
<td>Bennett, Harold R.</td>
<td>1 (with Lutzer, David J.) <em>Separability, the countable chain condition and the Lindelöf property in linearly orderable spaces</em>, 23 (1969), 664-667.</td>
<td>1969</td>
<td>54A25 54F05; 06A45 54D20</td>
<td></td>
</tr>
<tr>
<td>Bennett, Robert</td>
<td>3 <em>A note on point-countability in linearly ordered spaces</em>, 28 (1971), 598-606.</td>
<td>1971</td>
<td>54D15 54D20 54E35 54F05; 54D35 54F65</td>
<td></td>
</tr>
<tr>
<td>Benard, Mark</td>
<td>4 (with Berney, E. S.) <em>Subparacompactness and $G_δ$-diagonals in Arhangel'skii's class MOBI</em>, 30 (1971), 573-577.</td>
<td>1971</td>
<td>54C10 54D20; 54E30</td>
<td></td>
</tr>
<tr>
<td>Benson, Donald C.</td>
<td>1 (with Kreith, Kurt) <em>On abstract Pruefer transformations</em>, 26 (1970), 137-140.</td>
<td>1970</td>
<td>34A05 34J05</td>
<td></td>
</tr>
</tbody>
</table>
Berberian, Sterling K.
1 Trace and the convex hull of the spectrum in a von Neumann algebra of finite class,
23 (1969), 211-212. 46L10 47A10
2 Some conditions on an operator implying normality. II, 26 (1970), 277-281. 47B15

Bergman, George M.
1 A weak Nullstellensatz for valuations, 28 (1971), 32-38. 13A15; 12J20

Bernardi, S. D.
1 The radius of univalence of certain analytic functions, 24 (1970), 312-318. 30A32

Berndt, Bruce C.
1 On the zeros of the Riemann zeta-function, 22 (1969), 183-188; Erratum:
24 (1970), 839. 10H10
2 The functional equation of some Dirichlet series, 29 (1971), 457-460. 10H10

Berney, E. S.
1 A regular Lindelöf semimetric space which has no countable network, 26 (1970),
361-364. 54D20 54E25 54G20; 54B10 54D15
2 (with Bennett, Harold R.) Subparacompactness and $G_δ$-diagonals in Arhangel'c-
skii's class MOBI, 30 (1971), 573-577. 54C10 54D20; 54E30

Bernfeld, Stephen R.
1 Liapunov functions and global existence without uniqueness, 25 (1970), 571-577.
34A15 34D20
2 (with Lasota, Andrzej) Quickly oscillating solutions of autonomous ordinary differ-
ential equations, 30 (1971), 519-526. 34C15 34D05

Bernhardt, Robert L.
1 Splitting hereditary torsion theories over semiperfect rings, 22 (1969), 681-687.
18E40; 16A36

Bernstein, Herbert J.
1 CCN-groups of order divisible by three primes, 22 (1969), 202-205. 20D99

Bernstein, Leon
1 An explicit summation formula and its application, 25 (1970), 323-334. 10F20

Bhattacharya, P. B.
16A22; 16A12 16A42

Białyńicki-Birula, Andrzej
16A50 18H15 20E35; 16A64 16A74 20C10

Biles, Charles M.
1 Wallman-type compactifications, 25 (1970), 363-368. 54D35; 54F05 54G05

Billis, M. J.
20E30; 02H15

Bilyeu, Russell, G.
1 Metric definition of the linear structure, 25 (1970), 205-206. 46B99

Bing, R. H.
1 Retractions onto ANR's, 21 (1969), 618-620. 54C55 57A15

Birman, Joan S.
<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Volume</th>
<th>Year</th>
<th>Pages</th>
<th>MSCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blair, David E.</td>
<td>A note on the holonomy group of manifolds with certain structures</td>
<td>21</td>
<td>1969</td>
<td>73-76</td>
<td>53B20</td>
</tr>
<tr>
<td>Blau, Harvey I.</td>
<td>An inequality for complex linear groups of small degree</td>
<td>26</td>
<td>1971</td>
<td>405-408</td>
<td>20C15 20G20</td>
</tr>
<tr>
<td>Block, Henry David</td>
<td>On the boundedness of an iterative procedure for solving a system of linear inequalities</td>
<td>26</td>
<td>1970</td>
<td>229-235</td>
<td>15A39 65F10 65K05 93C40 94A30</td>
</tr>
<tr>
<td>Boed, Peter</td>
<td>Extending differential specializations</td>
<td>24</td>
<td>1970</td>
<td>471-474</td>
<td>12H05</td>
</tr>
<tr>
<td>Blumenthal, Robert George</td>
<td>The spectrum of a function algebra</td>
<td>25</td>
<td>1970</td>
<td>343-346</td>
<td>46J10 46J20</td>
</tr>
<tr>
<td>Boardman, John</td>
<td>Stable homotopy theory is not self-dual</td>
<td>26</td>
<td>1970</td>
<td>369-370</td>
<td>55B20 55D25 55D99 55E05</td>
</tr>
<tr>
<td>Bobisud, Larry E.</td>
<td>Oscillation of nonlinear second-order equations</td>
<td>23</td>
<td>1969</td>
<td>501-505</td>
<td>34C15</td>
</tr>
<tr>
<td>Boehme, T. K.</td>
<td>One-sided boundary behavior for certain harmonic functions</td>
<td>27</td>
<td>1971</td>
<td>280-288</td>
<td>31A20</td>
</tr>
<tr>
<td>Bob, Gary A.</td>
<td>Properties of two point boundary value functions</td>
<td>23</td>
<td>1969</td>
<td>335-339</td>
<td>34B05</td>
</tr>
<tr>
<td>Bogart, Kenneth P.</td>
<td>Idempotent Noether lattices</td>
<td>22</td>
<td>1969</td>
<td>127-128</td>
<td>06A50 06A40</td>
</tr>
<tr>
<td></td>
<td>Noninbeddable Noether lattices</td>
<td>22</td>
<td>1969</td>
<td>129-133</td>
<td>06A30 06A50 13C05</td>
</tr>
<tr>
<td></td>
<td>Small regular local Noether lattices</td>
<td>25</td>
<td>1970</td>
<td>423-428</td>
<td>06A50 13H05</td>
</tr>
<tr>
<td>Bogdanowicz, Witold M.</td>
<td>Analytic continuation of holomorphic functions with values in a locally convex space</td>
<td>22</td>
<td>1969</td>
<td>660-666</td>
<td>30A14 30A96</td>
</tr>
<tr>
<td>Bookhout, Glenn A.</td>
<td>Metric dimension of complete metric spaces</td>
<td>24</td>
<td>1970</td>
<td>754-759</td>
<td>54F45 54G20 54E50</td>
</tr>
<tr>
<td></td>
<td>Metrizability of adjunction spaces</td>
<td>24</td>
<td>1970</td>
<td>446-451</td>
<td>54B17 54E35 54E60</td>
</tr>
<tr>
<td>Borrego, Joseph T.</td>
<td>Point-transitive actions by a standard metric thread</td>
<td>23</td>
<td>1969</td>
<td>261-265</td>
<td>22A15</td>
</tr>
<tr>
<td>Borwein, David</td>
<td>On absolute Borel-type methods of summability</td>
<td>24</td>
<td>1970</td>
<td>85-89</td>
<td>40F05 40G10</td>
</tr>
</tbody>
</table>
Bosch, W.
1 (with Krajkiewicz, P.) Polyanalytic functions with equal modulus, 23 (1969), 127-132. 30A94
2 The big Picard theorem for polyanalytic functions, 26 (1970), 145-150. 30A96; 30A02 30A70

Bose, Anil Kumar
1 A note on entire functions of bounded index, 21 (1969), 257-262. 30A64; 30A62 30A66

Bouldin, Richard
1 The Weyl essential spectrum, 28 (1971), 531-536. 47A10 47B30

Bownds, John M.
1 (with Metcalf, Frederic T.) An extension of the Nagumo uniqueness theorem, 27 (1971), 313-316. 34A10

Boyd, David W.
1 Transcendental numbers with badly distributed powers, 23 (1969), 424-427. 10F40

Brady, Michael M.
1 Meromorphic solutions of a system of functional equations involving the modular group, 30 (1971), 271-277. 30A20

Bragg, Louis R.
1 (with Dettman, John W.) A class of related Dirichlet and initial value problems, 21 (1969), 50-56. 35A22 35G15
2 Multinomial representation of solutions of a class of singular initial value problems, 21 (1969), 629-634. 35A20 35C10 35Q05

Brand, Louis
1 On the product of singular symmetric matrices, 22 (1969), 377. 15A18 15A57

Brandenstain, A. G.
1 A class of hypo-Dirichlet algebras, 28 (1971), 501-504. 46J10 46J20

Brasher, Russell G.
1 A separation theorem for manifolds, 23 (1969), 242-245. 55B05 55C99
2 The homology sequence of the double covering; Betti numbers and duality, 23 (1969), 714-717. 55A10 55B25 55C99

Bredon, Glen E.
1 The set of nonprincipal orbits of an action on $E^n$, 23 (1969), 254-255. 57E15 57E25
2 Open, finite to one maps of contractible polyhedra onto a sphere, 24 (1970), 251-257. 54C10 55C99; 55C35 55F25
4 Counterexamples on the rank of a manifold, 27 (1971), 592-594. 55C99 57D25 57E15 58A30

Breder, Allan
1 Inertial and bordism properties of spheres, 27 (1971), 209-212. 57D60 57D90

Brenner, Joel Lee
1 (with Brown, William G.) On a hierarchy of generalized diagonal dominance properties for complex matrices, 25 (1970), 906-911. 15A15
2 Bounds for classical polynomials derivable by matrix methods, 30 (1971), 353-362. 33A65; 15A15
Breuer, Shlomo
1 (with Gottlieb, David) *Explicit characterization of spherical curves*, 27 (1971), 126-127. 34A05 53A05
2 *A characterization of order topologies by means of minimal T_o-topologies*, 27 (1971), 161-167. 06A45 54F05 54F65; 54D05 54D10
3 (with Gottlieb, David) *Separation of roots and oscillation in ordinary linear differential equations of second order*, 29 (1971), 487-493. 34C10

Brewer, J. W.
1 (with Arnold, Jimmy T.) *Kronecker function rings and flat D[X]-modules*, 27 (1971), 483-485. 13B25 13F05

Brillhart, John
1 (with Carlitz, Leonard) *Note on the Shapiro polynomials*, 25 (1970), 114-118. 33A70; 42A16

Brooks, James K.
1 *Decomposition theorems for vector measures*, 21 (1969), 27-29. 28A45

Brown, Arlen
1 *A remark on set theory*, 25 (1970), 920-921. 02K20 04A25

Brown, B. M.
1 *A general three-series theorem*, 28 (1971), 573-577. 60F15 60G45; 60E05 60G50

Brown, Edward M.
1 *A note on punctured disks in a 2-manifold*, 22 (1969), 471-472. 55A05 57A05

Brown, J. W.
1 *New generating functions for classical polynomials*, 21 (1969), 263-268. 33A65

Brown, Jack B.
1 *A theorem on biquadratic reciprocity*, 30 (1971), 220-222. 10A15; 12A65

Brown, Herbert I.
1 (with Kerr, Donald R., Jr. and Stratton, Howard H., Jr.) *The structure of B[c] and extensions of the concept of conull matrix*, 22 (1969), 7-14. 46L20; 40H05
2 (with Stratton, Howard H., Jr.) *Conullity of operators on some FK-spaces*, 25 (1970), 717-727. 40H05 40J05 46A05 46A45

Brown, J. W.
1 *New generating functions for classical polynomials*, 21 (1969), 263-268. 33A65

Brown, James Ward

Brown, Leon
1 *Subalgebras of L_∞ of the circle group*, 25 (1970), 585-587. 43A15 46J30

Brown, Robert F.
1 *A fixed point theorem for open Q-acyclic n-manifolds*, 21 (1969), 621-622. 55C20 57A15; 54F40 54H25
2 *H-manifolds have no nontrival idempotents*, 24 (1970), 37-40. 55D45 57C99
Brown, Terrence J.
1 A recursion formula for finite partition lattices, 22 (1969), 124-126.
05A05; 04A20 10A20

Brown, William C.
13H99 13J15 16A16

Brown, William G.
15A15

Brualdi, Richard A.
1 Induced matroids, 29 (1971), 213-221.
05B35 05C20; 05A05

Brungs, Hans-Heinrich
1 Overrings of principal ideal domains, 28 (1971), 44-46.
16A04; 16A08

Bruning, L. M.
16A64; 16A48

Brunk, Hugh D.
1 Correction to “On an extension of the concept conditional expectation”, 23 (1969), 727.
60A05

Bryan, Robert Neff
1 A nonhomogeneous linear differential system with interface conditions, 22 (1969), 270-276.
34B10

Bryant, John L.
1 On embeddings of compacta in euclidean space, 23 (1969), 46-51.
57A15 57A35; 57A30

Brydak, Dobieslaw
1 On the stability of the functional equation \( \phi[f(x)] = g(x)\phi(x) + F(x) \), 26 (1970), 455-460.
39A25

Buchman, E. O.
1 Property \( P_3 \) and the union of two convex sets, 25 (1970), 642-645.
52A20 52A30

Bunce, John
46L05 47A10; 47B20

2 A note on two-sided ideals in \( C^* \)-algebras, 28 (1971), 635.
46L05

3 The joint spectrum of commuting nonnormal operators, 29 (1971), 499-505.
47A10 47B20

Burgess, C. E.
57A10; 55A30

Burke, Dennis K.
1 On subparacompact spaces, 23 (1969), 655-663.
54D20; 54G20

Burns, R. G.
1 A note on free groups, 23 (1969), 14-17.
20E05

Burris, S.
1 (with Nelson, Evelyn) Embedding the dual of \( \Pi_m \) in the lattice of equational classes of commutative semigroups, 30 (1971), 37-39.
08A15 20M05

Burton, T. A.

Busby, Robert C.
1 *On a theorem of Fell*, 30 (1971), 133-140. 22D30 46L25

Buschman, R. G.

Busenberg, Stavros
1 *Iterative solution of a Wiener-Hopf problem in several variables*, 29 (1971), 39-46. 32A10 45E10; 22A07 32A25 42A68

Bustoz, Joaquín
1 (with Atalla, Robert E.) *On sequential cores and a theorem of R. R. Phelps*, 21 (1969), 36-42. 40C05 40H05 46A45 54C10 54C15 54E50; 46E10
2 *On regular matrices that induce the Gibbs phenomenon*, 25 (1970), 481-487. 40C05 40H05

Butler, G. J.
1 *An extremal property of simplices*, 30 (1971), 556-560. 52A20 52A40

Butt, Shu-shih
1 *On maximal nondetermining subalgebras of group algebras*, 21 (1969), 427-436. 43A20 43A25

Byers, William P.
1 *On a theorem of Preissmann*, 24 (1970), 50-51. 53C20 55A05

Byrnes, J. S.
1 (with Newman, Donald J.) *Completeness preserving multipliers*, 21 (1969), 445-450. 42A60 46E30
2 (with Newman, Donald J.) *A lower Jackson bound on (-∞, ∞)*, 26 (1970), 71-72. 41A10 41A50

Cain, George L., Jr.
1 *Compactification of mappings*, 23 (1969), 298-303. 54D35; 54C05 54C10

Cambanis, Stamatis
1 *Bases in L^2 spaces with applications to stochastic processes with orthogonal increments*, 29 (1971), 284-290. 42A56 46E20 60G10 60G15 60G17; 42A64

Canfell, M. J.
1 *Uniqueness of generators of principal ideals in rings of continuous functions*, 26 (1970), 574-578. 13A05 54F45

Cannon, J. W.
1 (with Burgess, C. E.) *Tame subsets of spheres in E^3*, 22 (1969), 395-401. 57A10; 55A30
2 (with Wayment, S. G.) *An imbedding problem*, 25 (1970), 566-570. 54A20 54C25 54F15 57A10 57A15; 54C35 57A05

Cantrell, James C.
1 (with Price, Thomas and Rushing, T. B.) *A class of embeddings of S^{n-1} and B^n in R^n*, 29 (1971), 208-210. 57A15 57A45

Caradus, S. R.
1 *Universal operators and invariant subspaces*, 23 (1969), 526-527. 47A15 47A45

Cardoso, Fernando
1 *The identity of weak and strong extensions of pseudo-differential operators*, 29
(1971), 118-122. 35D10 35S05

Carlitz, Leonard
33A70; 42A16

Carlson, B. C.
1 Inequalities for a symmetric elliptic integral, 25 (1970), 698-703.
33A25 41A30 65N99

Carns, Gail L.
1 A functor to ringed spaces, 29 (1971), 222-228. 06A70 12J15

Carpenter, R. L.
1 Uniqueness of topology for commutative semisimple F-algebras, 29 (1971), 113-117.
2 Continuity of systems of derivations on F-algebras, 30 (1971), 141-146.
46H05 46H99; 30A98

Carruth, J. H.
1 (with Clark, C. E.) Compact totally \& ordered semigroups, 27 (1971), 199-204.
20M10 22A15

Catlin, Donald E.
1 Cyclic atoms in orthomodular lattices, 30 (1971), 412-418.
06A25 06A35; 06A23 06A40 46L99 47D99

Caughran, James G.
1 Zeros of analytic functions with infinitely differentiable boundary values, 24 (1970),
700-704. 30A72; 30A08 30A76

Causey, W. M.
1 The univalence of an integral, 27 (1971), 500-502. 30A34

Caveny, D. J.
1 (with Novinger, W. P.) Boundary zeros of functions with derivative in \( H^p \), 25 (1970),
776-780. 30A78 30A80

Chacon, Rafael V.
1 Weakly mixing transformations which are not strongly mixing, 22 (1969), 559-562.
28A65
28A65

Chacon, M.
1 Direct product of division rings and a paper of Abian, 29 (1971), 259-262.
06A70 16A40; 16A48

Chambers, Graham A.
1 On the conjugacy of injectors, 28 (1971), 358-360. 20D10

Chambless, Donald A.
1 Representations of l-groups by almost-finite quotient maps, 28 (1971), 59-62.
06A60 06A65

Chandy, A. John
1 Rings generated by the inner-automorphisms of nonabelian groups, 30 (1971), 59-60.
20E15 20F55; 16A76

Chaney, Robin W.
1 On uniformly approximable Sidon sets, 21 (1969), 245-249. 43A25

Chang, John S. M.
1 Rotational approximation, 29 (1971), 623-624. 30A18 30A82 42A64

Chang, K. W.
1 Remarks on a certain hypothesis in singular perturbations, 23 (1969), 41-45.

Chao, Chong-yun
1 Infinitely many nonisomorphic nilpotent algebras, 24 (1970), 126-133.

Chatfield, J. A.

Chazin, R. L.
1 Stable thickenings in the topological category, 29 (1971), 175-178.

Chen, Bang-yen
2 Submanifolds in a euclidean hypersphere, 27 (1971), 627-628.
4 Minimal hypersurfaces in an \( m \)-sphere, 29 (1971), 375-380.

Chen, Kuo-tsai
1 A sufficient condition for nonabelianness of fundamental groups of differentiable manifolds, 26 (1970), 196-198.

Chen, Su-shing
1 Theorems of Accola type for higher dimensional manifolds, 30 (1971), 479-483.

Cherkas, Barry M.

Chernoff, Paul R.
1 Elements of a normed algebra whose 2ⁿ-th powers lie close to the identity, 23 (1969), 386-387.

Chew, Kim-peu
1 A characterization of \( N \)-compact spaces, 26 (1970), 679-682.

Chewning, W. C.
1 Can a 2-coherent Peano continuum separate \( E^3 \), 30 (1971), 185-188.

Choe, Tae Ho
1 The breadth and dimension of a topological lattice, 23 (1969), 82-84.

Chou, Ching
1 On the size of the set of left invariant means on a semigroup, 23 (1969), 199-205.
2 On a conjecture of E. Granirer concerning the range of an invariant mean, 26 (1970), 105-107.
3 On a geometric property of the set of invariant means on a group, 30 (1971), 296-302.

Chow, Kwang-nan
1 (with Glasner, Moses) Bounded in the mean solutions of \( \Delta u = Pu \) on Riemannian manifolds, 26 (1970), 261-265.
Chow, T. R.
1 The spectral radius of a direct integral of operators, 26 (1970), 593-597.
47A10 47A60
2 (with Gilfeather, Frank) Functions of direct integrals of operators, 29 (1971),
325-330. 47A20 47C15

Chrislock, J. L.
1 A certain class of identities on semigroups, 21 (1969), 189-190. 20M99

Chui, Charles Kam-tai
52A10

Chvátal, Václav
1 Hypergraphs and Ramseyian theorems, 27 (1971), 434-440.
05A05 05C15 05C30

Chwe, Byoung-song
1 (with Neggers, Joseph) On the extension of linearly independent subsets of free
modules to bases, 24 (1970), 466-470. 16A64; 16A08

Cima, Joseph A.
1 On the dual of Hornich’s space, 22 (1969), 102-103. 30A98 46E15

Clancey, Kevin F.
1 Examples of nonnormal seminormal operators whose spectra are not spectral sets, 24
(1970), 797-800. 47A25 47B20
47B10

Clark, C. E.
1 (with Carruth, J. H.) Compact totally \( \aleph \) ordered semigroups, 27 (1971), 199-204.
20M10 22A15

Clements, G. F.
1 Sets of lattice points which contain a maximal number of edges, 27 (1971), 13-15.
05A05 05A15

Closs, Mike P.
1 Homogeneous almost tangent structures, 23 (1969), 237-241. 53C15 53C30

Clough, Robert R.
1 Calculation of \( H^* (BBO[k]; Z_2) \), 24 (1970), 32-36. 55F40 55G10 55G45

Cobb, John
1 On ordering infinitely many small homeomorphisms, 23 (1969), 64-67.
54B99 57A15; 06A05 54F45

Cochran, Allan C.
1 Weak \( \mathcal{A} \)-convex algebras, 26 (1970), 73-77. 46H20; 46A05
2 Topological algebras and Mackey topologies, 30 (1971), 115-119.
46H05 46H20; 46A09

Cohen, Marshall M.
1 Simplicial and piecewise linear collapsibility, 24 (1970), 649-650.
57C05 57C99

Cohn, John H. E.
1 Sums of cubes of Gaussian integers, 29 (1971), 426.
10B35; 10B10

Coleman, Donald B.
20C05
10M05 13F20 16A40
Collins, Heron Sherwood
1 (with Summers, W. H.) *Some applications of Hewitt's factorization theorem*, 21 (1969), 727-733. 46H05 46H25; 47B05

Collins, P. J.
1 *Concordant mappings and the concordant-dissonant factorization of an arbitrary continuous function*, 27 (1971), 587-591. 54B15 54C10 54D05; 54E45

Conner, Stephen D.
1 (with Le Tourneau, J. J.) *Isomorphism types of infinite algebras*, 21 (1969), 635-639. 08A15

Comfort, W. W.
1 *Closed Baire sets are (sometimes) zero-sets*, 25 (1970), 870-875. 28A05 54A99 54H05; 54D20 54D35

Conlon, Lawrence
1 *Remarks on commuting involutions*, 22 (1969), 255-257. 20F55 22E10; 53C35

Connelly, Robert

Connors, Edward A.
1 *The structure of $O'/\Omega$ over local fields of characteristic 2*, 22 (1969), 596-599. 10C05

Conrad, Bruce
1 *Extending free circle actions on spheres to $S^3$ actions*, 27 (1971), 168-174. 57C25 57D10 57D20 57D60 57E25 57E99; 57C20 57E10 57E15

Constantin, Gheorghe
1 (with Istrățescu, Ioana) *Some remarks on structure of Riesz operators*, 21 (1969), 455-458. 47A65 47B05; 47B20

Conway, John B.
1 *On algebras of operators with totally ordered lattice of invariant subspaces*, 28 (1971), 163-168. 46C15 47A15

Cook, Thurlow A.
1 *Weakly equicontinuous Schauder bases*, 23 (1969), 536-537. 46A35

Cooke, Roger
1 *A Cantor-Lebesgue theorem in two dimensions*, 30 (1971), 547-550. 42A48 42A92; 10E20

Cooper, G.
1 (with Amoroso, S.) *The Garden-of-Eden theorem for finite configurations*, 26 (1970), 158-164. 05B30 68A25

Cooper, J. B.
1 *The strict topology and spaces with mixed topologies*, 30 (1971), 583-592. 46A05; 46A09 46E10

Cornelius, E. F., Jr.
1 *Note on quasi-decompositions of irreducible groups*, 26 (1970), 33-36. 20K20

Cossey, John
1 (with Whitemore, Alice) *On the Frattini subgroup*, 21 (1969), 699-702; Addendum: 27 (1971), 63-64. 20F15 20F30

Costich, O. L.
1 (with Doyle, Patrick H. and Galewski, D. E.) *A characterization of punctured open
3-cells, 28 (1971), 295-298.  57A10; 55A40

Coury, John E.
1 On the measure of zero sets of coordinate functions, 25 (1970), 16-20.  22C05 22D10; 20C15 28A70

Coven, Ethan M.
1 Compactness of limit sets and semiorbit closures, 23 (1969), 120-122.  54H20
2 (with Reddy, William L.) Limit set equivalences of replete semigroups, 23 (1969), 625-630.  54H15 54H20; 22B99

Cox, Raymond H.

Cox, S. H., Jr.
1 Determinantal rank and flat modules, 22 (1969), 104-108.  13C10 18G05

Crabtree, Douglas E.

Crandall, Michael G.
1 Norm preserving extensions of linear transformations on Hilbert spaces, 21 (1969), 335-340.  47A20; 47B44

Crawford, Albert L.
1 (with Jobe, John) A characterization of hereditarily indecomposable continua, 27 (1971), 205-208.  54E30 54F20; 54D05 54E35

Creede, Geoffrey D.
1 Embedding of complete Moore spaces, 28 (1971), 609-612.  54C25 54E30; 54D30 54D35

Crittenden, Richard B.
1 (with Vanden Eynden, C. L.) Any $n$ arithmetic progressions covering the first $2^n$ integers cover all integers, 24 (1970), 475-481.  10A10

Cronin-Scanlon, Jane
1 Quasilinear systems with several periodic solutions, 30 (1971), 107-111.  34C15 34C25

Cullen, Michael R.
1 Meromorphic functions which cluster on the boundary, 23 (1969), 588-589.  30A72; 30A68 30A76

Cunsolo, J.
1 (with Akcoglu, M. A.) An ergodic theorem for semigroups, 24 (1970), 161-170.  28A65

Cuppes, Roger
1 On the decomposition of infinitely divisible characteristic functions with continuous Poisson spectrum, 21 (1969), 145-152.  60B15 60E05 62E10

Curtis, Douglas W.
1 Deficient subsets in locally convex spaces, 21 (1969), 289-295.  46A05 57A17; 55D99
2 (with McCoy, R. A.) Stable homeomorphisms on infinite-dimensional normed linear spaces, 28 (1971), 496-500.  58B05

Curtis, Morton L.
1 (with Dugundji, John) Groups which are cogroups, 22 (1969), 235-237.  22C05; 54F60

Cusick, T. W.
AUTHOR INDEX FOR VOLUMES 21-30

1 Sums and products of continued fractions, 27 (1971), 35-38. 10A30
2 (with Lee, R. A.) Sums of sets of continued fractions, 30 (1971), 241-246. 10F20

Cutler, Doyle O.
1 (with Winthrop, Joel) A note on a paper of Paul Hill and Charles Megibben, 22 (1969), 428-429. 20K10
2 Another summable \(C_\alpha\)-group, 26 (1970), 43-44. 20K10

Cutler, William H.
1 Negligible subsets of infinite dimensional Fréchet manifolds, 23 (1969), 668-675. 57A20 58B05 58B20; 54E35

Darst, Richard B.
1 Properties of vector valued finitely additive set functions, 23 (1969), 528-535. 28A45
3 On the 1-1 sum of two Borel sets, 25 (1970), 914. 04A15 28A05 54H05; 02K30 54H05
4 \(C^\omega\)-functions need not be bimeasurable, 27 (1971), 128-132. 02K30 04A15 26A93 28A05 54H05; 28A20
5 A characterization of bimeasurable functions in terms of universally measurable sets, 27 (1971), 566-571. 02K25 02K30 04A15 04A30 26A21 28A05 28A10 28A25 28A60 54H05; 26A93 28A35

Das, K. M.
1 An inequality similar to Opial’s inequality, 22 (1969), 258-261. 26A84

Das, Minaketan
1 Real zeros of a random sum of orthogonal polynomials, 27 (1971), 147-153. 26A78 33A65 42A52 60F99 62E20; 60E05

Daverman, Robert J.
1 A new proof for the Hosay-Lininger theorem about crumpled cubes, 23 (1969), 52-54. 57A10

Davie, Alexander M.
1 (with Øksendal, B. K.) Rational approximation on the union of sets, 29 (1971), 581-584. 30A82 46J15

Davies, Roy O.
1 (with Hayes, Allan and Rousseau, George) Complete lattices and the generalized Cantor theorem, 27 (1971), 253-258. 06A10; 06A20

Davis, Harvey S.
1 (with Bellamy, David P.) Continuum neighborhoods and filterbases, 27 (1971), 371-374. 54F15

Davis, R. D.
1 (with Wishart, E.) Galois extensions and the ramification sequence of some wildly ramified \(\pi\)-adic fields, 30 (1971), 212-216. 12B10 12B15

Davis, Robert
1 Component functors, 24 (1970), 396-400. 18C15; 18B05
3 Semiadjoint functors and quintuples, 27 (1971), 477-482. 18A40; 14K99

Davis, Wilbor P.
1 (with Chatfield, J. A.) Concerning product integrals and exponentials, 25 (1970), 743-747. 26A39 26A42 26A45; 45D05

Davis, William J.
1 Basis preserving maps, 22 (1969), 34-36. 46B15

Davitt, Richard M.
1 The automorphism group of a finite metacyclic p-group, 25 (1970), 876-879. 20D15 20D45
2 (with Otto, Albert D.) On the automorphism group of a finite p-group with the central quotient metacyclic, 30 (1971), 467-472. 20D45

Daykin, David E.
1 Generalisation of the Muirhead-Rado inequality, 30 (1971), 84-86. 26A86

Dean, Richard A.
1 (with Evans, Trevor) A remark on varieties of lattices and semigroups, 21 (1969), 394-396. 06A20 08A15 20M05

Deddens, James A.
1 Commuting unilateral shifts, 25 (1970), 96-99. 47A45
2 Every isometry is reflexive, 28 (1971), 509-512. 47A15; 47A50

De Marco, Giuseppe
1 (with Wilson, R. G.) Realcompactness and partitions of unity, 30 (1971), 189-194. 54C40 54D60; 54A25 54D20 54E15
2 (with Orsatti, Adalberto) Commutative rings in which every prime ideal is contained in a unique maximal ideal, 30 (1971), 459-466. 13A10 13A15; 54C40

DeMarr, Ralph E.
1 Convergence of a sequence of powers, 23 (1969), 401-403. 06A10 06A70 15A51

DeMeyer, Frank R.
1 Groups with an irreducible character of large degree are solvable, 25 (1970), 615-617. 20C15 20D10

Deo, S. G.
1 (with Murdeshwar, M. G.) On a system of integral inequalities, 26 (1970), 141-144. 34A40
2 On vector Lyapunov functions, 29 (1971), 575-580. 34D20; 34A40

Dettman, John W.
1 (with Bragg, Louis R.) A class of related Dirichlet and initial value problems, 21 (1969), 50-56. 35A22 35G15
2 (with Bragg, Louis R.) Multinomial representation of solutions of a class of singular initial value problems, 21 (1969), 629-634. 35A20 35C10 35Q05

Deutsch, Emeric
1 On vectorial norms and pseudonorms, 28 (1971), 18-24. 15A60; 46B10

Diaz, Joaquin B.
1 (with Young, Eutiquio C.) Uniqueness of solutions of certain boundary value problems for ultrahyperbolic equations, 29 (1971), 569-574. 35G15; 35A05 35L20

Dickey, R. W.
1 Infinite systems of nonlinear oscillation equations related to the string, 23 (1969), 459-468. 34C15; 34A35
Dickman, R. F., Jr.
1 A theorem on one-to-one mappings onto the plane, 21 (1969), 119-120.
57A05; 54F25 54F65

Dickson, Spencer E.
1 (with Fuller, Kent R.) Commutative QF-1 Artinian rings are QF, 24 (1970), 667-670.
13E10 16A36

Dietrich, William E., Jr.
1 A note on the ideal structure of $C(X)$, 23 (1969), 174-178.
46J10 46J20

Dikshit, H. P.
42A24; 42A40
42A28
40E05; 40G05

Dinculeanu, Nicolae
1 (with Lewis, Paul W.) Regularity of Baire measures, 26 (1970), 92-94.
28A45; 26A21 28A10

Ditzian, Zeev
1 On Hille's first exponential formula, 22 (1969), 351-355.
47D05
47D05

Dixon, John D.
1 A brief proof of Cauchy's integral theorem, 29 (1971), 625-626.
30A86

Doković, Dragomir Ž.
1 Note on nonnegative matrices, 25 (1970), 80-82.
15A48 15A51
2 A determinantal inequality for projectors in a unitary space, 27 (1971), 19-23.
15A45 15A63; 46C05

Dollinger, Michael B.
1 Nuclear topologies consistent with a duality, 23 (1969), 565-568.
46A20

Dornhoff, Larry
1 Jordan's theorem for solvable groups, 24 (1970), 533-537.
20D10 20H20

Doss, Raouf
43A05 43A30

Dotson, W. G., Jr.
47A50

Douglas, Ronald George
1 (with Sarason, Donald) Fredholm Toeplitz operators, 26 (1970), 117-120.
47B30 47B35

Downing, J. Scott
1 Decomposing compact 3-manifolds into homeomorphic handlebodies, 24 (1970), 241-244.
57A10 57C99 57D65

Doyle, Patrick H.
57A10; 55A40

Drobot, Vladimir
1 Overconvergence and \((C, 1)\) summability, 25 (1970), 13-15. 30A10 30A12

Dubuc, Serge
1 Positive harmonic functions of a branching process, 21 (1969), 324-326. 31C20 60J05 60J80; 60J45

Dudley, R. M.
1 Convergence of sequences of distributions, 27 (1971), 531-534. 46F05

Dugundji, John
1 (with Curtis, Morton L.) Groups which are cogroups, 22 (1969), 235-237. 22C05; 54F60

Duncan, R. L.
1 On the factorization of integers, 25 (1970), 191-192. 10A25
2 Some applications of the Turán-Kubilius inequality, 30 (1971), 69-72. 10K20

Dunkl, Charles F.
1 Functions that operate in the Fourier algebra of a compact group, 21 (1969), 540-544. 43A15 43A20 43A75
2 (with Ramirez, Donald E.) Multipliers on compact groups, 28 (1971), 456-460. 43A22; 46H25

Duren, Peter L.
1 On the multipliers of \(H^p\) spaces, 22 (1969), 24-27. 30A78
2 Coefficients of meromorphic schlicht functions, 28 (1971), 169-172. 30A34

Dyer, James A.
1 (with Johnson, W. B.) Isomorphisms generated by fundamental and total sets, 22 (1969), 330-334. 46A35

Dykstra, Richard L.
1 A note on a theorem by H. D. Brunk, 24 (1970), 171-174. 47B55

Eastham, M. S. P.
1 On the gaps in the spectrum associated with Hill's equation, 21 (1969), 643-647. 34B25

Eaton, William T.
1 Taming a surface by piercing with disks, 22 (1969), 724-727. 57A10; 54F35 55A35 57A05

Eaves, B. Curtis
1 An odd theorem, 26 (1970), 509-513. 54A25 55C20; 54H25

Ebin, David G.
1 Completeness of Hamiltonian vector fields, 26 (1970), 632-634. 34A10 34A35 34C35

Edelson, Allan L.
1 Real line bundles on spheres, 27 (1971), 579-583. 55E20 55E99 55F25 55F50

Edmonds, Don E.
1 Modularity in topological lattices, 21 (1969), 81-82. 06A30 54F05; 22A15

Edwards, J. R.
1 A sufficient condition that the limit of a sequence of continuous functions be an embedding, 26 (1970), 224-225. 54A20 54C25 54E35 54E50; 54C05
2 (with Wayment, S. G.) A \(\nu\)-integral representation for linear operators on a space of continuous vector valued functions, 30 (1971), 260-262. 28A45 46E10
3 (with Wayment, S. G.) A \(\nu\)-integral representation for the continuous linear operators on spaces of continuously differentiable vector-valued functions, 30 (1971), 263-270. 28A45 46E10
AUTHOR INDEX FOR VOLUMES 21-30

Efroymson, Gustave

1. The cohomology ring of a finite group scheme, 26 (1970), 567-570. 14L20

Eifler, Larry

1. The slice product of function algebras, 23 (1969), 559-564. 46J10; 30A98

Einhorn, Sheldon J.

1. Functions positive definite in $C[0,1]$, 22 (1969), 702-703. 26A96; 42A88

Eisenberg, Murray

1. Embedding a transformation group in an automorphism group, 23 (1969), 276-281. 54H15; 54H20

Eklof, Paul C.

1. On the existence of $L_{\infty}$-indiscernibles, 25 (1970), 798-800. 02B25 02C05 02H10

Eldridge, Klaus E.

1. On ring structures determined by groups, 23 (1969), 472-477. 16A46
2. Correction to: On ring structures determined by groups, 25 (1970), 202. 16A46

Elliott, George A.

1. Ideal preserving automorphisms of postliminary $C^*$-algebras, 27 (1971), 107-109. 46L05; 46H10
2. A characterization of compact groups, 29 (1971), 621. 22C05

Ellis, Robert L.

1. Extending uniformly continuous pseudo-ultrametrics and uniform retracts, 30 (1971), 599-602. 54C20 54E35; 54C15 54F50

Emerson, William R.

1. Groups defined by permutations of a single word, 21 (1969), 386-390. 20F05 32C25 32C30

Engelking, Ryszard

1. On closed images of the space of irrationals, 21 (1969), 583-586. 54E35

Enochs, Edgar E.

1. (with Coleman, Donald B.) Isomorphic polynomial rings, 27 (1971), 247-252. 10M05 13F20 16A40

Erbe, Lynn H.

1. Oscillation theorems for second order nonlinear differential equations, 24 (1970), 811-814. 34C15

Erdős, Paul

2. (with Kleitman, Daniel J.) On collections of subsets containing no 4-member Boolean algebra, 28 (1971), 87-90. 05A05 05A20

Etgen, Garret J.

1. Oscillation criteria for nonlinear second order matrix differential equations, 27 (1971), 259-267. 34C10
2. (with Scott, J. B.) On the conjugate points of fourth order, selfadjoint linear differential equations, 29 (1971), 349-350. 34C10

Etter, Daniel O., Jr.

1. The algebra of log-summable functions, 25 (1970), 1-7. 46E30 46H05

Evans, B. D.
AUTHOR INDEX FOR VOLUMES 21-30


Evans, E. Graham, Jr.
1 A generalization of Zariski’s main theorem, 26 (1970), 45-48.
13B20 14A05 14E05
2 Projective modules as fiber bundles, 27 (1971), 623-626. 16A80 18F25; 13J20

Evans, Trevor
1 (with Dean, Richard A.) A remark on varieties of lattices and semigroups, 21 (1969), 394-396. 06A20 08A15 20M05

Evyatar, Asriel

Fabian, R. J.
1 (with Kent, C. F.) Recursive functions defined by ordinal recursions, 23 (1969), 206-210. 02F27

Farkas, Hershel M.
1 Abelian differentials with double zeros, 28 (1971), 155-162. 30A52

Faudree, R. J.
1 Locally finite and solvable subgroups of fields, 22 (1969), 407-413. 16A40 20C05 20E25 20E35; 16A30 16A72 20D10 20E15
2 Groups in which each element commutes with its endomorphic images, 27 (1971), 236-240. 20D15; 20D10 20F45

Fein, Burton
1 Extensions of group representations over fields of prime characteristic, 23 (1969), 11-13. 20C20
2 A note on the Brauer-Speiser theorem, 25 (1970), 620-621. 20C15

Ferguson, Edward N.
1 Commutative rings in clans with zero, 23 (1969), 304-305. 22A15; 20M10

Fernholz, E. R.
1 Bounds for holomorphic vector fields, 22 (1969), 344-350. 32C15 32E05

Feuer, R. D.
1 Torsion-free subgroups of triangle groups, 30 (1971), 235-240. 20H10

Feustel, C. D.
1 \( \mathbb{R}^3 \) admitting a certain embedding of \( P^2 \) is a pseudo \( P^3 \), 26 (1970), 215-216. 55A99 57C35 57C99; 55A05 55A10 55D15

Fiedler, Miroslav
1 Bounds for the determinant of the sum of hermitian matrices, 30 (1971), 27-31. 15A15 15A18

Fields, David E.
1 Zero divisors and nilpotent elements in power series rings, 27 (1971), 427-433. 13A15 13B99; 13E05 13J05

Fields, K. L.
1 Two remarks on the group algebra of a finite group, 30 (1971), 247-248. 20C05 20C15

Figá-Talamanca, Alessandro
1 Bounded and continuous random Fourier series on noncommutative groups, 22
AUTHOR INDEX FOR VOLUMES 21-30

Fillmore, Jay P.
1 Barbier's theorem in the Lobachevsky plane, 24 (1970), 705-709. 43A15 43A25 43A30

Fink, A. M.
1 (with St. Mary, Donald F.) On an inequality of Nehari, 21 (1969), 640-642. 34C10
2 Almost periodicity of the inverse of a fundamental matrix, 27 (1971), 527-528. 34C25

Fink, James P.
1 Complete continuity of the inverse of a positive symmetric operator, 25 (1970), 147-150. 47B25; 47A10

Finkelstein, M.
1 (with Lebow, Arnold) A note on 'Nth roots of operators', 21 (1969), 250. 47A60

Fisher, J. L.
1 Embedding free algebras in skew fields, 30 (1971), 453-458. 16A08 16A40; 16A06

Fitzgerald, Carl H.
1 Analyticity and continuation of certain functions of two complex variables, 25 (1970), 536-540. 32D15 32H10

Fitzpatrick, Ben, Jr.
1 Concerning upper semicontinuous decompositions of irreducible continua, 24 (1970), 197-203. 54F20; 54B15
2 Concerning upper semicontinuous decompositions of irreducible continua, 30 (1971), 157-163. 54B15 54F15

Flaschka, Hermann
1 An asymptotic property of the roots of polynomials, 27 (1971), 451-456. 30A08; 12D10

Flatto, Leopold
1 A new proof of the transposition theorem, 24 (1970), 29-31. 15A39

Fleischman, W. M.
1 (with Gulden, Samuel L. and Weston, J. H.) Linearly ordered topological spaces, 24 (1970), 197-203. 54D20 54F05; 06A45 54A25 54D30

Fleming, D. J.
1 (with Jessup, P. G.) Perfect matrix methods, 29 (1971), 319-324. 40C05 40D20 40H05

Fletcher, Peter
1 (with McCoy, R. A. and Slover, Rebecca Ellen) On boundedly metacompact and boundedly paracompact spaces, 25 (1970), 335-342. 54D15 54D20 54F45

Fleury, Patrick J.
1 Splittings of Hochschild's complex for commutative algebras, 30 (1971), 405-411. 18G35 18H20; 20C05

Flory, Volker
1 On the Fourier-algebra of a locally compact amenable group, 29 (1971), 603-606. 22D15 22D20 22D25

Foguel, Shaul Reuven
1 Positive operators on C(X), 22 (1969), 295-297. 28A30 47A65 54C40 54D30
Formanek, Edward

   18H10 20J05; 20F05

   20C15 20D45

Fort, Tomlinson

1. The nonhomogenous linear difference equation with variable difference interval, 22 (1969), 262-269.
   39A10

Fossum, Timothy V.

   20C15

Fournier, Gilles

   54E40; 54E35

Fox, Charles

   44A15 44H05 45H05

   34B15; 34A40

Francis, George K.

   30A90 57A05 57D10 57D40

Franke, Charles H.

   12H10 13B05

Franklin, Lawrence M.

   57E10

Franklin, Stanley P.

   54D30 54D55; 54A25

Franks, R. L.

   26A18 47H10 54H25; 40A05 65Q05

Fraser, Grant A.

   08A05 08A15

Fraser, Robert B., Jr.

   54E35; 54D05 54E15

French, James A.

   54D15 54F45

Fridy, J. A.

   40C05 40F05

Friedberg, Stephen
1 The Fourier transform is onto only when the group is finite, 27 (1971), 421-422.  
43A25; 42A72

2 Functions which are Fourier-Stieltjes transforms, 28 (1971), 451-452.  
43A25

Friedell, J. C.
1 (with Saworotnow, Parfeny P.) Trace-class for an arbitrary $H^*$-algebra, 26 (1970),  
95-100. 46K15 47B10

Friedland, Schmuel
1 (with Nehari, Zeev) Univalence conditions and Sturm-Liouville eigenvalues, 24  
(1970), 595-603. 34B25

Friedman, Neal
46E15

Friesen, Donald K.
1 Products of normal supersolvable subgroups, 30 (1971), 46-48.  20D40

Frolík, Zdeněk
1 Stone-Weierstrass theorems for $C(X)$ with the sequential topology, 27 (1971), 486-  
494. 54D20 54H05

Fuller, Kent R.
1 (with Dickson, Spencer E.) Commutative QF-1 Artinian rings are QF, 24 (1970),  
667-670. 13E10 16A36

Fuller, R. V.
1 Semiuniform spaces and topological homeomorphism groups, 26 (1970), 365-368.  
54C35; 54E15 54H15

Fulp, Ronald O.
1 Character semigroups of locally compact inverse semigroups, 27 (1971), 613-618.  
22A15

Fulton, Curtis M.
1 Ruled surfaces in elliptic space, 24 (1970), 617-620.  53A35

Furuta, Takayuki
1 (with Nakamoto, Ritsuo) Certain numerical radius contraction operators, 29 (1971),  
521-524. 47A10 47A30

Galbraith, A. S.
1 Lower bounds to the zeros of solutions of $y'' + p(x)y = 0$, 26 (1970), 111-116.  
34C10

Galewski, Donald E.
1 (with Costich, O. L. and Doyle, Patrick H.) A characterization of punctured open  
3-cells, 28 (1971), 295-298. 57A10; 55A40

Galvin, Fred
1 (with Horn, Alfred) Operations preserving all equivalence relations, 24 (1970),  
521-523. 08A05

Garabedian, Paul R.
1 An unsolvable equation, 25 (1970), 207-208. 35A05 35F05

Garofa Méynez, Adalberto
54D05 54D10

Garling, D. J. H.
1 Some remarks on injective envelopes, 27 (1971), 503-505. 46B99 54E35

Garrett, John
1 Positive length but zero analytic capacity, 24 (1970), 696-699; Erratum: 26 (1970),
701.  

Gauld, David
   57A50; 57A45

Gelbaum, Bernard R.
   55F10; 28A05
   28A10; 54E35
   46H05
   46H10 46M05

Gellar, Ralph
   46H15 47B99; 46A35 46A45
   06A70 15A42 15A48

Gentile, Enzo R.
   16A26 16A52; 20C05

George, John H.
   34B15
2. **Application of Liapunov's direct method to fixed point theorems**, 28 (1971), 613-620.  
   54C60 54H25; 54E35 54E45

Geroch, Robert P.
1. **No topologies characterize differentiability as continuity**, 28 (1971), 273-274.  
   54C05 54C30; 26A27

Gersten, Stephen M.
   13D15 16A54 18F25

Geveci, Tunc
   30A72 53A10; 30A30 31A20

Gibson, Peter M.
   15A15; 05B20

Giellis, George R.
1. **Trace-class for a Hilbert module**, 29 (1971), 63-68.  
   46H25 46K15; 46C10

Gilbert, Richard C.
   47A45 47B25
   47A20

Gilfeather, Frank
   46L99 47B05; 47A50
   47B05; 47A10 47A65
   47A20 47C15

Gillam, J. D.
AUTHOR INDEX FOR VOLUMES 21-30

Gillman, David S.
1 A note on finite metabelian $p$-groups, 25 (1970), 189-190. 20D15

Gilman, Robert
1 A five sphere decomposition of $E^{2n-1}$, 24 (1970), 747-753. 57A15; 57A10

Gilmer, Robert W., Jr.
1 A note on generating sets for invertible ideals, 22 (1969), 426-427. 13C10; 13G05
3 (with Mott, Joe Leonard) An algebraic proof of a theorem of A. Robinson, 29 (1971), 461-466. 14A25; 13L05

Ginsberg, Jonathan I.
1 Generators of $S_n$, 24 (1970), 784-787. 30A82; 46E15
2 Completeness of $\sin nx + Ki \cos nx$, 29 (1971), 291-293. 42A64

Gitler, Samuel
1 (with Mahowald, Mark E. and Milgram, R. James) Secondary cohomology operations and complex vector bundles, 22 (1969), 223-229. 55F25 55F40 55G10 55G20; 55G45 57F15

Glaser, Leslie C.
1 Monotone noncompact mappings of $E^r$ onto $E^k$ for $r \geq 4$ and $k \geq 3$, 23 (1969), 282-286. 54C10 57A15; 54F15

Glasner, Moses
1 (with Chow, Kwang-nan) Bounded in the mean solutions of $\Delta u = Pu$ on Riemannian manifolds, 26 (1970), 261-265. 31B05 31B35; 31C25 31D05 35J20 53B20 53C20
2 Energy-finite solutions of $\Delta u = Pu$ and Dirichlet mappings, 29 (1971), 553-556. 30A50 30A60 31B99 35J15; 46J10 53C99

Glover, H. H.
1 (with Becker, James C.) Note on the embedding of manifolds in Euclidean space, 27 (1971), 405-410. 57D40 57D99; 55F25 55G40
2 (with Huneke, John Philip) Some spaces that do not have the common fixed point property, 29 (1971), 190-196. 55C20 57A99

Golan, Jonathan S.
1 Characterization of rings using quasiprojective modules. II, 28 (1971), 337-343. 16A42 16A50 16A60; 18G20

Goldberg, J. L.
1 (with Brown, J. W.) Index-dependent parameters of Laguerre and related polynomial sets, 25 (1970), 852-855. 33A65; 33A30

Goldberg, Samuel Irving
1 Integrability of almost Kaehler manifolds, 21 (1969), 96-100. 53B35 53C15

Goldman, Jerry I.
1 Nodal algebras of dimension $p^3$, 24 (1970), 156-160. 17A15 17A25

Goldman, Lawrence
1 Algebraic structure of the manifold of solutions of the $N$-body problem, 25 (1970), 417-422. 12H05 70F10

Goldstein, Jerome A.
1 Some remarks on infinitesimal generators of analytic semigroups, 22 (1969), 91-93.
AUTHOR INDEX FOR VOLUMES 21-30

Goldstein, Myron
2 (with Ow, Wellington H.) On the mean-value property of harmonic functions, 29 (1971), 341-344.

Goldwitzer, H. E.
1 A note on a functional inequality, 23 (1969), 642-647.
2 Nonoscillation theorems for a nonlinear differential equation, 26 (1970), 78-84.

Gonshor, Harry

Goodman, Adolph W.

Goodman, Victor
1 Quasi-differentiable functions on Banach spaces, 30 (1971), 367-370.

Goodrich, Robert K.
1 A Riesz representation theorem, 24 (1970), 629-636.

Goodrick, Richard E.
1 A note on Seifert circles, 21 (1969), 615-617.

Goodwyn, Lew Wayne

Gordon, William B.

Goto, Morikuni
1 Products of two one-parameter subgroups, 22 (1969), 554.

Gottlieb, David

Gowrisankaran, Chandra
1 Radon measures on groups, 25 (1970), 381-384.

Grabiner, Sandy
1 The nilpotency of Banach nil algebras, 21 (1969), 510.

Graham, Colin C.
1 Symbolic calculus for algebras of Fourier-Stieltjes transforms, 23 (1969), 311-314.
2 $M_0(G)$ is not a prime $L$-ideal of measures, 27 (1971), 557-562.
AUTHOR INDEX FOR VOLUMES 21-30

1 (with Padmanabhan, R.) On idempotent, commutative, and nonassociative groupoids, 28 (1971), 75-80. 08A05 08A25; 20L05

Gray, William J.
1 (with Roberson, Fred A.) On the near equicontinuity of transformation groups, 23 (1969), 59-63. 34A10 54H15; 54H20 54H25
2 (with Vaughan, Loy Ottis, Jr.) The almost fixed point property for hereditarily unicoherent continua, 27 (1971), 381-386. 54C60 54H25; 54F50

Greenfield, Stephen J.
1 Upper bounds on the dimension of extendibility of submanifolds in $C^n$, 23 (1969), 185-189. 32A10 32C05 58C10; 32E05

Greenleaf, Newcomb
1 Watts cohomology of field extensions, 21 (1969), 208-210. 18H20

Greenlee, W. M.
1 A two parameter perturbation estimate, 24 (1970), 67-74. 35B25 35B30
2 On two parameter singular perturbation of linear boundary value problems, 27 (1971), 268-274. 35B25 47A55; 35J40

Greenwell, D. L.
1 Reconstructing graphs, 30 (1971), 431-433. 05C99

Greenwood, Priscilla E.
1 An asymptotic estimate of Brownian path variation, 21 (1969), 134-138. 60G17 60J65

Gregorac, Robert J.
1 On residually finite generalized free products, 24 (1970), 553-555. 20E30 20F15

Gregory, D. A.
1 (with Shapiro, J. H.) Nonconvex linear topologies with the Hahn Banach extension property, 25 (1970), 902-905. 46A15

Griffith, Phillip A.
1 Extensions of free groups by torsion groups, 24 (1970), 677-679. 20K10 20K35

Gross, Fletcher
1 p-solvable groups with few automorphism classes of subgroups of order $p$, 30 (1971), 437-444. 20D45

Gross, Jonathan L.
1 An infinite class of irreducible homology 3-spheres, 25 (1970), 173-176. 55A05 55A25 57A10
2 Prime 3-manifolds and the doubling operation, 27 (1971), 375-380. 55A99 57A10
Grosshans, Frank
14L10 16A40

Grove, Larry C.
1 Real representations of metacyclic groups, 21 (1969), 417-421. 20C10
2 (with Benson, Clark T.) Generators and relations for Coxeter groups, 24 (1970), 545-547.
20F05 20H15

Gudder, Stanley P.
1 Quantum probability spaces, 21 (1969), 296-302. 81A12
06A10 20M15; 06A25 06A30
06A10

Gugenheimer, Heinrich W.
34A30 34C10

Gulden, Samuel L.
54D20 54F05; 06A45 54A25 54D30

Gunderson, R. W.
1 A comparison lemma for higher order trajectory derivatives, 27 (1971), 543-548.
34A40; 34D20

Gupta, Narain Datt
1 The free metabelian group of exponent $p^2$, 22 (1969), 375-376. 20F50

Gupta, Ram Niwas
1 Nilpotent matrices with invertible transpose, 24 (1970), 572-575. 15A33

Guseman, Lawrence F., Jr.
1 Fixed point theorems for mappings with a contractive iterate at a point, 26 (1970), 615-618.
47H10

Gustafson, G. B.
34C10

Gustafson, Karl
47A10

Gutiérrez-Novoa, Lino
1 Independence of a certain axiomatic system, 22 (1969), 470.
50A05

Hadlock, E. H.
10C05

Haeuslein, G. K.
12D99

Hag, Kari
1 A theorem on $T$-fractions corresponding to a rational function, 25 (1970), 247-253.
30A22; 40A15

Hagan, Melvin R.
   54C10; 54D05 54F55

   54C10 54D05; 54F20

Hager, Anthony W.
   54C40; 54A25

2. The projective resolution of a compact space, 28 (1971), 262-266.  
   54D30 54D35; 18B99 54C05 54C10 54C15

Hager, R. A.
   45D05 45G99

Hagis, Peter, Jr.
   10A45

Hagopian, Charles L.
   54F15 54F20; 54B10 54E45

   54F20 54A05; 54F25

Hahn, Liang-shin
1. A theorem on multipliers of type (p, q), 21 (1969), 493-495.  
   43A22

Haimo, Deborah Tepper
1. An integral representation for generalized temperatures in two space variables, 30 (1971), 533-538.  
   35C15 35K05

Haimo, Franklin
   16A21 16A42

Hájek, Otomar
   34C35; 58F10

Hale, Jack K.
   34K20

Hales, A. W.
   06A20; 08A10

Hall, C. E.
   18G05 22A05; 18D35

Hall, Michael H.
   10D05 12A25 32N99; 55D10

Hallam, Thomas G.
1. An asymptotic expansion for a nonhomogeneous linear system, 22 (1969), 489-497.  
   34E05

   34D05

Halpern, Benjamin R.
   52A30

   28A20 46E30

3. On the immersion of an n-dimensional manifold in n+1-dimensional Euclidean
space, 30 (1971), 181-184. 57D40

Halpern, James D.
1 (with Howard, Paul E.) Cardinals $m$ such that $2m = m$, 26 (1970), 487-490. 02K20 04A25

Hammett, Michael E.
1 Nonoscillation properties of a nonlinear differential equation, 30 (1971), 92-96. 34C15 34D05

Hamstrom, Mary-Elizabeth

Hansell, Roger W.
1 General embedding properties of absolute Borel and Souslin spaces, 27 (1971), 343-352. 02K30 04A15 28A05 54D35 54H05; 54E35

Hansen, Wolfhard
1 (with Kenelly, John W., Jr.) Intersection theorems for positive sets, 22 (1969), 450-457. 52A20 52A35

Hanson, T. H. McH.
1 Some semigroups on a manifold with boundary, 25 (1970), 830-835. 22A15 54H15 57E99; 22E15 22E99 57A15

Hare, William R.
2 (with Kenelly, John W., Jr.) Sets expressible as unions of two convex sets, 25 (1970), 379-380. 52A05 53A30
3 (with Stavrakas, Nick M. and Kenelly, John ) Two cells with $N$ points of local nonconvexity, 27 (1971), 331-336. 52A10

Harrell, C. E.
1 Riesz matrices that are also Hausdorff matrices, 22 (1969), 303-304. 40G05 40G99

Harrison, K. J.
1 (with Radjavi, Heydar and Rosenthal, Peter) A transitive medial subspace lattice, 28 (1971), 119-121. 47A15; 47C05

Hartfiel, D. J.
1 A simplified form for nearly reducible and nearly decomposable matrices, 24 (1970), 388-393. 15A21
2 On constructing nearly decomposable matrices, 27 (1971), 222-228. 15A21; 15A15 15A36 15A48
3 Concerning diagonal similarity of irreducible matrices, 30 (1971), 419-425. 15A21 15A30; 15A60

Hartman, Philip
1 On disconjugacy criteria, 24 (1970), 374-381. 28A65 34C10

Hartmann, Frederick
1 Inclusion theorems for Sonnenschein matrices, 21 (1969), 513-519. 40C15 40D25; 40G99

Harvey, Charles
1 (with Harvey, Reese) Open mappings and the lack of fully completness of $\mathcal{D}(\Omega)$, 25 (1970), 786-790. 35E10 46A30; 46E35

Harvey, Reese
1 (with Harvey, Charles) **Open mappings and the lack of fully completeness of \( L'(\Omega) \),** 25 (1970), 786-790. 35E10 46A30; 46E35

**Hasegawa, Minoru**
1 **On quasi-analytic vectors for dissipative operators,** 29 (1971), 81-84. 47B44; 47D05

**Haskins, L.**
1 (with Gudder, Stanley P.) **Semimodular posets and the Jordan-Dedekind chain condition,** 28 (1971), 395-396. 06A10

**Haslam, H. B.**
1 **On \( H \)-spaces mod \( \mathbb{C}_p \),** 30 (1971), 383-387. 55D45 55E05; 55E15

**Haslam, Harold B.**
1 **\( H \)-spaces and the suspension homeomorphism,** 26 (1970), 689-694. 55D40 55D45 55G45; 55E15
2 **A Whitehead type theorem,** 29 (1971), 599-602. 55D45 55E05

**Hawley, Douglas**
1 **Compact group topologies for \( R \),** 30 (1971), 566-572. 22B05; 28A20 28A70

**Hayes, Allan**
1 (with Davies, Roy O. and Rousseau, George) **Complete lattices and the generalized Cantor theorem,** 27 (1971), 253-258. 06A10; 06A20

**Haynsworth, Emilie V.**
1 (with Crabtree, Douglas E.) **An identity for the Schur complement of a matrix,** 22 (1969), 364-366. 15A24
2 **Applications of an inequality for the Schur complement,** 24 (1970), 512-516. 15A24

**Headley, V. B.**
1 **Some oscillation properties of selfadjoint elliptic equations,** 25 (1970), 824-829. 35B05 35J15

**Hebert, D. J., Jr.**
1 **Generalized balayage and a Radon-Nikodym theorem,** 26 (1970), 165-167. 31C15 60G45 60J45; 46A40

**Hedlund, James H.**
1 **Multipliers of \( H^1 \) and Hankel matrices,** 22 (1969), 20-23. 30A78

**Heidel, Jon W.**
1 **A nonoscillation theorem for a nonlinear second order differential equation,** 22 (1969), 485-488. 34C15

**Heil, Wolfgang**
1 **On the existence of incompressible surfaces in certain 3-manifolds,** 23 (1969), 704-707. 55A25 57A10; 55A05
2 **On the existence of incompressible surfaces in certain 3-manifolds. II,** 25 (1970), 429-432. 55A05 55A25

**Heinicke, A. G.**
1 **Subdirect sums, hereditary radicals, and structure spaces,** 25 (1970), 29-33. 16A21 16A48; 54H10

**Heinzer, Martin N.**
1 **Higher derivations of Wildly ramified \( v \)-rings,** 23 (1969), 94-100. 13B10 13B15

**Heinzer, William J.**
1 **On Krull overrings of a noetherian domain,** 22 (1969), 217-222.
13A15 13E05

2 Integral ring extensions and prime ideals of infinite rank, 28 (1970), 344-346.

13A15 13A20

Helton, Burrell, W.


26A39 26A84

2 Solutions of \( f(x) = f(a) + (RL) \int_a^x (fH + fG) \) for rings, 25 (1970), 735-742.

26A39 45A05; 46L99

Henderson, George W.


54B20 54C25 54F20 54F50; 57A10

Hengartner, Walter

1 (with Schober, G. E.) Analytic functions close to mappings convex in one direction, 28 (1971), 519-524.

30A32 30A34

Henry, Myron S.


34A45

Hentzel, Irvin Roy

1 (-1, 1) rings, 22 (1969), 367-374.

17A30 17D05 17E05


17A30 17D05 17E05

Hermes, Henry


34A10

Herod, J. V.


45D05


26A30 26A86

3 A product integral representation for an evolution system, 27 (1971), 549-556.

47D05 47H15

Herrlich, Horst


54D25 54G20; 54B10

Herzog, Marcel


20D05

2 On groups of order \( 2^a 3^B \cdot p^y \) with a cyclic Sylow 3-subgroup, 24 (1970), 116-118.

20D05


20C15

Hess, Peter

1 A variational approach to a class of nonlinear eigenvalue problems, 29 (1971), 272-276.

47H99; 47H05 49G05

2 On nonlinear equations of Hammerstein type in Banach spaces, 30 (1971), 308-312.

45G99 47A50 47H15

Hethcote, Herbert W.

1 Bounds for zeros of some special functions, 25 (1970), 72-74.

34C10

Heyde, C. C.

1 A note concerning behaviour of iterated logarithm type, 23 (1969), 85-90.
Hickin, Kenneth K.
1 A class of groups whose local sequence is nonstationary, 21 (1969), 402-408.
20E10 20E15

Hildebrandt, John A.
1 The universal compact subunithetic semigroup, 23 (1969), 220-224. 22A15

Hill, E. T.
1 The annihilator of radical powers in the modular group ring of a p-group, 25 (1970), 811-815. 20C05; 16A26
2 Ideals in the modular group ring of a p-group, 28 (1971), 389-390. 20C05 20C20

Hill, Paul D.
1 On transitive and fully transitive primary groups, 22 (1969), 414-417. 20K30
2 A summable $C\alpha$-group, 23 (1969), 428-430. 20E15
3 Automorphisms of countable primary abelian groups, 25 (1970), 135-140. 20K30
4 A note on extensions of free groups by torsion groups, 27 (1971), 24-28. 20K10 20K35

Hiliker, D. L.
1 (with Straus, Ernst G.) Some p-adic versions of Polya’s theorem on integer valued analytic functions, 26 (1970), 395-400. 12B05

Himmelberg, Charles J.
1 (with Porter, Jack R. and Van Vleck, F. S.) Fixed point theorems for condensing multifunctions, 23 (1969), 635-641. 47H10

Hindley, Roger
1 (with Lercher, Bruce) A short proof of Curry’s normal form theorem, 24 (1970), 808-810. 02C20

Hindman, Neil
1 On the existence of $\tau$-points in $\beta N\setminus N$, 21 (1969), 277-280. 54A25 54D35 54D40; 02K25 04A30

Hirchisen, J. W.
1 (with Transue, William R. R. and Fitzpatrick, Ben, Jr.) Concerning upper semicontinuous decompositions of irreducible continua., 30 (1971), 157-163. 54F20; 54B15

Hirschfelder, John J.
1 On Wu’s form of the first main theorem of value distribution, 23 (1969), 548-554. 32H25; 53C55 58C10

Hirshon, R.
1 Cancellation of groups with maximal condition, 24 (1969), 401-403. 20E30

Hochschild, G.
1 Note on algebraic Lie algebras, 29 (1971), 10-16. 17B45 20G15 20G20; 16A24 17B40

Hochstadt, Harry
1 On an inequality of Lyapunov, 22 (1969), 282-284. 34C10; 34B05

Hochster, M.
1 Rings with nondiscrete ideal topologies, 21 (1969), 357-362. 13J99; 13E05
2 Subsemigroups of amenable groups, 21 (1969), 363-364. 20F05 20M05
<table>
<thead>
<tr>
<th>Author</th>
<th>Paper Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoffmann, Laurence D.</td>
<td>1 <em>Pseudo-uniform convexity of H&lt;sup&gt;1&lt;/sup&gt; in several variables</em>, 26 (1970), 609-614.</td>
</tr>
<tr>
<td>Holland, Samuel S., Jr.</td>
<td>1 <em>An m-orthocomplete orthomodular lattice is m-complete</em>, 24 (1970), 716-718.</td>
</tr>
<tr>
<td>Hooper, R. C.</td>
<td>1 <em>Many topological abelian groups have dense divisible subgroups</em>, 23 (1969), 555-558.</td>
</tr>
<tr>
<td></td>
<td>2 (with Fraser, Grant A.) <em>Congruence relations in direct products</em>, 26 (1970), 390-394.</td>
</tr>
<tr>
<td></td>
<td>2 <em>Semicontinuity of nullity or deficiency implies normability of the space</em>, 30 (1971), 321-323.</td>
</tr>
<tr>
<td></td>
<td>3 <em>The number of binomial coefficients divisible by a fixed power of 2</em>, 29 (1971), 236-242.</td>
</tr>
</tbody>
</table>
Howard, Paul E.
1 (with Halpern, James D.) Cardinals $m$ such that $2m = m$, 26 (1970), 487-490.
02K20 04A25

Howland, James S.
81A45
2 Analyticity of determinants of operators on a Banach space, 28 (1971), 177-180.
46B99 46F15; 46M05 47A55

Hubbuck, John
1 Associative $H$-spaces with small ranks, 30 (1971), 375-382.
55D35 55D45 55F40 55G10; 57F05

Huckaba, James A.
1 A class of non-noetherian domains, 24 (1970), 659-666. 13E99

Hudson, Sigmund N.
22A05 22D05

Huff, B. W.
1 Comments on the continuity of distribution functions obtained by superposition, 27 (1971), 141-146.
60E05; 60B10 60J10

Huff, Robert E.
47B55

Hughes, David K.
1 Linear differential-difference operators and their adjoints, 26 (1970), 408-414.
34B05 34J10

Hughes, Robert B.
1 Zero sets of functions from non-quasi-analytic classes, 27 (1971), 539-542.
26A93; 35K05

Hummel, James A.
1 The coefficients of starlike functions, 22 (1969), 311-315.
30A32 30A34

Huneke, John Philip
26A15 26A18 26A30
2 (with Glover, H. H.) Some spaces that do not have the common fixed point property, 29 (1971), 190-196.
55C20 57A99

Hunt, John
1 (with García Máynez, Adalberto) The separation theorem for quasi-closed sets, 27 (1971), 399-404.
54D05 54D10

Hunt, L. R.
32C05 32D10; 32E10

Huq, Syed A.
15A69 18B10; 08A10 15A72 18C05 18C10

Hursey, R. J., Jr.
1 On ordered polycyclic groups, 28 (1971), 391-394.
06A20 06A55 06A55 20B25 20B25; 20E15 20E25

Husch, Lawrence S.
1 Finding a boundary for a 3-manifold, 21 (1969), 64-68.
55A05 57A10; 55A35

57C35 57C99 57D80; 55A05 57C45

3 A topological characterization of the dilation in \( E^n \), 28 (1971), 234-236.
57A15 57E30

Hutchinson, John J.
1 Quotient full linear rings, 28 (1971), 375-378. 16A08 16A42

Hyman, D. M.
1 A note on closed maps and metrizability, 21 (1969), 109-112. 54E35; 54C10

Inagaki, Nobuo
1 On \( \mathfrak{F} \)-normalizers and \( \mathfrak{F} \)-hypercenter, 26 (1970), 21-22. 20D10 20D20

Ingraham, Edward C.

Insley, R. B.
1 (with Riddell, R. C.) Commuting operator solutions of algebraic equations, 28 (1971), 461-463. 47A50

Isaacs, G. L.
1 A limitation theorem for absolute summability, 29 (1971), 47-54. 40F05 40G05; 40C10 40D99

Isaacs, I. M.
1 Groups having at most three irreducible character degrees, 21 (1969), 185-188. 20C15 20D10

2 Degrees of sums in a separable field extension, 25 (1970), 638-641. 12F10

Isbell, John R.
1 s admits an injective metric, 28 (1971), 259-261. 54E35 54E40; 57A17

Istrătescu, Ioana
1 (with Constantin, Gheorghe) Some remarks on structure of Riesz operators, 21 (1969), 455-458. 47A65 47B05; 47B20

Itô, Takashi
1 Multiplicative properties of Jensen measures, 26 (1970), 305-306. 46J10

Iwata, Kôichi
1 Span of lens spaces, 26 (1970), 687-688. 55G40 55H25 57D25

Iyengar, H. R. Krishna
1 Semilattice of bisimple regular semigroups, 28 (1971), 361-365. 20M10

Izé, Antonio F.
1 On an asymptotic property of a Volterra integral equation, 28 (1971), 93-99. 45D05 45G99 45M05

2 (with Hale, Jack K.) On the uniform asymptotic stability of functional differential equations of the neutral type, 28 (1971), 100-106. 34K20

Jackson, Robert E.
1 Quasi-Jordanian continua, 27 (1971), 387-390. 54F20; 54E30 57A05

Jacobinski, H.
1 On embedding of lattices belonging to the same genus, 24 (1970), 134-136. 16A18

2 Two remarks about hereditary orders, 28 (1971), 1-8. 16A18; 13F05 16A60

Jain, N. C.
1 (with Kallianpur, Gopinath) Norm convergent expansions for Gaussian processes in
20D15 20D45 28A40 46B15 60B05 60F15 60G15 60G20; 46A05 46B05
60G17

60F20 60G15 60G20 60G30; 46E10 62M15

Jain, S. K.
16A22; 16A12 16A42

Jakimovski, Amnon
1 (with Skerry, Herbert) Some regularity conditions for the \((f, d_\alpha, z_\gamma)\) summability method, 24 (1970), 281-287.
40C05 40D05 40G99

James, D. G.
1 Indefinite quadratic forms of determinant \(\pm 2p\), 21 (1969), 214-218.
10C05 15A63

James, Ioan M.
1 On the homotopy type of Stiefel manifolds, 29 (1971), 151-158.
55D15 55F10 55G15 55G40 57F20; 55E15 55F20 55G20 57F15

Jamison, Benton
1 Irreducible Markov operators on \(C(S)\), 24 (1970), 366-370.
46E15
2 (with Orey, Steven) Subgroups of sequences and paths, 24 (1970), 739-744.
22A99 28A35 28A40 43A05 60F20 60G15 60G30; 60G17 62E10

Janoš, Ludvik
54C10 54D30 54E40; 54E15 54E45 54H25
54C05 54H15; 22A15 54D30
3 On maximal groups of isometries, 28 (1971), 584-586.
54E35 54H15; 54E45

Jaworowski, Jan W.
1 A fixed point theorem for manifolds, 28 (1971), 275-278.
54C10 54C55 54H25 55C15 55C20 57A15; 57A10

Jenkins, James A.
1 A uniqueness result in conformal mapping, 22 (1969), 324-325.
30A30

Jenkins, Joe W.
1 Amenable subsemigroups of a locally compact group, 25 (1970), 766-770.
22A15 22A20
22A15 22D05
3 Sigma-amenable locally compact groups, 28 (1971), 621-626.
22A20 22D05; 20M05 20M99

Jenkins, Terry L.
1 (with Kreiling, Daryl) Semisimple classes and upper-type radical classes of rings, 26 (1970), 378-382.
16A21 17D05; 17E05

Jensen, G. A.
06A23 54C40

Jerome, Joseph W.
1 (with Schumaker, Larry L.) Applications of \(\varepsilon\)-entropy to the computation of \(n\)-widths, 22 (1969), 719-722.
41A45 46B99

Jerrard, R. P.
Author Index for Volumes 21-30

1 (with Hamstrom, Mary-Elizabeth) Collapsing a triangulation of a 'knotted' cell, 21 (1969), 327-331.

Jessup, P. G.
1 (with Fleming, D. J.) Perfect matrix methods, 29 (1971), 319-324.

Jobe, John
1 The intersection of indecomposable continua, 23 (1969), 623-624.


Jockusch, Carl G., Jr.

Jodeit, Max, Jr.
1 A note on Fourier multipliers, 11 (1971), 423-424.

Joffe, A. D.
1 On a sequence of almost deterministic pairwise independent random variables, 29 (1971), 381-382.

Johnson, Dudley Paul

Johnson, E. W.
1 (with Lediaev, John P.) A new characterization of Dedekind domains, 28 (1971), 63-64.

Johnson, Gerald W.
1 Integral representation of multiplicative, involution preserving operators in \( L(E) \), 23 (1969), 373-377.


Johnson, Gordon G.

Johnson, J. A.
1 Quotients in Noetherian lattice modules, 28 (1971), 71-74.

Johnson, Norman Lloyd
1 A note on the construction of quasifields, 29 (1971), 138-142.

Johnson, R. E.
1 Extended Malcev domains, 21 (1969), 211-213.


3 Unique factorization monoids and domains, 28 (1971), 397-404.

Johnson, Roy A.
1 Some types of Borel measures, 22 (1969), 94-99.

Johnson, W. B.
2 *No infinite dimensional P space admits a Markuschevich basis*, 26 (1970), 467-468.

Jøndrup, S.

Jones, Gary D.

Jones, John P.

Jones, Lee
1 (with Kuftinec, Velimir) *A note on the Blum-Hanson theorem*, 30 (1971), 202-203.

Jonker, L.

Jorgensen, Murray

Kaczynski, T. J.
1 *The set of curvilinear convergence of a continuous function defined in the interior of a cube*, 23 (1969), 323-327.

Kadison, Richard V.

Kagiwada, Harriet H.

Kallianpur, Gopinath

Kallman, Robert R.

Kalmbach, Gudrun
1971

AUTHOR INDEX FOR VOLUMES 21-30

659

1 On smooth bounded manifolds, 22 (1969), 466-469.
Kalton, N. J.
1 A barrelled space without a basis, 26 (1970), 465-466.
Kantorovitz, Shmuel
1 On the operational calculus for groups of operators, 26 (1970), 603-608.
Karcher, Hermann
1 A short proof of Berger's curvature tensor estimates, 26 (1970), 642-644.
Karrass, Abraham
1 (with Solitar, Donald) On finitely generated subgroups of a free group, 22 (1969), 209-213.
2 (with Solitar, Donald) On groups with one defining relation having an abelian normal subgroup, 23 (1969), 5-10.
3 (with Baumslag, Gilbert and Solitar, Donald) Torsion-free groups and amalgamated products, 24 (1970), 688-690.
4 (with Solitar, Donald) On the free product of two groups with an amalgamated subgroup of finite index in each factor, 26 (1970), 28-32.
Kartsatos, A. G.
Kascic, Michael J., Jr.
1 (with Roth, B.) A closed subspace of $\mathcal{D}(\Omega)$ which is not an LF-space, 24 (1970), 801-802.
Kass, Seymour
Kato, Tosio
1 A characterization of holomorphic semigroups, 25 (1970), 495-498.
Katz, I. Norman
Katz, Melvin L. Jr.
1 (with Friedman, Neal) On additive functionals, 21 (1969), 557-561.
Kauffman, Robert M.
1 Completely continuous inverses of ordinary differential operators, 22 (1969), 657-659.
2 Unitary groups and differential operators, 30 (1971), 102-106.
Kaufman, Robert P.
1 Representation of linear sets as critical sets, 25 (1970), 884-889.
Kaul, S. K.
1 On pointwise periodic transformation groups, 27 (1971), 391-394.
Kazdan, Jerry L.
1 Perturbation of complete orthonormal sets and eigenfunction expansions, 27 (1971), 506-510.
Ke, William Oo Kian
1 (with Leighton, Walter) A comparison theorem, 28 (1970), 185-188. 34C10

Keane, Michael
1 Contractibility of the automorphism group of a nonatomic measure space, 26 (1970), 420-422. 47D10

Keesling, James Edgar
1 Normality and properties related to compactness in hyperspaces, 24 (1970), 760-766. 54B20; 54D15 54D20
2 Proper mappings and dimension, 29 (1971), 202-204. 54F45; 54C10 54D45
3 Locally compact full homeomorphism groups are zero-dimensional, 29 (1971), 390-396. 57E05 57E10; 54C35
4 Proper mappings and the minimum dimension of a compactification of a space, 30 (1971), 593-598. 54C10 54D35 54F45

Kellogg, C. N.
1 Pseudo-uniform convexity in H 1, 23 (1969), 190-192. 46E15

Kelly, Patrick H.
1 (with Larsen, Max D.) Valuation rings with zero divisors, 30 (1971), 426-430. 13A15

Kemperman, J. H. B.
1 (with Maharam, Dorothy) R c is not almost Lindelöf, 24 (1970), 772-773. 28A10 54D20

Kenelly, John W., Jr.
1 (with Hare, William R.; Evans, B. D. and Ludescher, W. H.) Convex components, extreme points, and the convex kernel, 21 (1969), 83-87. 52A30
2 (with Hare, William R.) Sets expressible as unions of two convex sets, 25 (1970), 379-380. 52A05 53A30
3 (with Stavrakas, Nick M. and Hare, William R.) Two cells with N points of local nonconvexity, 27 (1971), 331-336. 52A10

Kennebeck, D. R.
1 (with Wright, Fred M. and Klasi, M. L.) The Gronwall inequality for weighted integrals, 30 (1971), 504-510. 26A42 26A86; 34A10 34H05

Kent, C. F.
1 Reducing ordinal recursion, 22 (1969), 690-696. 02F27
2 (with Fabian, R. J.) Recursive functions defined by ordinal recursions, 23 (1969), 206-210. 02F27

Keogh, F. R.
1 (with Bağgözé, Türkân) The Hardy class of a spiral-like function and its derivative, 26 (1970), 266-269. 30A30 30A32; 30A78
2 (with Miller, Sanford S.) On the coefficients of Bazilevič functions, 30 (1971), 492-496. 30A32 30A34

Kerr, Donald R., Jr.
1 (with Brown, Herbert I. and Stratton, Howard H., Jr.) The structure of B[c] and extensions of the concept of conull matrix, 22 (1969), 7-14. 46L20; 40H05

Keynes, Harvey B.
1 Lifting of topological entropy, 24 (1970), 440-445. 54H20; 54H10

Khanna, I. K.
1 (with Agrawal, Bhagwan Das) A general differential equation for classical polynomials, 22 (1969), 646-649. 33A45 33A65

Kibler, Dennis
1 Isotopy and homeomorphism, 26 (1970), 499-502. 54C10 54C25 57C05

Kieren, Peter
1 Hyperbolic submanifolds of complex projective space, 22 (1969), 603-606. 32C25 32H15
2 Some results concerning hyperbolic manifolds, 25 (1970), 588-592. 32H20

Kiltinen, John O.
1 Inverses of polynomial functions in topological fields, 24 (1970), 9-17. 12J99

Kim, Woo Jong
1 On a theorem of Pokorny, 23 (1969), 343-346. 34C10
2 Oscillatory properties of linear third-order differential equations, 26 (1970), 286-293. 34C10
3 Simple zeros of solutions of nth-order linear differential equations, 28 (1971), 557-561. 34C10

Kirk, W. A.
1 Remarks on pseudo-contractive mappings, 25 (1970), 820-823. 47H10
2 A fixed point theorem for mappings with a nonexpansive iterate, 29 (1971), 294-298. 47H10

Klasi, M. L.
1 (with Wright, Fred M. and Kennebeck, D. R.) The Gronwall inequality for weighted integrals, 30 (1971), 504-510. 26A42 26A86; 34A10 34H05

Klee, Victor L.
1 (with Hansen, Wolfhard) Intersection theorems for positive sets, 22 (1969), 450-457. 52A20 52A35

Kleiman, Steven L.
1 Ample vector bundles on algebraic surfaces, 21 (1969), 673-676. 14F05; 55F25

Klein, Aaron
1 On categories of quotients, 30 (1971), 205-211. 18A99; 18A20 18E99

Klein, Abraham
1 Three sets of conditions on rings, 25 (1970), 393-398. 16A06 16A22 16A48

Kleinberg, E. M.
1 Weak partition properties for infinite cardinals. I, 30 (1971), 371-374. 04A20; 02K35

Kleinfeld, Erwin
1 (with Kleinfeld, Margaret Humm) A nonidentity for right alternative rings, 22 (1969), 109-110. 17D05

Kleinfeld, Margaret Humm
1 (with Kleinfeld, Erwin) A nonidentity for right alternative rings, 22 (1969), 109-110. 17D05

Kleitman, Daniel J.
1 On Dedekind’s problem: the number of monotone Boolean functions, 21 (1969), 677-682. 05C30 06A35
2 (with Rothschild, B. L.) The number of finite topologies, 25 (1970), 276-282. 05B30; 54A05
3 (with Erdős, Paul) On collections of subsets containing no 4-member Boolean algebra, 28 (1971), 87-90. 05A05 05A20
Knighten, Carol M.
1 Some consequences of dim proj $\Omega(A) < \infty$, 28 (1971), 411-414.
13H10 13H99 14B99; 13D99

Knopfmacher, J.
1 (with Sinclair, Allan M.) Fields with few extensions, 29 (1971), 255-258.
10J10

Knus, Max-Albert
1 (with Barr, Michael) Extensions of derivations, 28 (1971), 313-314. 16A72

Knuston, Gerhard W.
1 A characterization of closed 3-manifolds with spines containing no wild arcs, 21 (1969), 483-489.
57A10; 57A05

Koehler, Anne
16A50; 16A46 16A52

Koehler, Donald O.
46B99 47A10 47B99

Koh, Kwangil
1 On almost maximal right ideals, 25 (1970), 266-272.
16A66; 16A12 16A30 16A40 16A46
16A64; 16A12 16A42
16A30 16A46 16A66; 16A48

Kohls, Carl W.
06A60 06A70 20K20
13B99 16A56; 13G05

Kohn, S.
1 (with Newman, Donald J.) Multiplication from other operations, 27 (1971), 244-246.
12E99; 05A05

König, Heinz
46J10

Kost, Frank
1 Wallman-type compactifications and products, 29 (1971), 607-612.
54B10 54D35; 54C25 54C50

Kotzen, Marshall
1 On the structure of a finite solvable $K$-group, 27 (1971), 16-18. 20D10 20D30

Kozlowski, George
1 Factorization of certain maps up to homotopy, 21 (1969), 88-92.
54B15 54C10 57B05; 54D05

Kra, Irwin
1 A generalization of a theorem of Poincaré, 27 (1971), 299-302.
30A58; 30A46

Kraines, David
Krajkiewicz, P.
   30A94
   30A96; 30A02 30A70

Krause, Eugene F.
   20F40 20F45; 17B99 20E10

Kraut, Edgar A.
   45E10; 32A07

Kreiling, Daryl
1 (with Jenkins, Terry L.)  *Semisimple classes and upper-type radical classes of nearrings*, 26 (1970), 378-382.
   16A21 17D05; 17E05

Kreith, Kurt
   35B05 35L05
   34C10
3 (with Benson, Donald C.)  *On abstract Pruefer transformations*, 26 (1970), 137-140.
   34A05 34J05
   34C10 34C15
5  *A class of comparison theorems for nonselfadjoint elliptic equations*, 29 (1971), 547-552.
   35B05 35J15

Kripke, Bernard R.
1  *Finitely generated coherent analytic sheaves*, 21 (1969), 530-534.
   32C35

Krishnasasstry, M. S. R.
   30A92; 30A96

Kritt, B.
   47A60 47A65 47B15 47B40; 46F99

Kronheimer, E. H.
1 (with Geroch, Robert P. and McCarty, G. S., Jr.)  *No topologies characterize differentiability as continuity*, 28 (1971), 273-274.
   54C05 54C30; 26A27

Kronk, Hudson V.
   05C35

Kruenger, Warren M.
   55E45 55G05 55G10 55G20 55H15; 55B20

Kruskal, Joseph B.
   41A50 46C05 52A20

Ku, Hsu-tung
   57D60 57E15
AUTHOR INDEX FOR VOLUMES 21-30

55C35 57D20 57E15

3 A note on semifree actions of $S^1$ on homotopy spheres, 22 (1969), 614-617.

57D60 57E15

4 (with Ku, Mei-chin) Free differentiable actions of $S^1$ and $S^3$ on homotopy spheres, 25 (1970), 864-869.

Ku, Mei-chin


57D60 57E15


55C35 57D20 57E15

3 (with Ku, Hsu-tung) Free differentiable actions of $S^1$ and $S^3$ on homotopy spheres; 25 (1970), 864-869.

Kuczkowski, Joseph E.

1 On roots and subsemigroups of nilpotent groups, 28 (1971), 50-52.

20E15 20M10

Kuelbs, J. D.

1 Expansions of vectors in a Banach space related to Gaussian measures, 27 (1971), 364-370.

28A40 46C10 47B10 60G15 60G17; 47A70 62M10 62M15

Kuftinec, Velimir

1 (with Jones, Lee) A note on the Blum-Hanson theorem, 30 (1971), 202-203.

28A65 47A20 47A35

Kugler, Lawrence D.

1 Nonstandard almost periodic functions on a group, 22 (1969), 527-533.

26A98 43A60

Kullman, David E.


54D20 54E20 54E30; 54D35 54E35

Kulshreshtha, S. K.


30A86 33A35 44A45; 33A15 33A30

Kunz, Ernst

1 The value-semigroup of a one-dimensional Gorenstein ring, 25 (1970), 748-751.

13H10; 13A15 14M10

Kwee, Bun-kung


42A24

Kwon, Kyung Whan

1 Nonexistence of orientation reversing involutions on some manifolds, 23 (1969), 725-726.

55C35 55C99

Lacey, H. Elton

1 (with Morris, Peter D.) On spaces of type $A(K)$ and their duals, 23 (1969), 151-157.

46E05

2 A note concerning $A^* = L_1(\mu)$, 29 (1971), 525-528.

46E30; 46E15

Lacher, R. C.

1 Suspending homotopy 3-spheres and embedding mapping cylinders in $S^4$, 27 (1971), 584-586.

55A40 55A99 57A15; 57A35 57A60

Lachlan, A. H.
1971] AUTHOR INDEX FOR VOLUMES 21-30

665


**Ladas, Gerasimos**
1 (with Lakshmikantham, V. and Leela, S.) *On the perturbability of the asymptotic manifold of a perturbed system of differential equations*, 27 (1971), 65-71. 34D05 34E10

**Lahiri, Maya**
1 *On a generalisation of Hermite polynomials*, 27 (1971), 117-121. 33A30 33A65

**Lakser, H.**
1 *Injective hulls of Stone algebras*, 24 (1970), 524-529. 06A35 06A40

**Lakshmikantham, V.**
1 (with Ladas, Gerasimos and Leela, S.) *On the perturbability of the asymptotic manifold of a perturbed system of differential equations*, 27 (1971), 65-71. 34D05 34E10

**Lallement, Gérard**
1 *On a theorem of Malcev*, 30 (1971), 49-54. 20M05 20M10

**Lam, Kee Yuen**
1 *Cup product in projective spaces*, 24 (1970), 832-833. 55—02 55B45 57F15

**Lam, Tsit-yuen**
1 (with Reiner, Irving) *Finite generation of Grothendieck rings relative to cyclic subgroups*, 23 (1969), 481-489. 20C05

**Lambert, Alan**
1 *Strictly cyclic weighted shifts*, 29 (1971), 331-336. 46L15 47B20; 47C05

**Lambert, H. W.**
1 *Replacing certain maps of 3-manifolds by homeomorphisms*, 23 (1969), 676-678. 57A10; 54C05

**Lancaster, G. M.**
1 *A characterization of certain conformally Euclidean spaces of class one*, 21 (1969), 623-628. 53B25

**Landau, Martin**
1 *Strong transfinite ordinal dimension*, 21 (1969), 591-596. 54D15 54F45

**Landweber, Peter S.**

**Lappan, Peter A.**
1 (with Piranian, George) *Holomorphic functions with dense sets of Plessner points*, 21 (1969), 555-556. 30A72

**Larsen, Max D.**
1 *Harrison primes in a ring with few zero divisors*, 22 (1969), 111-116. 13A15; 13F05
2 (with Kelly, Patrick H.) *Valuation rings with zero divisors*, 30 (1971), 426-430. 13A15

**Larson, Loren C.**
1 *Nonstandard theory of Zariski rings*, 29 (1971), 23-29. 13C15 13H10; 02H25

**Larson, Richard Gustavus**
1 *The order of the antipode of a Hopf algebra*, 21 (1969), 167-170. 16A24

**Lasota, Andrzej**
1 (with Bernfeld, Stephen R.) *Quickly oscillating solutions of autonomous ordinary
AUTHOR INDEX FOR VOLUMES 21-30

LaTorre, D. R.
1 A note on quotient semirings, 24 (1970), 463-465. 16A78; 16A66
2 Modular congruences and the Brown-McCoy radical for semigroups, 29 (1971), 427-433. 20M10; 16A21

Lau, K. K.
1 (with Bagley, Robert W.) Semidirect products of topological groups with equal uniformities, 29 (1971), 179-182. 22A05 22D05

Laursen, Kjeld B.
1 Symmetry of generalized group algebras, 25 (1970), 318-322. 43A20 46H99
2 Maximal two-sided ideals in tensor products of Banach algebras, 25 (1970), 475-480. 46H10

Lavine, Richard B.
1 Absolute continuity of Hamiltonian operators with repulsive potential, 22 (1969), 55-60. 47A55; 47B47

Layman, J. W.
1 Expansion of analytic functions in exponential polynomials, 22 (1969), 519-522. 30A16; 30A82

Lazarov, Connor

Leadbetter, M. R.
1 (with Weissner, Edward W.) On continuity and other analytic properties of stochastic process sample functions, 22 (1969), 291-294. 60G15 60G17

Leavitt, William G.
1 Strongly hereditary radicals, 21 (1969), 703-705. 17A99 17E05; 16A21
3 (with Bruning, L. M.) Minimal generating sets for free modules, 27 (1971), 441-445. 16A64; 16A48

Lebow, Arnold
1 (with Finkelstein, M.) A note on 'Nth roots of operators', 21 (1969), 250. 47A60

Ledden, P. J.
1 Nonstable homotopy groups of Thom complexes, 29 (1971), 404-410. 55E99 55G05 55G10 55G45 57F99

Lediaev, John P.
1 (with Johnson, E. W.) A new characterization of Dedekind domains, 28 (1971), 63-64. 13F05; 13A15 13E05 13H99

Lee, Dong Hoon
1 (with Wu, Ta-sun) On existence of compact open normal subgroups of 0-dimensional groups, 26 (1970), 526-528. 22D05
2 On the centralizer of a subgroup of a Lie group, 30 (1971), 195-198. 22E15 22E40

Lee, R. A.
1 (with Cusick, T. W.) Sums of sets of continued fractions, 30 (1971), 241-246. 10F20

Lee, Wuhan
AUTHOR INDEX FOR VOLUMES 21-30

16A44; 16A21 54H10

Lee, Yu-lee
1 On a class of finer topologies with the same class of homeomorphisms, 21 (1969), 129-133.
54A10

Leech, Robert B.
1 On the characterization of \( \mathcal{C}(B) \) spaces, 23 (1969), 518-520. 46E40 47A45

Lee, S.
34D05 34E10

Lebegue, Robert
1 The conjugacy function, 24 (1970), 820-823.
34C10
2 (with Ke, William Oo Kian) A comparison theorem, 28 (1970), 185-188.
34C10

Leichtel, J. R. C.
1 Galois cohomology and class number in constant extension of algebraic function fields, 22 (1969), 206-208.
12G05
2 Class number in constant extensions of elliptic function fields, 25 (1970), 183-188.
14G15

Lemire, F. W.
17B10 17B20

Lemming, Helmut
1 A homological characterization of Steinitz rings, 29 (1971), 269-271.
16A10 16A50

Lercher, Bruce
02C20

Letac, Gérard
1 A note about Wiener-Hopf sets, 22 (1969), 298-300.
60B15 60J15

Le Tourneau, J. J.
08A15

Leviatan, Dany
1 (with Lorch, Lee) A characterization of totally regular \( [J, f(x)] \) transforms, 23 (1969), 315-319.
40C15 40D99
40E05

Levin, Mark
1 (with Saxon, Stephen) Every countable-codimensional subspace of a barrelled space is barrelled, 29 (1971), 91-96.
46A07; 46A30
46A05 46A15

Levin, Simon A.
15A39 65F10; 65K05 93C40 94A30
<table>
<thead>
<tr>
<th>Author</th>
<th>Contributions</th>
<th>Volume(s)</th>
<th>Pages</th>
<th>MSCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lewis, Paul W.</td>
<td>1 Extension of operator valued set functions with finite semivariation</td>
<td>22 (1969)</td>
<td>563-569</td>
<td>28A45</td>
</tr>
<tr>
<td>Lin, C.-S.</td>
<td>1 A note of the Kleinecke-Shirokov theorem and the Wintner-Wielandt-Halmos theorem</td>
<td>27 (1970)</td>
<td>529-530</td>
<td>47B05 47B05 47B47 47B47</td>
</tr>
<tr>
<td>Lin, You-feng</td>
<td>1 A problem of Bosák concerning the graphs of semigroups</td>
<td>21 (1969)</td>
<td>343-346</td>
<td>20M99</td>
</tr>
<tr>
<td></td>
<td>3 (with Ratti, Jogindar S.) The graphs of semirings. II</td>
<td>30 (1971)</td>
<td>473-478</td>
<td>05C25 16A78</td>
</tr>
<tr>
<td>Lindahl, R. J.</td>
<td>1 A differentiation theorem for functions defined on the dyadic rationals</td>
<td>30 (1971)</td>
<td>349-352</td>
<td>26A24 26A48 42A56 42A62</td>
</tr>
<tr>
<td>Lindberg, John A., Jr.</td>
<td>1 A class of commutative Banach algebras with unique complete norm topology and continuous derivations</td>
<td>29 (1971)</td>
<td>516-520</td>
<td>46J05; 13B25</td>
</tr>
<tr>
<td>Lindner, Charles C.</td>
<td>1 Extending partial permutation matrices</td>
<td>24 (1970)</td>
<td>834</td>
<td>05B20</td>
</tr>
<tr>
<td></td>
<td>2 Construction of quasigroups using the singular direct product</td>
<td>29 (1971)</td>
<td>263-266</td>
<td>05B30 20N05</td>
</tr>
<tr>
<td>Lipman, Joseph</td>
<td>1 On the Jacobian ideal of the module of differentials</td>
<td>21 (1969)</td>
<td>422-426</td>
<td>13H05; 14B05 14E15</td>
</tr>
<tr>
<td>Lipschutz, Seymour</td>
<td>1 On the conjugacy problem and Greendlinger’s eighth-groups</td>
<td>23 (1969)</td>
<td>101-106</td>
<td>20F10</td>
</tr>
<tr>
<td>Lister, F. M.</td>
<td>1 Tame boundary sets of crumpled cubes in $E^3$</td>
<td>25 (1970)</td>
<td>377-378</td>
<td>57A10; 54C25</td>
</tr>
<tr>
<td>Liu, Chen-tung</td>
<td>1 The $\alpha$-closure $\alpha X$ of a topological space $X$</td>
<td>22 (1969)</td>
<td>620-624</td>
<td>54D35; 54D25 54D60</td>
</tr>
<tr>
<td></td>
<td>2 An equivalent condition for the existence of a measurable cardinal</td>
<td>23 (1969)</td>
<td>605-607</td>
<td>54A20 54A25 54D60</td>
</tr>
<tr>
<td>Liu, Ming-chit</td>
<td>1 On a problem of Erdős</td>
<td>21 (1969)</td>
<td>706-710</td>
<td>10K15</td>
</tr>
<tr>
<td></td>
<td>2 On functions of bounded boundary rotation</td>
<td>29 (1971)</td>
<td>345-348</td>
<td>30A32</td>
</tr>
<tr>
<td>Livingston, Albert E.</td>
<td>1 The coefficients of multivalent close-to-convex functions</td>
<td>21 (1969)</td>
<td>545-552</td>
<td></td>
</tr>
</tbody>
</table>
Livingston, Arthur E.
1 (with Libera, Richard J.) On the univalence of some classes of regular functions, 30 (1971), 327-336. 30A32

Locke, Phil
1 On the asymptotic behavior of linear systems, 25 (1970), 93-95. 34D05

Loeb, Peter Adolf
1 Compactifications of Hausdorff spaces, 22 (1969), 627-634. 54D35; 54D10

Lonergan, Francis D.
1 A characterization of cellular arcs in euclidean 3-space, 21 (1969), 153-154. 57A10

Long, Paul E.
1 Concerning semiconnected maps, 21 (1969), 117-118. 54C10; 54D05
2 (with McGehee, Earl E., Jr.) Properties of almost continuous functions, 24 (1970), 175-180. 54C10; 54D05 54D45

Lorch, Lee
1 (with Leviatan, Dany) A characterization of totally regular \([J, f(x)]\) transforms, 23 (1969), 315-319. 40C15 40D99

Lorenz, Falko
1 A remark on real characters of compact groups, 21 (1969), 391-393. 20C20 22C05

Lorimer, P. J.
1 A class of projective planes of cubic order, 21 (1969), 93-95. 17A30 50D35

Loveland, David Lowell
1 A variation-of-parameters inequality, 26 (1970), 598-602. 34A40 34G05
2 Bounded solutions of Stieltjes integral equations, 28 (1971), 127-133. 45A05 45M10

Loveland, L. D.
1 Tameness implied by extending a homeomorphism to a point, 23 (1969), 287-293. 57A10; 55A30 57A50
2 A 2-sphere of vertical order 5 bounds a 3-cell, 26 (1970), 674-678. 55A30 55A40 57A35; 57A10 57A35

Loynes, R. M.
1 An invariance principle for reversed martingales, 25 (1970), 56-64. 60B10 60G45 60J65 62E20; 60B05 60F05 60G50 62E15

Luchins, Edith H.
1 Completion of norms for \(C(X, Q)\), 28 (1971), 478-480. 46J10; 46J99

Ludescher, W. H.
1 (with Kenelly, John W., Jr.; Hare, William R. and Evans, B. D.) Convex components, extreme points, and the convex kernel, 21 (1969), 83-87. 52A30

Luh, Jiang
1 (with Koh, Kwangil) On a finite dimensional quasi-simple module, 25 (1970), 801-807. 16A64; 16A12 16A42

Luther, Norman Y.
1 Locally compact spaces of measures, 25 (1970), 541-547. 28A10

Lutzer, David J.
1 A metrization theorem for linearly orderable spaces, 22 (1969), 557-558. 54E35 54F05; 06A45
2 (with Bennett, Harold R.) Separability, the countable chain condition and the Lindelöf property in linearly orderable spaces, 23 (1969), 664-667.

Macdonald, Ian D.
1 Solution of the Hughes problem for finite p-groups of class 2p - 2, 27 (1971), 39-42.

MacLachlan, C.
1 Modulus space is simply-connected, 29 (1971), 85-86.

MacNerney, J. S.
1 Dense embeddings of Hilbert spaces, 24 (1970), 92-94.

Madell, Robert L.
1 Chains which are coset spaces of tl-groups, 25 (1970), 755-759.

Madison, Eugene W.

Magid, Andy R.
1 Commutative algebras of Hochschild dimension one, 24 (1970), 530-532.

Magnus, Arne
1 The connection between P-fractions and associated fractions, 25 (1970), 676-679.

Maharam, Dorothy
1 (with Kemperman, J. H. B.) \( R^c \) is not almost Lindelöf, 24 (1970), 772-773.

Mahavier, William S.
1 Arcs in inverse limits on [0, 1] with only one bonding map, 21 (1969), 587-590.

Mahowald, Mark E.

Mann, Avino'am
1 On subgroups of finite solvable groups, 22 (1969), 214-216.

Manougian, Manoug N.
1 On the convergence of a sequence of Perron integrals, 23 (1969), 320-322.

2 The Perron integral and existence and uniqueness theorems for a first order nonlinear differential equation, 25 (1970), 34-38.
Markley, Nelson G.
1 On the number of recurrent orbit closures, 25 (1970), 413-416. 54H20 57A05

Marsden, Jerrold E.
1 (with Weinstein, Alan D.) A comparison theorem for Hamiltonian vector fields, 26 (1970), 629-631. 34C35

Martin, John C.

Martin, Robert H., Jr.
1 A bound for solutions of Volterra-Stieltjes integral equations, 23 (1969), 506-512. 45D05
2 A global existence theorem for autonomous differential equations in a Banach space, 26 (1970), 307-314. 34A10 34G05

Martindale, Wallace S., III
1 When are multiplicative mappings additive ?, 21 (1969), 695-698. 16A32; 16A12
2 Primitive rings with involution whose symmetric elements satisfy a generalized polynomial identity, 24 (1970), 508-511. 16A20 16A28 16A42; 16A38

Marx, Morris L.
1 The Gauss realizability problem, 22 (1969), 610-613. 05C10; 55A15
2 (with Verhey, Roger F.) Interior and polynomial extensions of immersed circles, 24 (1970), 41-49. 30A90

Marzec, R. P.
1 (with Franks, R. L.) A theorem on mean-value iterations, 30 (1971), 324-326. 26A18 47H10 54H25; 40A05 65Q05

Mason, A. W.
1 On a theorem by Leon Greenberg, 23 (1969), 18-23. 20H05 20H10

Mason, J. H.
1 Geometrical realization of combinatorial geometries, 30 (1971), 15-21. 05B25 05B35

Mathews, J. H.
1 Asymptotic behavior of light interior functions defined in the unit disk, 24 (1970), 79-81. 30A72
2 Asymptotic values of normal light interior functions defined in the unit disk, 24 (1970), 691-695. 30A72 30A90

Mattson, Don A.
1 Extensions of proximity functions, 26 (1970), 347-351. 54E05 54E10; 54C20 54C45

Mattuck, Arthur

May, J. Peter
1 Some remarks on the structure of Hopf algebras, 23 (1969), 708-713. 16A24; 17B05 57F05

May, Warren L.
1 Unit groups of infinite abelian extensions, 25 (1970), 680-683. 12A45

Mayes, Vivienne
1 Some steady state properties of \( \int f(t) dt / f(x) \), 22 (1969), 672-677. 34D05

McCarthy, Paul J.
1 Principal elements of lattices of ideals, 30 (1971), 43-45. 13A15; 13F05

McCarty, G. S., Jr.
1 (with Geroch, Robert P. and Kronheimer, E. H.) No topologies characterize differentiability as continuity, 28 (1971), 273-274. 54C05 54C30; 26A27

McCharen, John D.
1 (with Anderson, R. D.) On extending homeomorphisms to Fréchet manifolds, 25 (1970), 283-289. 58B05

McCool, James
1 The power problem for groups with one defining relator, 28 (1971), 427-430. 20F10

McCoy, R. A.
1 Annulus conjecture and stability of homeomorphisms in infinite-dimensional normed linear spaces, 24 (1970), 272-277. 15A60 46B05
2 (with Fletcher, Peter and Slover, Rebecca Ellen) On boundedly metacompact and boundedly paracompact spaces, 25 (1970), 335-342. 54D15 54D20 54F45
3 (with Curtis, Douglas W.) Stable homeomorphisms on infinite-dimensional normed linear spaces, 28 (1971), 496-500. 58B05

McCrimmon, Kevin
1 A note on finite division rings, 23 (1969), 598-600. 17A05
2 Koecher's principle for quadratic Jordan algebras, 28 (1971), 39-43. 17C05

McGehee, Earl E., Jr.
1 (with Long, Paul E.) Properties of almost continuous functions, 24 (1970), 175-180. 54C10; 54D05 54D45

McPherson, James M.
1 A sufficient condition for an arc to be nearly polyhedral, 28 (1971), 229-233. 55A30; 57A10

McShane, Edward James
1 (with Warfield, R. B., Jr.) Addenda and corrigenda to 'On Filippov's implicit functions lemma', 21 (1969), 496-498. 26A57

Meek, James L.
1 Subharmonic versions of Fatou's theorem, 30 (1971), 313-317. 31A20 31C05

Megibben, Charles K.
1 Absolutely pure modules, 26 (1970), 561-566. 16A52 16A60; 18G05
1971

AUTHOR INDEX FOR VOLUMES 21-30

Menon, K. V.
1 *An inequality of Schur and an inequality of Newton*, 22 (1969), 441-449.
   26A86
   40A99

Merkes, E. P.
   30A32

Merryman, Emory Hughes
   46B15

Metcalf, Frederic T.
1 (with Bownds, John M.) *An extension of the Nagumo uniqueness theorem*, 27 (1971), 313-316.
   34A10

Métivier, Michel
   28A45

Metzger, Thomas A.
   30A58; 30A46

Meyer, Jean-Pierre

Michael, Ernest A.
   54C10; 54B10

Mielke, M. V.
   55C30 57D20 57D65 57D75

Miles, Joseph
   30A68

Milgram, R. James
   55F25 55F40 55G10 55G20; 55G45 57F15

Miller, Donald J.
   05C25; 20B25

Miller, Gary Glenn
   54A25 54D05 54G15; 54D10 54E25

Miller, James
   30A32

Miller, Richard K.
   45D05

Miller, Sanford S.
AUTHOR INDEX FOR VOLUMES 21-30

Millman, R. S.

Mills, W. H.

Milnes, Paul

Minassian, Donald P.

Mine, Henryk
1. *On lower bounds for permanents of (0, 1) matrices*, 22 (1969), 117-123.

Miranda, Guillermo

Mitchell, George E.
1. *The image of \( \mathcal{M}_\nu(X) \) in \( \mathcal{M}_\nu(X) \)*, 26 (1970), 505-508.

Miyadera, Isao

Monk, J. Donald

Montgomery, Susan


Moore, Berrien, III

Moore, Theral O.

Moran, Daniel A.

Morash, Ronald P.

Mordell, Louis Joel

Mordeson, John N.

Morris, Peter D.

**Morrow, James A.**


**Morse, Anthony P.**


**Mosak, Richard D.**

1 *Central functions in group algebras*, 29 (1971), 613-616.

**Mott, Joe Leonard**

1 (with Gilmer, Robert W., Jr.) *An algebraic proof of a theorem of A. Robinson*, 29 (1971), 461-466.

**Mozzochi, C. J.**

1 *On a Riemann sum construction of Rudin*, 22 (1969), 718.

**Mrówka, Stanisław**


**Muckenhoupt, Benjamin**


**Mukherjea, Arunava**

1 (with Tserpes, Nicholas) *Idempotent measures on locally compact semigroups*, 29 (1971), 143-150.

**Mukherjee, N. P.**


**Mumford, David**


**Murasugi, Kunio**


**Murdeshwar, M. G.**

1 (with Deo, S. G.) *On a system of integral inequalities*, 26 (1970), 141-144.

**Myers, Donald E.**


**Nadler, Sam B., Jr.**


**Nakamoto, Ritsuo**

1 (with Furuta, Takayuki) *Certain numerical radius contraction operators*, 29 (1971), 521-524.

**Nandakumar, N. R.**


**Narayana Rao, M. L.**
1 (with Zemmer, Joseph L., Jr.) A question of Foulser on \(\lambda\)-systems of characteristic two, 21 (1969), 373-378. 12K05; 50D35

2 (with Wilke, F. W.) A necessary condition that two finite quasi-fields coordinatize isomorphic translation planes, 24 (1970), 124-125. 12K05 50D35


4 Characterization of Foulser’s \(\lambda\)-systems, 24 (1970), 538-544. 17A30 50D35; 12K05

Nassif, M.
1 On the transpose of simple sets of polynomials effective in Faber regions, 25 (1970), 209-219. 30A82; 30A06

Nath, B.
1 A general differential equation for classical polynomials, 11 (1971), 522-524. 33A45 33A50 33A65 33A70

Natzitz, Boaz
1 A note on interpolation, 25 (1970), 918. 46J10

Neggers, Joseph
1 (with Chwe, Byoung-song) On the extension of linearly independent subsets of free modules to bases, 24 (1970), 466-470. 16A64; 16A08

Nehari, Zeev
1 (with Friedland, Schmuel) Univalence conditions and Sturm-Liouville eigenvalues, 24 (1970), 595-603. 34B25

Nelson, Evelyn
1 (with Burris, S.) Embedding the dual of \(\Pi_n\) in the lattice of equational classes of commutative semigroups, 30 (1971), 37-39. 08A15 20M05

Nelson, Stuart
1 \(L^2\) asymptotes for the Klein-Gordon equation, 27 (1971), 110-116. 35B40 35L05; 81A33

2 \(L^2\) asymptotes for Fourier transforms of surface-carried measures, 28 (1971), 134-136. 41A60 42A72 42A92

Neuberger, J. W.
1 Analyticity and quasi-analyticity for one-parameter semigroups, 25 (1970), 488-494. 47D05

Neubrunn, Tibor
1 A note on quantum probability spaces, 25 (1970), 672-675. 28A05

Newman, Donald J.
1 (with Byrnes, J. S.) Completeness preserving multipliers, 21 (1969), 445-450. 42A60 46E30

2 Translates are always dense on the half line, 21 (1969), 511-512. 43A15

3 On the number of binary digits in a multiple of three, 21 (1969), 719-721. 10A30

4 (with Byrnes, J. S.) A lower Jackson bound on \((-\infty, \infty)\), 26 (1970), 71-72. 41A10 41A50

5 (with Kohn, S.) Multiplication from other operations, 27 (1971), 244-246. 12E99; 05A05

6 (with Beller, E.) An \(l_1\) extremal problem for polynomials, 29 (1971), 474-481. 30A06 42A04
<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Volume</th>
<th>Year</th>
<th>Pages</th>
<th>Subject Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newton, D.</td>
<td>On the entropy of certain classes of skew-product transformations</td>
<td>21</td>
<td>1969</td>
<td>722-726</td>
<td>28A65</td>
</tr>
<tr>
<td>Newton, M. E.</td>
<td>The differential ideals $[x^p z]$</td>
<td>30</td>
<td>1971</td>
<td>229-234</td>
<td>12H05</td>
</tr>
<tr>
<td>Nichols, J. C.</td>
<td>Equivalent metrics giving different values to metric-dependent dimension functions</td>
<td>23</td>
<td>1969</td>
<td>648-652</td>
<td>54E35 54F45</td>
</tr>
<tr>
<td>Niederreiter, Harald</td>
<td>Orthogonal systems of polynomials in finite fields</td>
<td>28</td>
<td>1971</td>
<td>415-422</td>
<td>12C05 12C25</td>
</tr>
<tr>
<td>Niven, Ivan</td>
<td>Averages of exponents in factoring integers</td>
<td>22</td>
<td>1969</td>
<td>356-360</td>
<td>10H25</td>
</tr>
<tr>
<td>Noble, Norman</td>
<td>A note on z-closed projections</td>
<td>23</td>
<td>1969</td>
<td>73-76</td>
<td>54B10 54C10 54C30</td>
</tr>
<tr>
<td>Nobusawa, Nobuo</td>
<td>Crossed products of simple rings</td>
<td>24</td>
<td>1970</td>
<td>18-21</td>
<td>16A40 16A56 16A42</td>
</tr>
<tr>
<td>Noonan, James W.</td>
<td>Coefficients of functions with bounded boundary rotation</td>
<td>29</td>
<td>1971</td>
<td>307-312</td>
<td>30A32 30A34</td>
</tr>
<tr>
<td>Nosal, Miloslav</td>
<td>Series convergence on Boolean algebras</td>
<td>29</td>
<td>1971</td>
<td>211-212</td>
<td>06A40</td>
</tr>
<tr>
<td>Novinger, W. P.</td>
<td>Boundary zeros of functions with derivative in $H^p$</td>
<td>25</td>
<td>1970</td>
<td>776-780</td>
<td>30A78 30A80</td>
</tr>
<tr>
<td>Nunokawa, Mamoru</td>
<td>A note on convex and Bazilevič functions</td>
<td>24</td>
<td>1970</td>
<td>332-335</td>
<td>30A32</td>
</tr>
<tr>
<td>O'Brien, Thomas</td>
<td>Expansive homeomorphisms on compact manifolds</td>
<td>24</td>
<td>1970</td>
<td>767-771</td>
<td>54H20 57A15 57A05 57E25</td>
</tr>
<tr>
<td>O'Hara, P. J.</td>
<td>Divergence of interpolation polynomials in the complex domain</td>
<td>25</td>
<td>1970</td>
<td>690-697</td>
<td>30A82</td>
</tr>
<tr>
<td>Oksendal, B. K.</td>
<td>Rational approximation on the union of sets</td>
<td>29</td>
<td>1971</td>
<td>581-584</td>
<td>30A82 46J15</td>
</tr>
<tr>
<td></td>
<td>A short proof of the F. and M. Riesz Theorem</td>
<td>30</td>
<td>1971</td>
<td>204</td>
<td>28A10 30A06</td>
</tr>
<tr>
<td>Okuyama, Akihiro</td>
<td>A characterization of a space with countable infinity</td>
<td>28</td>
<td>1971</td>
<td>595-597</td>
<td>54D35</td>
</tr>
<tr>
<td>Olson, Milton Philip</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1 The selfadjoint operators of a von Neumann algebra form a conditionally complete lattice, 28 (1971), 537-544.

O'Meara, Paul
1 On paracompactness in function spaces with the compact-open topology, 29 (1971), 183-189.

O'Neil, Patrick Eugene
1 A new criterion for uniform distribution, 24 (1970), 1-5.

Onneweer, C. W.
1 On moduli of continuity and divergence of Fourier series on groups, 29 (1971), 109-112.

Ono, Tamio

Onose, Hiroshi

Orey, Steven
1 (with Jamison, Benton) Subgroups of sequences and paths, 24 (1970), 739-744.

Orlik-Pflugfelder, Hala
1 A special class of Moufang loops, 26 (1970), 583-586.

Ornstein, Donald S.
1 A new proof of the paracompactness of metric spaces, 21 (1969), 341-342.

Orsatti, Adalberto
1 (with De Marco, Giuseppe) Commutative rings in which every prime ideal is contained in a unique maximal ideal, 30 (1971), 459-466.

Osofsky, B. L.
1 Loewy length of perfect rings, 28 (1971), 352-354.

Otto, Albert D.
1 (with Davitt, Richard M.) On the automorphism group of a finite p-group with the central quotient metacyclic, 30 (1971), 467-472.

Ow, Wellington H.
1 (with Goldstein, Myron) On the mean-value property of harmonic functions, 29 (1971), 341-344.

Owings, James C., Jr.
1 Commutativity and common fixed points in recursion theory, 24 (1970), 385-387.

Oxtoby, John C.
1 Homeomorphic measures in metric spaces, 24 (1970), 419-423.

Packel, Edward W.
1 A semigroup analogue of Foguel's counterexample, 21 (1969), 240-244.

Padmanabhan, R.
1 (with Grätzer, György) On idempotent, commutative, and nonassociative groupoids,
<table>
<thead>
<tr>
<th>Year</th>
<th>Page Range</th>
<th>Authors</th>
<th>Titles</th>
<th>Journals</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>75-80</td>
<td>Palais, Richard S.</td>
<td>When proper maps are closed</td>
<td>08A05, 08A25, 20L05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Palis, J.</td>
<td>Ω-explosions</td>
<td>54C10, 54D50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Park, Chul</td>
<td>A generalized Paley-Wiener-Zygmund integral and its applications</td>
<td>34C35</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Park, Donald B.</td>
<td>Wreath products and formations of groups</td>
<td>20D10, 20D40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Passman, Milton N.</td>
<td>A distortion theorem for doubly connected regions</td>
<td>30A30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Parthasarathy, T.</td>
<td>Product solutions for simple games. III</td>
<td>90D12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Passman, D. S.</td>
<td>Central idempotents in group rings</td>
<td>20C05</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>On the semisimplicity of twisted group algebras</td>
<td>16A26, 20C05</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Units in modular group rings</td>
<td>20C05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Passow, E.</td>
<td>Polynomial approximation on y = x α</td>
<td>41A10, 41A25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patel, S. M.</td>
<td>Operators whose ascent is 0 or 1</td>
<td>47B99, 47B05, 47B47</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Paterson, Alan L. T.</td>
<td>Isometries between B*-algebras</td>
<td>46L05, 47A10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Payne, Stanley E.</td>
<td>Generalized relative difference sets</td>
<td>05B10, 05B20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Payne, T. H.</td>
<td>Effectively minimizing effective fixed-points</td>
<td>02F20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pazy, Amnon</td>
<td>Approximations of the identity operator by semigroups of linear operators</td>
<td>47D05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Peek, Darwin E.</td>
<td>Baire functions and their restrictions to special sets</td>
<td>26A15, 26A21, 41A30, 54C30, 54C50, 26A30, 28A05, 54A25, 54B05, 54B10, 54C10, 54E35, 54E50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pellicciaro, E. J.</td>
<td>A noncontractive fixed point theorem</td>
<td>47H10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Perlis, Sam</td>
<td>Cyclicity of division algebras of prime degree</td>
<td>16A40, 12F10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Petersen, Bent E.</td>
<td>The total symbol of a pseudo-differential operator</td>
<td>58G15, 35S05</td>
</tr>
</tbody>
</table>
Petersen, K. E.
1 Disjointness and weak mixing of minimal sets, 24 (1970), 278-280.
54H15; 54H20

Peterson, Allan C.
34C10

Peterson, H. LeRoy
22A10 28A70

Petrich, Mario
1 On a class of completely semisimple inverse semigroups, 24 (1970), 671-676.
20M10

Pettis, B. J.
1 Cluster sets of nets, 22 (1969), 386-391.
54A20

Petty, C. M.
1 Equilateral sets in Minkowski spaces, 29 (1971), 369-374.
50C25 52A20 52A50; 52A25

Peyser, Gideon
12D10 35L25

Pfaffenberger, William
1 On the ideals of strictly singular and inessential operators, 25 (1970), 603-607.
47D99; 47B30

Pfaltz, John L.
1 Semihomomorphisms of semimodular lattices, 22 (1969), 418-425.
06A30

Pfeffer, W.
54A20; 28A15

Phillips, R. G.
02H20

Piech, M. Ann
1 Regularity properties for families of measures on a metric space, 24 (1970), 307-311.
28A10; 54E35

Pigno, Louis
1 Restrictions of $L^p$ transforms, 29 (1971), 511-515.
42A18 43A15

Pincus, Joel David
47A65 47B47

Pinsky, Mark A.
1 An elementary derivation of Khintchine’s estimate for large deviations, 22 (1969), 288-290.
60F10; 60G50

Piranian, George
1 (with Lappan, Peter A.) Holomorphic functions with dense sets of Plessner points, 21 (1969), 555-556.
30A72

Pittman, C. R.
1 An elementary proof of the triod theorem, 25 (1970), 919.
57A05; 54A25 54F20

Pfaffker, Stephen M.
1 On decomposable operators, 24 (1970), 215-216.  47B40

Platek, Richard A.

1 A note on the failure of the relativized enumeration theorem in recursive function theory, 25 (1970), 915-916.  02F35

2 A note on the cardinality of the Medvedev lattice, 25 (1970), 917.  02F30

Plemmons, Robert J.

1 Graphs associated with a group, 25 (1970), 273-275.  05C20 05C25; 20B25

Poguntke, Detlev

1 Epimorphisms of compact groups are onto, 26 (1970), 503-504.  22C05

Pollard, Harry

1 (with Saari, Donald G.) An elementary Tauberian theorem of nonlinear type, 24 (1970), 593-594.  40E05


Porter, Jack R.

1 (with Himmelberg, Charles J. and Van Vleck, F. S.) Fixed point theorems for condensing multifunctions, 23 (1969), 635-641.  47H10

2 Not all semiregular Urysohn-closed spaces are Katětov-Urysohn, 25 (1970), 518-520.  54D10 54D25

Pothoven, Kenneth

1 Projective and injective objects in the category of Banach spaces, 22 (1969), 437-438.  46B99 46M10

Poulsen, Ebbe Thue

1 The minimax principle and uniqueness of the Friedrichs extension, 21 (1969), 508-509.  47B25

Powell, Robert E.

1 (with Cox, Raymond H.) Regularity of net summability transforms on certain linear topological spaces, 21 (1969), 471-476.  40J05

Preston, C. J.

1 On the convergence of multiplicatively orthogonal series, 28 (1971), 453-455.  42A60; 40A05 42A20

Price, Thomas

1 (with Cantrell, James C. and Rushing, T. B.) A class of embeddings of $S^{n-1}$ and $B^n$ in $R^n$, 29 (1971), 208-210.  57A15 57A45

Priddy, Stewart B.


Priestley, W. M.

1 A sequentially closed countable dense subset of $I^I$, 24 (1970), 270-271.  54B10; 10E10 54A20 54A25

Proctor, Thomas Gilmer

1 Characteristic multipliers for some periodic differential equations, 22 (1969), 503-508.  34C20

2 Periodic solutions for perturbed nonlinear differential equations, 24 (1970), 815-819.  34C25

Prosser, Reese T.

1 Note on metric dimension, 25 (1970), 763-765.  54E35 54E45 54F45; 41A25 41A45
81A20

47A10 47A55 47B05

Pugh, W. J.
1 Sums of functions of bounded index, 22 (1969), 319-323.
30A64

Putcha, Mohan S.
1 On Lie rings satisfying the fourth Engel condition, 28 (1971), 355-357.
17B05 17B30 17B40 20F40 20F45

Putnam, Calvin R.
1 The spectra of subnormal operators, 28 (1971), 473-477.
47A10 47B20

Putz, H.
1 Transverse field implies normal microbundle, 23 (1969), 232-236.
57C35 57C50

Pym, John S.
1 Idempotent probability measures on compact semitopological semigroups, 21 (1969),
499-501.
43A10 22A10

Quillen, Daniel G.
1 On the endomorphism ring of a simple module over an enveloping algebra, 21 (1969),
171-172.
16A64 17B30 17B35

Radford, David E.
1 A free rank 4 Hopf algebra with antipode of order 4, 30 (1971), 55-58.
16A24

Radjavi, Heydar
1 Every operator is the sum of two irreducible ones, 21 (1969), 251-252.
47A15
2 (with Rosenthal, Peter) The set of irreducible operators is dense, 21 (1969), 256.
47A15

3 Products of Hermitian matrices and symmetries, 21 (1969), 369-372; Erratum: 26
(1970), 701.
15A57

4 (with Harrison, K. J. and Rosenthal, Peter) A transitive medial subspace lattice, 28
(1971), 119-121.
47A15 47C05

Rahman, Qazi Ibadur
1 (with Goodman, Adolph W. and Ratti, Jogindar S.) On the zeros of a polynomial
30A08

Rainwater, John
1 Local uniform convexity of Day’s norm on $c_0(\Gamma)$, 22 (1969), 335-339.
46B10 46E15

2 Regular matrices with nowhere dense support, 29 (1971), 361.
40C05 40D20

Ramanujan, P. B.
1 (with Patel, S. M.) Operators whose ascent is 0 or 1, 29 (1971), 557-560.
47B99 47B05 47B47

Ramirez, Donald E.
1 (with Dunkl, Charles F.) Multipliers on compact groups, 28 (1971), 456-460.
43A22 46H25

Ramras, Mark
13C10 13D05 13H10

Randall, Charles H.
1 A complete and countable orthomodular lattice is atomic, 21 (1969), 253.
<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Volume, Pages</th>
<th>Keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td>Randolph, J. W.</td>
<td>Finite groups with solvable maximal subgroups</td>
<td>23 (1969), 490-492</td>
<td>06A23 06A25 06A30</td>
</tr>
<tr>
<td>Ratti, Jogindar S.</td>
<td>On a relation between absolute Abel and absolute Riesz summability</td>
<td>21 (1969), 57-62</td>
<td>04D05 04G10 40C10</td>
</tr>
<tr>
<td></td>
<td>Correction to “On strong Riesz summability factors of infinite series”</td>
<td>22 (1969), 723</td>
<td>40F05</td>
</tr>
<tr>
<td></td>
<td>A note on a theorem of Jacobson</td>
<td>21 (1969), 753-754</td>
<td>17A99 17B05 17B20 17B40 17E05</td>
</tr>
<tr>
<td>Raymon, L.</td>
<td>Polynomial approximation on ( y = x^a )</td>
<td>24 (1970), 781-783</td>
<td>40A10 41A25</td>
</tr>
<tr>
<td>Reade, Maxwell O.</td>
<td>Univalent functions with two preassigned values</td>
<td>30 (1971), 539-544</td>
<td>17A99 17B05 17B20 17B40 17E05</td>
</tr>
<tr>
<td>Rees, Elmer</td>
<td>An example on embedding up to homotopy type</td>
<td>26 (1970), 217-218</td>
<td>55D99 57C05 57C35 55D10 57F99</td>
</tr>
<tr>
<td>Reid, James L.</td>
<td>An exact solution of the nonlinear differential equation</td>
<td>27 (1971), 61-62</td>
<td>34A05 46L05</td>
</tr>
<tr>
<td>Reilly, Norman R.</td>
<td>The number of permutational products of two finite groups</td>
<td>25 (1970), 507-509</td>
<td>20D40</td>
</tr>
<tr>
<td>Reilly, Robert C.</td>
<td>Applications of stereographic projections to submanifolds in ( E^m ) and ( S^m )</td>
<td>25 (1970), 119-123</td>
<td>53C40 53A10</td>
</tr>
<tr>
<td>Reiner, Irving</td>
<td>Finite generation of Grothendieck rings relative to cyclic subgroups</td>
<td>23 (1969), 481-489</td>
<td>20C05</td>
</tr>
</tbody>
</table>
Reis, Clive M.

Reneke, James A.
1 A product integral solution of a Stieltjes-Volterra integral equation, 24 (1970), 621-626. 45D05

Resnikoff, H. L.
1 Differential equations for automorphic forms in several complex variables, 24 (1970), 492-496. 17C35 32N15

Restrepo, Guillermo
1 An infinite dimensional version of a theorem of Bernstein, 23 (1971), 193-198. 41A65; 46J10

Rhoads, Donald
1 Quasi-compact operators in topological linear spaces, 25 (1970), 261-265. 47B05

Ribes, Luis
1 On a cohomology theory for pairs of groups, 21 (1969), 230-234. 18H10; 20J99

Rice, Bart Francis
1 Quaternion and binary quadratic forms, 27 (1971), 1-7. 10C05

Rich, Michael
1 On nearly commutative nodal algebras in characteristic zero, 24 (1970), 563-565. 17A25 17A30 17E05

2 Some radical properties of s-rings, 30 (1971), 40-42. 17A99 17E05; 16A21

Richards, James W.
1 Abelian f,p,f. operator groups of type (p, p), 29 (1971), 1-9. 20B25 20D10 20D45; 20K05

Richardson, G. D.
1 A class of uniform convergence structures, 25 (1970), 399-402. 54A20 54D10 54E15; 54D30

2 A Stone-Cech compactification for limit spaces, 25 (1970), 403-404. 54A20 54D35; 54A05

3 Completions of uniform convergence spaces, 29 (1971), 159-164. 54A20 54E15

Richen, Forrest
1 Decomposition numbers of p-solvable groups, 25 (1970), 100-104. 20D20 20D30

Richman, Fred

Riddell, R. C.
1 A note on Palais' axioms for section functors, 25 (1970), 808-810. 55F25 58A99 58D15; 58B10

2 (with Insley, R. B.) Commuting operator solutions of algebraic equations, 28 (1971), 461-463. 47A50

Rider, D. G.
1 Functions which operate in the Fourier algebra of a compact group, 28 (1971), 525-530. 43A20 43A30; 46J99
1971]

AUTHOR INDEX FOR VOLUMES 21-30

685

Rigelhof, Roger
  1 Subalgebras of group algebras, 23 (1969), 404-408.  
    22D15 22D20
  2 Invariant measures on locally compact semigroups, 28 (1971), 173-176.  
    20M10 22B05 28A70

Riley, John A.
  1 The maximal ideals in quaternion orders, 28 (1971), 436-438.  
    16A18 16A66; 13H99

Rinehart, George S.
  1 Note on the homology of a fiber product of groups, 24 (1970), 548-552.  
    18H10 20J05

Roach, F. A.
  1 Continued fractions over an inner product space, 24 (1970), 576-582.  
    40C05
  2 The parabola theorem for continued fractions over a vector space, 28 (1971), 137-146.  
    40A15

Roberson, Fred A.
    34A10 54H15; 54H20 54H25
  2 A theorem on near equicontinuity of transformation groups., 27 (1971), 189-191.  
    54H15 54H20; 54D45 54E35

Roberts, Leslie G.
  1 $K_1$ of projective $r$-space, 26 (1970), 587-592.  
    14F15

Robertson, Jack M.
    57D50 57E05 57E25 58D99

Robertson, M. S.
  1 A distortion theorem for analytic functions, 28 (1971), 551-556.  
    30A42 30A76; 30A36

Robinson, Julia
  1 Finitely generated classes of sets of natural numbers, 21 (1969), 608-614.  
    02F25
    10N05

Robson, J. C.
    16A12 16A46

Rogers, J. W., Jr.
  1 Continua not an inverse limit with a single bonding map on a polyhedron, 21 (1969), 281-283.  
    54B25 54F20; 54E60
    54C10 54F20; 54B25

Rogers, James Ted, Jr.
  1 (with Tollefson, Jefferey L.) Homeomorphism groups of weak solenoidal spaces, 28 (1971), 242-246.  
    54B25 54H15; 57A15
  2 Embedding the hyperspaces of circle-like plane continua, 29 (1971), 165-168.  
    54F20; 54B20 54B25 57A05 57A10 57D12
    54B25 57A15; 54G20

Rosen, Ronald H.
1 Concerning suspension spheres, 23 (1969), 225-231. 55A15 57D60

Rosencrans, S. I.
1 An extremal property of stochastic integrals., 28 (1971), 223-228. 60H05 60J65; 35K15 35L15

Rosenfeld, M.
1 Graphs with a large capacity, 26 (1970), 57-59. 05C99; 94A20

Rosenthal, Aaron
1 Riemannian manifolds of constant k-nullity, 22 (1969), 473-475. 53B20 53C20

Rosenthal, Paul
1 On the zeros of the Bergman function in doubly-connected domains, 21 (1969), 33-35. 05A30 05A31

Rosenthal, Peter
1 (with Radjavi, Heydar) The set of irreducible operators is dense, 21 (1969), 256. 47A15
2 Weakly closed maximal triangular algebras are hyperreducible, 24 (1970), 220. 46L15
3 (with Harrison, K. J. and Radjavi, Heydar) A transitive medial subspace lattice, 28 (1971), 119-121. 47A15; 47C05

Roth, B.
1 (with Kasch, Michael J., Jr.) A closed subspace of $L^1(\Omega)$ which is not an LF-space, 24 (1970), 801-802. 35E99 46A15

Roth, Emile Boyd
1 Quasi-reflexivity and dual norms, 23 (1969), 164-166. 46B10

Rothman, Neal J.

Rothschild, B. L.
1 (with Kleitman, Daniel J.) The number of finite topologies, 25 (1970), 276-282. 05B30; 05A05

Rothschild, Linda Preiss
1 On uniqueness of quasi-split real semisimple Lie algebras, 24 (1970), 6-8. 17B20

Rousseau, George
1 (with Davies, Roy O. and Hayes, Allan) Complete lattices and the generalized Cantor theorem, 27 (1971), 253-258. 06A10; 06A20

Rovnyak, James

Row, Harry

Rubin, Leonard R.
1 Recognizing certain factors of $E^4$, 26 (1970), 199-200. 57A10 57A15; 54B15

Rubinstein, Zalman
1 (with Saff, E. B.) Bounded approximation by polynomials whose zeros lie on a circle, 29 (1971), 482-486. 30A82 41A10; 30A06

Ruh, Ernst Alfred
1 Minimal immersions of 2-spheres in $S^4$, 28 (1971), 219-222.
AUTHOR INDEX FOR VOLUMES 21-30

Rupp, Russell D., Jr.

Rushing, T. B.
1 Realizing homeomorphisms by ambient isotopies, 23 (1969), 723-724.

Russo, Bernard
1 Isometries of the trace class, 23 (1969), 213.

Ryder, Gerald H.

Saari, Donald G.
1 Some large O nonlinear Tauberian theorems, 21 (1969), 459-462.

Sabbagh, Gabriel
1 Endomorphisms of finitely presented modules, 30 (1971), 75-78.

Saff, E. B.
2 Regions of meromorphy determined by the degree of best rational approximation, 29 (1971), 30-38.
3 (with Rubinstein, Zalman) Bounded approximation by polynomials whose zeros lie on a circle, 29 (1971), 482-486.

Saks, Victor

Salehi, Habib
1 (with Taylor, Gerald D.) Positive matrix $H^{1/2}$ and Hermitian matrix $H$ functions are constant, 26 (1970), 469-470.

Samelson, Hans
1 Orientability of hypersurfaces in $R^n$, 22 (1969), 301-302.

Sandomierski, Francis L.
1 On semiperfect and perfect rings, 21 (1969), 205-207.
<table>
<thead>
<tr>
<th>Author</th>
<th>Citations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Santos, Eugene S.</td>
<td>3 Some examples of right self-injective rings which are not left self-injective, 26 (1970), 244-245. 16A36 16A52; 16A64</td>
</tr>
<tr>
<td>Sarason, Donald</td>
<td>1 Probabilistic Turing machines and computability, 22 (1969), 704-710. 02F10 94A35</td>
</tr>
<tr>
<td>Satô, Shizuka</td>
<td>1 On rings with a higher derivation, 30 (1971), 63-68. 13B10; 13B20 13H99</td>
</tr>
<tr>
<td>Saworotnow, Parfeny P.</td>
<td>1 (with Friedell, J. C.) Trace-class for an arbitrary $H^*$-algebra, 26 (1970), 95-100. 46K15 47B10</td>
</tr>
<tr>
<td>2 Trace-class and centralizers of an $H^*$-algebra, 26 (1970), 101-104. 46K15 47B10</td>
<td></td>
</tr>
<tr>
<td>Saxon, Stephen</td>
<td>1 (with Levin, Mark) Every countable-codimensional subspace of a barrelled space is barrelled, 29 (1971), 91-96. 46A07; 46A30</td>
</tr>
<tr>
<td>2 (with Levin, Mark) A note on the inheritance of properties of locally convex spaces by subspaces of countable codimension, 29 (1971), 97-102. 46A05 46A15</td>
<td></td>
</tr>
<tr>
<td>Schacher, Murray M.</td>
<td>1 Cyclotomic splitting fields, 25 (1970), 630-633. 12B10 16A40 16A46</td>
</tr>
<tr>
<td>Schaefer, Helmut H.</td>
<td>1 On the characteristic roots of real matrices, 28 (1971), 91-92. 15A18; 15A48</td>
</tr>
<tr>
<td>Schaeffer, David G.</td>
<td>1 A note on the representation of a solution of an elliptic differential equation near an isolated singularity, 23 (1969), 450-454. 35C99 35J30</td>
</tr>
<tr>
<td>2 An extension of Hartogs' theorem for domains whose boundary is not smooth, 25 (1970), 714-715. 32D10</td>
<td></td>
</tr>
<tr>
<td>Scheinberg, Stephen</td>
<td>1 A convergence question in $H^p$, 30 (1971), 120-124. 30A78; 60G25</td>
</tr>
<tr>
<td>Schelp, R. H.</td>
<td>1 (with Gudder, Stanley P.) Coordinatization of orthocomplemented and orthomodular posets, 25 (1970), 229-237. 06A10 20M15; 06A25 06A30</td>
</tr>
<tr>
<td>Schenkman, Eugene</td>
<td>1 The general product of two finitely generated abelian groups, 21 (1969), 202-204. 20D40</td>
</tr>
<tr>
<td>2 Some criteria for nilpotency in groups and Lie algebras, 21 (1969), 714-718. 17B05 17B40 20F35 20F40 20F55</td>
<td></td>
</tr>
<tr>
<td>3 The tower theorem for finite groups, 22 (1969), 458-459. 20D45; 20D35</td>
<td></td>
</tr>
<tr>
<td>Schmeidler, David</td>
<td>1 Fatou's lemma in several dimensions, 24 (1970), 300-306. 28A25 28A45</td>
</tr>
<tr>
<td>Schmidt, Wolfgang M.</td>
<td>1 Irregularities of distribution. V, 25 (1970), 608-614. 52A45</td>
</tr>
<tr>
<td>Schmitt, Klaus</td>
<td></td>
</tr>
</tbody>
</table>
1 Periodic solutions of linear second order differential equations with deviating argument, 26 (1970), 282-285. 34C25 34K15

Schneeberger, C.
1 Commutators on a separable $L^p$-space, 28 (1971), 464-472. 47B47; 46E30

Schneider, Leo J.
1 Oscillation properties of the 2-2 disconjugate fourth order selfadjoint differential equation, 28 (1971), 545-550. 34C10

Schneider, W. J.
1 (with Barth, K. F.) An asymptotic analog of the F. and M. Riesz radial uniqueness theorem, 22 (1969), 53-54. 30A76; 30A88
2 (with Barth, K. F.) A short proof of a lemma of G. R. MacLane, 22 (1969), 30A72

Schober, G. E.
1 (with Hengartner, Walter) Analytic functions close to mappings convex in one direction, 28 (1971), 519-524. 30A32 30A34

Schochetman, Irwin
1 Dimensionality and the duals of certain locally compact groups, 26 (1970), 514-520. 22D30; 43A60
2 Nets of subgroups and amenability, 29 (1971), 397-403. 22D05 22D40 22D99; 22D10 22D30

Schrader, Keith W.
1 (with Waltman, Paul E.) An existence theorem for nonlinear boundary value problems, 21 (1969), 653-656. 34B15

Schreiber, Michel
1 (with Targonski, Gyorgy I.) Carleman and semi-Carleman operators, 24 (1970), 293-299. 47G05

Schubert, C. F.
1 Invariant subspaces with invariant complements, 22 (1969), 85-90. 30A78 46E20

Schultz, Reinhard E.
1 The nonexistence of free $S^1$ actions on some homotopy spheres, 27 (1971), 595-597. 57D60 57E15 57E25

Schumaker, Larry L.
1 (with Jerome, Joseph W.) Applications of $\varepsilon$-entropy to the computation of n-widths, 22 (1969), 719-722. 41A45 46B99

Schumitzky, Alan
1 (with Kagiwada, Harriet H. and Kalaba, Robert E.) A representation for the solution of Fredholm integral equations, 23 (1969), 37-40. 45B05

Schupp, Paul E.
1 On the substitution problem for free groups, 23 (1969), 421-423. 20F10

Schwabauer, Robert
1 Commutative semigroup laws, 22 (1969), 591-595. 20M99; 20E10

Schwabhäuser, Wolfram
1 The connection between two geometrical axioms of H. N. Gupta, 22 (1969), 233-234. 50A05 50A20; 12D15

Schwartz, Alan L.
1 An inversion theorem for Hankel transforms, 22 (1969), 713-717. 44A15
2 On the ideal structure of the algebra of radial functions, 26 (1970), 621-624.
Schwartz, Benjamin L.
05C99

Schwartzbauer, T.
28A65

28A65

Scott, J. B.
34C10

Scott, W. R.
1 *Semi-isomorphisms of certain infinite permutation groups*, 21 (1969), 711-713.
20E99

2 (with Amberg, Bernhard) *Products of Abelian subgroups*, 26 (1970), 541-547.
20F25

Seebeck, Charles L. III
1 *Tame arcs on wild cells*, 29 (1971), 197-201.
57A15 57A35; 57D40

Seeley, Robert T.
32L99 35P10; 42A60

Segal, David M.
55E10 55H15 57F15 57F20

2 *Divisibility conditions on characteristic numbers of stably symplectic manifolds*, 27 (1971), 411-415.
57D20 57D90; 55H15

Sehgal, V. M.
1 *A fixed point theorem for mappings with a contractive iterate*, 23 (1969), 631-634.
54C10 54E40 54E50 54H25

2 (with George, John H. and Smithson, Raymond E.) *Application of Liapunov’s direct method to fixed point theorems*, 28 (1971), 613-620.
54C60 54H25; 54E35 54E45

3 (with Thomas, James W.) *A fixed point theorem for semigroups of mappings with a contractive iterate*, 29 (1971), 565-568.
47D05 47H10

Seidenberg, A.
12H05

13B25 13E99; 13B20

Sen, Rabindra Nath
1 *Correction to a theorem of mine*, 27 (1971), 341-342.
53B20

Sentilles, F. Dennis
28A65 60J25

Severo, Norman C.
60F10 60F15 62E20; 60E05 60F05 60F20
1971]  AUTHOR INDEX FOR VOLUMES 21-30  691

Shafaat, Ahmad
  1 Subcartesian products of finitely many finite algebras, 26 (1970), 401-404.
        08A15

Shaffer, Dorothy Browne
        30A06

Shannon, Richard T.
  1 The rank of a flat module, 24 (1970), 452-456.
        16A50

Shapiro, J. H.
        46A15

Shapiro, Leonard D.
  1 Proximity in minimal transformation groups, 26 (1970), 521-525.
        54H20; 54G20 54H15

Sharp, Henry S.
        04A05 05A10 05B20; 04A15 28A05 54F99 54H05

Shatz, Stephen S.
  1 Principal homogeneous spaces for finite group schemes, 22 (1969), 678-680.
        14L20

Shawyer, Bruce Lockhart Robertson
        40D25 40G10
  2 (with Yang, Gou-sheng) On the relation between the Abel-type and Borel-type methods of summability, 26 (1970), 323-328.
        40D25 40G10

Shea, Daniel F.
        40E05 44A15

Sher, R. B.
  1 Determining the cellularity of a 1-complex by properties of its arcs, 26 (1970), 491-498.
        57A15 57A60; 55A15
  2 Tame polyhedra in wild cells and spheres, 30 (1971), 169-174.
        57A15 57A45 57C05 57C55; 55A30 57A60

Sherman, Thomas L.
        34C10

Shiffman, Bernard
  1 Local complex analytic curves in an analytic variety, 24 (1970), 432-437.
        32C25

Shore, Samuel D.
  1 Decomposition of function-lattices, 28 (1970), 189-190.
        46E05

Shores, T. S.
  1 Decompositions of finitely generated modules, 30 (1971), 445-450.
        13C05 13C10; 13F05

Shub, Michael
  1 (with Williams, Robert F.) Future stability is not generic, 22 (1969), 483-484.
        58F10

Sibuya, Yasutaka
  1 Almost periodic solutions of Poisson's equation, 28 (1971), 195-198.
        31B35 35B25 35J05 42A84; 31B05 35D99 46H99
Sidney, S. J.
1 An example concerning core measures, 26 (1970), 428-430. 46J10
2 Peak points for hypo-Dirichlet algebras, 26 (1970), 431-436. 46J10

Siegel, Jerrold
1 k-invariants in local coefficient theory, 29 (1971), 169-174. 55B25 55F15 55F35 55G45; 55H10

Sieradski, Allan J.
1 Generalized theories for k-spaces, 24 (1970), 52-56. 54D50 55B20

Sigillito, Vincent G.
1 On the uniqueness of solutions of certain improperly posed problems, 24 (1970), 828-831. 35L05 35R25; 35A05

Sikkema, Carl D.
1 A duality between spheres and spheres with arcs, 25 (1970), 781-785. 57A10; 54A05

Silberger, Allan J.
1 All algebras of spherical functions defined on the two-by-two general linear group with entries in a locally compact p-adic field are commutative, 21 (1969), 437-440. 22E35

Simon, Hermann
1 Extensions of torsionfree groups by torsion groups, 23 (1969), 433-438. 20F25

Simons, F. H.
1 Recurrence and preservation of measure, 24 (1970), 221. 28A65

Sinclair, Allan M.
1 Jordan automorphisms on a semisimple Banach algebra, 25 (1970), 526-528. 46H05 46L05
2 The norm of a hermitian element in a Banach algebra, 28 (1971), 446-450. 46H99; 30A42 46K99 47A10
3 (with Knopfmacher, J.) Fields with few extensions, 29 (1971), 255-258. 10J10

Sine, R. C.
1 Smoothing in C(X), 21 (1969), 490-492. 46E15
2 A note on rays at the identity operator, 23 (1969), 546-547. 47D20
3 A mean ergodic theorem, 24 (1970), 438-439. 28A65

Singer, Ivan
1 Remark on a paper of Y. Ikebe, 21 (1969), 24-26. 41A65

Singh, Sheo Ram
1 On the absolute Nörlund summability factors of infinite series, 25 (1970), 684-689. 40F05 40G05

Sinkhorn, Richard
1 Concerning a conjecture of Marshall Hall, 21 (1969), 197-201. 15A15 15A51
2 Linear transformations under which the doubly stochastic matrices are invariant, 27 (1971), 213-221. 15A51 15A72; 15A21

Siromoney, Rani
1 A characterization of semilinear sets, 21 (1969), 689-694. 94A30

Sitaramachandra Rao, R.
1 (with Suryanarayana, D.) On the order of the error function of the k-free integers,
1971] AUTHOR INDEX FOR VOLUMES 21-30 693

28 (1971), 53-58. 10H15

Siu, Yum-tong
1 Sheaf cohomology with bounds and bounded holomorphic functions, 21 (1969), 226-229. 32C35; 32A07
2 Noetherianness of rings of holomorphic functions on Stein compact subsets, 21 (1969), 483-492. 32C15

Skerry, Herbert
1 (with Jakimovski, Amnon) Some regularity conditions for the \((f, d, z, z)\) summability method, 24 (1970), 281-287. 40C05 40D05 40G99

Skoug, D. L.
1 (with Johnson, Gerald W.) Operator-valued Feynman integrals of certain finite-dimensional functionals, 24 (1970), 774-780. 28A40
2 (with Johnson, Gerald W.) An operator valued function space integral: a sequel to Cameron and Storvick's paper, 27 (1971), 514-518. 28A40

Skwarczyński, M.
1 The invariant distance in the theory of pseudo-conformal transformations and the Lu Qi-Keng conjecture, 22 (1969), 305-310. 30A30 30A31 32H10 32H15

Slivka, John
1 (with Severo, Norman C.) On the strong law of large numbers, 24 (1970), 729-734. 60F10 60F15 62E20; 60E05 60F05 60F20

Slover, Rebecca Ellen
1 (with Fletcher, Peter and McCoy, R. A.) On boundedly metacompact and boundedly paracompact spaces, 25 (1970), 335-342. 54D15 54D20 54F45

Smith, James C., Jr.
1 Lebesgue characterizations of uniformity-dimension functions, 22 (1969), 164-169. 54F45; 54E15 54E35

Smith, John H.
1 A result of Bass on cyclotomic extension fields, 24 (1970), 394-395. 12A35

Smith, Larry
1 (with Smith, Mi-Soo Bae) On the cohomology Chern classes of the K-theory Chern classes, 26 (1970), 209-214. 55B15 55F25 55P50 57D20; 55F40

Smith, Mi-Soo Bae

Smith, William W.
1 A covering condition for prime ideals, 30 (1971), 451-452. 13A15

Smithson, Raymond E.
1 A note on \(\delta\)-continuity and proximate fixed points for multi-valued functions, 23 (1969), 256-260. 54C60 54H25; 54F50
2 Fixed points for contractive multifunctions, 27 (1971), 192-194. 54C30 54H25; 54B20 54E35
3 Fixed points of order preserving multifunctions, 28 (1971), 304-310. 06A10 54C60 54F05 54H25; 54C65
4 (with George, John H. and Sehgal, V. M.) Application of Liapunov's direct method to fixed point theorems, 28 (1971), 613-620. 54C60 54H25; 54E35 54E45

Smythe, N.
1 Handlebodies in 3-manifolds, 26 (1970), 534-538. 55A25 57A10 57D65; 57C40
Soare, Robert I.
1 (with Jockusch, Carl G., Jr.) Minimal covers and arithmetical sets, 25 (1970), 856-859. 02F30

Solitar, Donald
1 (with Karrass, Abraham) On finitely generated subgroups of a free group, 22 (1969), 209-213. 20E05
2 (with Karrass, Abraham) On groups with one defining relation having an abelian normal subgroup, 23 (1969), 5-10. 20K05
3 (with Baumslag, Gilbert and Karrass, Abraham) Torsion-free groups and amalgamated products, 24 (1970), 688-690. 20E30
4 (with Karrass, Abraham) On the free product of two groups with an amalgamated subgroup of finite index in each factor, 26 (1970), 28-32. 20E05 20E30

Sommese, Joseph E.
1 On a maximal ideal space separated by a peak point, 26 (1970), 471-472. 46J10

Sparks, Arthur G.
1 Intersections of maximal $L_n$ sets, 24 (1970), 245-250. 52A30
2 Characterizations of the generalized convex kernel, 27 (1971), 563-565. 52A10

Spatz, I. N.
1 Smooth Banach algebras, 22 (1969), 328-329. 46H99

Speers, Richard
1 Jordan structures in simple graded rings, 24 (1970), 22-23. 16A68

Sperry, P. L.
1 On generating systems for abelian groups, 24 (1970), 148-153. 20K99

Spira, Robert
1 Another zero-free region for $\zeta(s)$, 26 (1970), 246-247. 10H05

Srivastava, H. M.
1 Generating functions for Jacobi and Laguerre polynomials, 23 (1969), 590-595. 33A65

Stackelberg, Olaf P.
1 An upper asymptotic estimate of Brownian path variation, 26 (1970), 168-173. 60F15 60J65

Stanford, David P.
1 Boundedness and dimension for weighted average functions, 24 (1970), 82-84. 31C05

Stark, H. M.
1 A historical note on complex quadratic fields with class-number one, 21 (1969), 254-255. 12A25 12A50

Staudte, Robert G., Jr.
1 (with Tata, Mahabanoo N.) Complex roots of real characteristic functions, 25 (1970), 238-246. 60E05 62E10; 60B15

Stavrakas, Nick M.
1 (with Hare, William R. and Kenelly, J. W.) Two cells with $N$ points of local nonconvexity, 27 (1971), 331-336. 52A10

Stebe, Peter
1 A residual property of certain groups, 26 (1970), 37-42. 20E25 20F10

Steen, Lynn A.
1. A direct proof that a linearly ordered space is hereditarily collectionwise normal, 24 (1970), 727-728.

Stein, F. Max

Stein, George H.

Stein, James D., Jr.
1. Several theorems on boundedness and equicontinuity, 26 (1970), 415-419.

Steiner, A. K.
1. (with Steiner, Eugene F.) Graph closures and metric compactifications of N, 25 (1970), 593-597.

Steiner, Eugene F.
1. (with Steiner, A. K.) Graph closures and metric compactifications of N, 25 (1970), 593-597.

Stephenson, Robert M., Jr.
2. A countable minimal Urysohn space is compact, 22 (1969), 625-626.

Stepp, James W.
2. Semilattices which are embeddable in a product of min intervals, 28 (1971), 81-86.

Stewart, D. G.
1. (with Anderson, Bruce A.) T₁-complements of T₁ topologies, 23 (1969), 77-81.

Stitzinger, Ernest L.
2. On elementary groups, 26 (1970), 236-238.

St. Mary, Donald F.

Stoddart, A. W. J.

Stoll, Wilhelm
1. About the universal covering of the complement of a complete quadrilateral, 22 (1969), 326-327.
2. The construction of a $\tilde{3}$-simple covering, 27 (1971), 101-106.
AUTHOR INDEX FOR VOLUMES 21-30

Stoltenberg, Ronald A.
1 A note on stratifiable spaces, 23 (1969), 294-297.
54E20; 54A25 54C10

Stone, A. H.
04A15 26A21 28A05 54C50

Stone, Anthony P.
1 (with Blair, David E.) A note on the holonomy group of manifolds with certain structures, 21 (1969), 73-76.
53B20

Stout, E. L.
1 Riesz and Laurent decompositions on Riemann surfaces, 24 (1970), 324-331.
30A76; 30A46 30A88

Strait, Peggy Tang
1 On Berman’s version of the Lévy-Baxter theorem, 23 (1969), 91-93.
60F15 60J65; 60C05 60G15 60J30
2 A flat integral for functionals defined on sample paths of a Brownian process with the parameter in N-dimensional space, 25 (1970), 21-23.
60H05 60J65; 47B10

Stratton, Howard H., Jr.
46L20; 40H05
40H05 40J05 46A05 46A45

Straus, Ernst G.
12B05

Strauss, Aaron
1 (with Yorke, James A.) Identifying perturbations which preserve asymptotic stability, 22 (1969), 513-518.
34D10
34D10

Stecker, G. E.
1 (with Viglino, Giovanni) Cotopology and minimal Hausdorff spaces, 21 (1969), 569-574.
54A10 54D25; 54D10 54D35

Strichartz, Robert S.
1 A multilinear version of the Marcinkiewicz interpolation theorem, 21 (1969), 441-444.
46E35
46E35; 46J10

Stringall, Robert W.
1 Decompositions of Abelian $p$-groups, 28 (1971), 409-410.
06A40 20K10
2 The categories of $p$-rings are equivalent, 29 (1971), 229-235.
06A40; 02J05 16A30

Subbarao, M. V.
Erratum: 29 (1971), 627.
05A19; 05A15
10A45
10A45

Suffridge, Ted J.
1 On the kernel function for the intersection of two simply connected domains, 22
Summerhill, Ralph R.
1 Tree-like continua and cellularity, 26 (1970), 201-205.
54C25 54F20 54F50; 54F15 54F60

Summer, D. W.
1 $H_2$ of the commutator subgroup of a knot group, 28 (1971), 319-320.
18H10 55A05 55A25

Summers, W. H.
46H05 46H25; 47B05

Summers, D. W. L.
1 Homotopy torsion in codimension two knots, 24 (1970), 229-240.
55A05 57C45

Sundaresan, Kondagunta
46E30 46E40

Suryanarayana, D.
1 (with Sitaramachandra Rao, R.) On the order of the error function of the k-free integers, 28 (1971), 53-58.
10H15

Sutton, W. G.
34B15

Suzuki, Noboru
1 The structure of spectral operators with completely continuous imaginary part, 22 (1969), 82-84.
47A65 47B40
47B20
3 On a weakly convergent sequence of normal functionals on a von Neumann algebra, 22 (1969), 697-701.
46L10

Swan, Richard G.
05C30 15A06

Swanson, C. A.
34C15
35B05 35J60

Swetits, John
1 Summability of a Cauchy product series, 23 (1969), 144-146.
40C15 40D99

Tan, K. W.
1 On measures with separable orbit, 23 (1969), 409-411.
43A05

Tamae, Hisahiro
54D20 54E20 54E35

Targonski, György I.
1 (with Schreiber, Michel) Carleman and semi-Carleman operators, 24 (1970), 293-299.
47G05

Tarsy, Richard B.
18G20; 16A62
### AUTHOR INDEX FOR VOLUMES 21-30

**Tarwater, J. Dalton**

**Tata, Mahabanoo N.**
1. (with Staudte, Robert G., Jr.) *Complex roots of real characteristic functions*, 25 (1970), 238-246. 60E05 62E10; 60B15

**Taylor, B. A.**

**Taylor, Gerald D.**
1. (with Salehi, Habib) *Positive matrix $H^{1/2}$ and Hermitian matrix $H^1$ functions are constant*, 26 (1970), 469-470. 30A78; 15A48

**Taylor, Michael E.**
1. *Analytic properties of elliptic and conditionally elliptic operators*, 28 (1971), 317-318. 35B45 35J30

**Teply, Mark L.**
1. *Torsionfree projective modules*, 27 (1971), 29-34. 16A50; 16A08 16A62 18G05

**Terkelsen, Frode**

**Thedy, Armin**
1. *On rings satisfying $[(a, b, c), d] = 0$*, 29 (1971), 250-254. 17A30 17E05

**Thie, Paul R.**

**Thomas, C. B.**
1. *On periodic maps which respect a symplectic structure*, 22 (1969), 251-254. 55B15 55C35 57D90

**Thomas, James W.**
1. (with Sehgal, V. M.) *A fixed point theorem for semigroups of mappings with a contractive iterate*, 29 (1971), 565-568. 47D05 47H10

**Thomason, S. K.**
1. *A proof of Whitman’s representation theorem for finite lattices*, 25 (1970), 618-619. 06A20; 08A05

**Thompson, Gerald L.**
1. (with Weil, Roman L., Jr.) *Reducing the rank of $(A - \lambda B)$*, 26 (1970), 548-554. 15A03; 15A18 15A30

**Tillman, Stephen J.**

**Tindell, Ralph S.**

**Ting, Wei-lung**
1 On cohomology groups of Banach algebras, 21 (1969), 175-178. 46J99 46M99

Tirao, Juan A.
1 Selfadjoint function spaces on Riemannian symmetric manifolds, 24 (1970), 223-228. 53C35

To, Ting-on
1 The equivalence of the least upper bound property and the Hahn-Banach extension property in ordered linear spaces, 30 (1971), 287-295. 46A40; 06A20

Tollefson, Jeffrey L.
1 3-manifolds fibering over $S^1$ with nonunique connected fiber, 21 (1969), 79-80. 55F55 57A10; 20E40 55A05
2 Imbedding free cyclic group actions in circle group actions, 26 (1970), 671-673. 57E10 57E30; 57A10
3 (with Rogers, James Ted, Jr.) Homeomorphism groups of weak solenoidal spaces, 28 (1971), 242-246. 54B25 54H15; 57A15
4 (with Rogers, James Ted, Jr.) Homogeneous inverse limit spaces with nonregular covering maps as bonding maps, 29 (1971), 417-420. 54B25 57A15; 54G20

Tomiuk, Bohdan J.

Tondra, Richard J.
1 Characterization of connected 2-manifolds without boundary which have finite domain rank, 22 (1969), 479-482. 57A05
3 The domain rank of open surfaces of infinite genus, 28 (1971), 581-583. 55A30 55A99 57A05

Tong, Alfred E.
1 Projecting the space of bounded operators onto the space of compact operators, 24 (1970), 362-365. 46A45; 47B05

Tonne, Philip C.
1 On the convergence of Bernstein polynomials for some unbounded analytic functions, 22 (1969), 1-6. 41A10; 40A05

Torrance, Ellen
1 Maximal $C^*$-subalgebras of a Banach algebra, 25 (1970), 622-624. 46H10 46L05

Transue, William R. R.
1 (with Bennett, Ralph) On embedding cones over circularly chainable continua, 21 (1969), 275-276. 54C20 54F20; 54F55 57A05 57A10 57A15 57A35
2 (with Hinrichsen, J. W. and Fitzpatrick, Ben, Jr.) Concerning upper semicontinuous decompositions of irreducible continua, 30 (1971), 157-163. 54F20; 54B15

Trotter, Hale F.
1 On the norms of units in quadratic fields, 22 (1969), 198-201. 12A25 12A45

Trotter, William T., Jr.
1 Characterization of the finite partition property for a collection of universal subcontinua, 25 (1970), 760-762. 54F15; 54F20

Tsagas, Grigorios
1 A relation between killing tensor fields and negative pinched Riemannian manifolds,
AUTHOR INDEX FOR VOLUMES 21-30

22 (1969), 476-478. 53C20 57D25
Tsai, Chester E.
1 The Levitzki radical in Jordan rings, 24 (1970), 119-123. 17C10

Tse, Kam-fok
1 An analog of the Lusin-Privaloff radial uniqueness theorem, 25 (1970), 310-312. 30A72
2 Nontangential interpolating sequences and interpolation by normal functions, 29 (1971), 351-354. 30A74 30A80; 30A76

Tserpes, Nicholas
1 (with Mukherjea, Arunava) Idempotent measures on locally compact semigroups, 29 (1971), 143-150. 28A70 43A05 60B15; 43A07 60B05

Turakainen, Paavo
1 Generalized automata and stochastic languages, 21 (1969), 303-309. 94A30 94A35

Turdza, Erwin
1 On the stability of the functional equation \( \phi[f(x)] = g(x) \phi(x) + F(x) \), 30 (1971), 484-486. 39A15

Turnidge, Darrell R.
1 Torsion theories and semihereditary rings, 24 (1970), 137-143. 16A50; 16A30

Twomey, J. B.
1 On starlike functions, 24 (1970), 95-97. 30A32
2 (with Saff, E. B.) A note on the location of critical points of polynomials, 27 (1971), 303-308. 30A08

Tzafriri, L.
1 Reflexivity of cyclic Banach spaces, 22 (1969), 61-68. 46B10; 46A40
2 Conditional expectations and an isomorphic characterization of \( L_1 \)-spaces, 27 (1971), 317-324. 46B99 46E30

Uchiyama, Saburô
1 On some products involving primes, 28 (1971), 629-630. 10H25 57A99

Uhl, J. J., Jr.
1 The Radon-Nikodym theorem and the mean convergence of Banach space valued martingales, 21 (1969), 139-144. 28A10 28A25 28A45 46G10 60G45; 28A15 46B10 46G05 47D99
2 The range of a vector-valued measure, 21 (1969), 158-163. 28A45
3 Abstract martingales in Banach spaces, 28 (1971), 191-194. 46G10; 60G45

Ulrich, Dolph
1 Solution to a problem posed by Kalicki, 22 (1969), 728-729. 02C05

Unger, Gerald S.
1 Completely regular maps, fiber maps and local n-connectivity, 21 (1969), 104-108. 54D05 55P05

Utz, W. Roy
1 Oscillating solutions of third order differential equations, 26 (1970), 273-276. 34C10

Valentine, Joseph E.
1 Hyperbolic spaces and quadratic forms, 24 (1970), 607-610. 50C05

Vanden Eynden, C. L.
1 (with Crittenden, Richard B.) Any \( n \) arithmetic progressions covering the first \( 2^n \) integers cover all integers, 24 (1970), 475-481. 10A10
<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Volume</th>
<th>Page Range</th>
<th>Classification Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van de Water, Arthur</td>
<td>A property of torsion-free modules over left Ore domains, 25 (1970), 199-201.</td>
<td>25</td>
<td>199-201</td>
<td>16A02 16A52</td>
</tr>
<tr>
<td>Van Vleck, F. S.</td>
<td>(with Himmelberg, Charles J. and Porter, Jack R.) Fixed point theorems for condensing multifunctions, 23 (1969), 635-641.</td>
<td>23</td>
<td>635-641</td>
<td>47H10</td>
</tr>
<tr>
<td>Varadarajan, K.</td>
<td>A note on topological parallelizability, 22 (1969), 607-609.</td>
<td>22</td>
<td>607-609</td>
<td>57A55 57E05</td>
</tr>
<tr>
<td></td>
<td>Annihilators of modules with a finite free resolution, 29 (1971), 440-442.</td>
<td>29</td>
<td>440-442</td>
<td>13C10 13D05</td>
</tr>
<tr>
<td>Vaughan, J. E.</td>
<td>Linearly ordered collections and paracompactness, 24 (1970), 186-192.</td>
<td>24</td>
<td>186-192</td>
<td>54D20 54D10 54D15 54E35</td>
</tr>
<tr>
<td></td>
<td>(with Tamaño, Hisahiro) Paracompactness and elastic spaces, 28 (1971), 299-303.</td>
<td>28</td>
<td>299-303</td>
<td>54D20 54E20 54E35</td>
</tr>
<tr>
<td>Vaughan, Loy Ottis, Jr.</td>
<td>The almost fixed point property for hereditarily unicoherent continua, 27 (1971), 381-386.</td>
<td>27</td>
<td>381-386</td>
<td>54C60 54H25 54F50</td>
</tr>
<tr>
<td>Veech, William A.</td>
<td>Short proof of Sobczyk's theorem, 28 (1971), 627-628.</td>
<td>28</td>
<td>627-628</td>
<td>46B99 46E15</td>
</tr>
<tr>
<td>Venkatanarasimhan, P. V.</td>
<td>Pseudo-complements in posets, 28 (1971), 9-17.</td>
<td>28</td>
<td>9-17</td>
<td>06A10 06A20 06A40</td>
</tr>
<tr>
<td>Verhey, Roger F.</td>
<td>Interior and polynomial extensions of immersed circles, 24 (1970), 41-49.</td>
<td>24</td>
<td>41-49</td>
<td>30A90</td>
</tr>
<tr>
<td>Verma, Arun</td>
<td>(with Al-Salam, Waleed A.) Some orthogonality preserving operators, 23 (1969), 136-139.</td>
<td>23</td>
<td>136-139</td>
<td>42A52 34A35</td>
</tr>
<tr>
<td>Vidosich, Giovanni</td>
<td>A remark on the density character of function spaces, 22 (1969), 618-619.</td>
<td>22</td>
<td>618-619</td>
<td>54A25 54C35 46A05</td>
</tr>
<tr>
<td></td>
<td>(A note on cardinal reflections in the category of uniform spaces, 23 (1969), 55-58. 54E15</td>
<td>23</td>
<td>55-58</td>
<td>54D20 54E15</td>
</tr>
<tr>
<td></td>
<td>Uniform spaces of countable type, 25 (1970), 551-553.</td>
<td>25</td>
<td>551-553</td>
<td>54D20 54E15</td>
</tr>
</tbody>
</table>
54D20 54D30 54E15; 54D35

Vidyasagar, M.
1 (with Subbarao, M. V.) On Watson’s quintuple product identity, 26 (1970), 23-27; 
Erratum: 29 (1971), 627. 
05A19; 05A15

Viglino, Giovanni
54A10 54D25; 54D10 54D35

Vilms, Jaak
1 Nonlinear and direction connections, 28 (1971), 567-572. 
53B15 53B40

Vinograd, Bernard
1 (with Mordeson, John N.) Note on relative P-bases of purely inseparable extensions, 
22 (1969), 587-590. 
12F15

Viswanathan, T. M.
1 (with Reis, Clive M.) A compactness property for prime ideals in Noetherian rings, 
13A15; 13C99

Vučković, Vladeta
1 Almost recursive sets, 23 (1969), 114-119. 
02F25

Wade, William R.
1 Summing closed U-sets for Walsh series, 29 (1971), 123-125. 
42A52 42A56

Waelbroeck, Lucien
47D05

Wagoner, Ronald L.
1 Cogenerator endomorphism rings, 28 (1971), 347-351. 
16A50 16A52; 16A64 18G05

Walker, Elbert A.
1 (with Richman, Fred) Extending Ulm’s theorem without group theory, 21 (1969), 
194-196. 
04A20 20K25

Walker, Homer E.
1 On the null-spaces of first-order elliptic partial differential operators in $\mathbb{R}^n$, 30 
(1971), 278-286. 
35J45 47F05

Walkup, David W.
1 (with Wets, Roger J.-B.) A Lipschitzian characterization of convex polyhedra, 23 
52A25

Wallach, Nolan R.
17B10 17B20
53C20; 58A10

Wallen, Lawrence J.
1 Fourier-Stieltjes transforms tending to zero, 24 (1970), 651-652. 
42A16 42A68

Walsh, B. J.
1 Mutual absolute continuity of sets of measures, 29 (1971), 506-510. 
28A10 28A45 46G10; 46A05 47B99

Walsh, T.
1 On the existence of double singular integrals for kernels without smoothness, 28 
44A25; 47G05

Waltman, Paul E.
34B15
<table>
<thead>
<tr>
<th>Author</th>
<th>Contributions</th>
<th>Volumes</th>
<th>Pages</th>
<th>Classification Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wamsley, J. W.</td>
<td><em>The deficiency of metacyclic groups</em>, 24 (1970), 724-726.</td>
<td>20D10 20F05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ward, L. E., Jr.</td>
<td>1 (with Nadler, Sam B., Jr.) <em>Concerning continuous selections</em>, 25 (1970), 369-374. 2 <em>Arcs in hyperspaces which are not compact</em>, 28 (1971), 254-258.</td>
<td>54C65 54F50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ware, Roger</td>
<td>1 (with Zelmanowitz, Julius Martin) <em>The Jacobson radical of the endomorphism ring of a projective module</em>, 26 (1970), 15-20.</td>
<td>16A21 16A42 16A50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warner, Seth</td>
<td>1 <em>Metrizability of locally compact vector spaces</em>, 27 (1971), 511-513.</td>
<td>16A80 22A30</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 <em>Sheltered modules and rings</em>, 30 (1971), 8-14.</td>
<td>13A15 16A80 13J99 16A64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warren, Hugh E.</td>
<td>1 <em>A construction of certain nonlinear approximating families</em>, 21 (1969), 467-470.</td>
<td>41A10 41A63</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 *A special basis for C([0, 1]), 27 (1971), 495-499.</td>
<td>46B15 46E15</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 <em>A Riemann mapping theorem for C(X)</em>, 28 (1971), 147-154.</td>
<td>46J10 30A30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waterman, Alan G.</td>
<td>1 <em>The normal completions of certain partially ordered vector spaces</em>, 25 (1970), 141-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Wayment, S. G.
1 (with Cannon, J. W.) An imbedding problem, 25 (1970), 566-570. 54A20 54C25 54F15 57A10 57A15; 54C35 57A05
2 On congruence indices for simple closed curves, 28 (1971), 199-207. 52A10 52A50
3 (with Edwards, J. R.) A \( \psi \)-integral representation for linear operators on a space of continuous vector valued functions, 30 (1971), 260-262. 28A45 46E10
4 (with Edwards, J. R.) A \( \psi \)-integral representation for the continuous linear operators on spaces of continuously differentiable vector-valued functions, 30 (1971), 263-270. 28A45 46E10

Weaver, J. R.
1 Solvable automorphism groups and an upper bound for \( |A(G)| \), 27 (1971), 229-235. 20D10 20D45

Webb, William A.
1 On \( \frac{4}{n} = \frac{1}{x} + \frac{1}{y} + \frac{1}{z} \), 25 (1970), 578-584. 10B10

Weddington, D. D.
1 (with Bagley, Robert W.) Products of \( k' \)-spaces, 11 (1969), 392-394. 54D50
2 On \( k \)-spaces, 11 (1969), 635-638. 54D50

Well, Roman L., Jr.
1 (with Thompson, Gerald L.) Reducing the rank of \( (A - \lambda B) \), 26 (1970), 548-554. 15A03; 15A18 15A30

Weinbaum, C. M.
1 The word and conjugacy problems for the knot group of any tame, prime, alternating knot, 30 (1971), 22-26. 20E40 20F05 20F10 55A25; 55A05

Weinstein, Alan D.
1 Positively curved deformations of invariant Riemannian metrics, 26 (1970), 151-152. 53C20; 53C30
2 (with Marsden, Jerrold E.) A comparison theorem for Hamiltonian vector fields, 26 (1970), 629-631. 34C35

Weinstock, Barnet M.
1 Continuous boundary values of analytic functions of several complex variables, 21 (1969), 463-466. 32D10 32F15
2 An approximation theorem for \( \bar{\partial} \)-closed forms of type \( (n, n - 1) \), 26 (1970), 625-628. 32D15 32E30; 46F10

Weisman, Carl S.
1 On the connected identity component of the Adèle-class group of an algebraic torus, 21 (1969), 155-160. 20G30 20G35

Weiss, Max L.
1 (with Boehme, T. K.) One-sided boundary behavior for certain harmonic functions, 27 (1971), 280-288. 31A20
2 (with Boehme, T. K.) Extensions of Fatou's theorem to tangential asymptotic values, 27 (1971), 289-298. 30A98 31A20

Weissglass, Julian
1 Regularity of semigroup rings, 25 (1970), 499-503. 16A26 16A30 20M30

Weissner, Edward W.
1 (with Leadbetter, M. R.) On continuity and other analytic properties of stochastic process sample functions, 22 (1969), 291-294. 60G15 60G17
<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Volume, Year</th>
<th>Pages</th>
<th>MathSciNet Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weitsman, Allen</td>
<td>A growth property of the Nevanlinna characteristic</td>
<td>26, 1970</td>
<td>65-70</td>
<td>30A68 30A70</td>
</tr>
<tr>
<td>Wells, Benjamin B., Jr.</td>
<td>A random $L^1$ function with divergent Walsh series</td>
<td>24, 1970</td>
<td>794-796</td>
<td>42A56</td>
</tr>
<tr>
<td>Wend, David V. V.</td>
<td>Existence and uniqueness of solutions of ordinary differential equations</td>
<td>23, 1969</td>
<td>27-33</td>
<td>34A10</td>
</tr>
<tr>
<td></td>
<td>Oscillation of solutions of certain ordinary differential equations of $n$th order</td>
<td>25, 1970</td>
<td>463-469</td>
<td>34C10</td>
</tr>
<tr>
<td>West, James E.</td>
<td>Fixed-point sets of transformation groups on infinite-product spaces</td>
<td>21, 1969</td>
<td>575-582</td>
<td></td>
</tr>
<tr>
<td>Westman, Joel J.</td>
<td>Cohomology for the ergodic actions of countable groups</td>
<td>30, 1971</td>
<td>318-320</td>
<td></td>
</tr>
<tr>
<td>Weston, J. H.</td>
<td>Fixed-point sets of transformation groups on infinite-product spaces</td>
<td>24, 1970</td>
<td>197-203</td>
<td></td>
</tr>
<tr>
<td>Weston, Kenneth W.</td>
<td>On the Lie algebra of a Burnside group of exponent 5</td>
<td>27, 1971</td>
<td>463-470</td>
<td></td>
</tr>
<tr>
<td>West, Kenneth W.</td>
<td>On the Lie algebra of a Burnside group of exponent 5</td>
<td>27, 1971</td>
<td>463-470</td>
<td></td>
</tr>
<tr>
<td>Wets, Roger J.-B.</td>
<td>A Lipschitzian characterization of convex polyhedra</td>
<td>23, 1969</td>
<td>167-173</td>
<td></td>
</tr>
<tr>
<td>Whaley, Thomas P.</td>
<td>Binary relations on sets of regular cardinality</td>
<td>23, 1969</td>
<td>455-457</td>
<td></td>
</tr>
<tr>
<td>Whitman, David G.</td>
<td>On the multiplicity of an integral extension of a local ring</td>
<td>25, 1970</td>
<td>145-146</td>
<td></td>
</tr>
<tr>
<td>Whittemore, Alice</td>
<td>On the Frattini subgroup</td>
<td>21, 1969</td>
<td>699-702</td>
<td>20F15 20F30</td>
</tr>
<tr>
<td>Whitten, W. C., Jr.</td>
<td>On noninvertible links with invertible proper sublinks</td>
<td>26, 1970</td>
<td>341-346</td>
<td>55A25 55A05 57A35</td>
</tr>
<tr>
<td>Whyburn, Gordon Thomas</td>
<td>Accessibility spaces</td>
<td>24, 1970</td>
<td>181-185</td>
<td>54B15 54D50 54C10 54D55</td>
</tr>
<tr>
<td>Wicke, Howard H.</td>
<td>On the Hausdorff open continuous images of Hausdorff paracompact $p$-spaces</td>
<td>22, 1969</td>
<td>136-140</td>
<td>54C10 54D20 54A25 54C60</td>
</tr>
<tr>
<td></td>
<td>Extension of a result of Dieudonné</td>
<td>25, 1970</td>
<td>634-637</td>
<td></td>
</tr>
</tbody>
</table>
Wickless, William J.
1. Rings with the contraction property, 27 (1971), 57-60. 16A20 16A22 16A66

Widom, Harold

Wiegand, Roger
1. Endomorphism rings of ideals in a commutative regular ring, 23 (1969), 442-449. 16A30; 06A40 13C05

Wilansky, Albert
1. Subalgebras of $B(X)$, 29 (1971), 355-360. 46L20 47B05; 40H05 46E15 47A05

Wilbur, W. John
1. (with Pfeffer, W.) A note on cluster points of a semihereditary stable system of sets, 21 (1969), 121-125. 54A20; 28A15
2. On measurability and regularity, 21 (1969), 741-746. 02K35 28A60

Wilcox, Howard J.
1. Dense subgroups of compact groups, 28 (1971), 578-580. 22C05; 54H10

Wilder, B. E.
1. Semigroups on acyclic plane continua, 28 (1971), 587-589. 22A15 54F20; 54H15

Wilke, F. W.
1. (with Narayana Rao, M. L.) A necessary condition that two finite quasi-fields coordinatize isomorphic translation planes, 24 (1970), 124-125. 12K05 50D35

Wilken, Donald R.
1. Remarks on the string of beads, 23 (1969), 133-135. 46J10
2. Bounded point derivations and representing measures on $R(X)$, 24 (1970), 371-373. 30A98; 46E25 47B99

Willard, Stephen
1. Metric spaces all of whose decompositions are metric, 21 (1969), 126-128. 54E35; 54C10 54C50 54D30

Williams, D. L.
1. (with Taylor, B. A.) The peak sets of $A^m$, 24 (1970), 604-606. 30A42

Williams, Francis D.

Williams, G. Kenneth
1. On continuity in two variables, 23 (1969), 580-582. 32A10
2. Continuous and proper decompositions, 28 (1971), 267-270. 54B15 54C10; 54D05

Williams, James P.

Williams, Kenneth S.
1. Note on a theorem of Pall, 28 (1971), 315-316. 10J05
2. Note on the Kloosterman sum, 30 (1971), 61-62. 10G05
3. Note on Salie's sum, 30 (1971), 393-394. 10G05

Williams, R. E.
1. On the free product of rings with weak algorithm, 23 (1969), 596-597. 16A06
Williams, Richard K.
1 A note on expansive mappings, 22 (1969), 145-147. 54E40; 54C60
2 Some results on expansive mappings, 26 (1970), 655-663. 54C60 54E40; 54H20

Williams, Robert F.
1 (with Shub, Michael) Future stability is not generic, 22 (1969), 483-484. 58F10

Williams, Vernon
1 Operators from Banach spaces to complex interpolation spaces, 26 (1970), 248-254. 47A60 47A99; 46E35 47A30

Willig, Paul
1 B(H) is very noncommutative, 24 (1970), 204-205. 46L10
2 Properties Π and L for type II, factors, 25 (1970), 836-837. 46L10
3 Property P and direct integral decomposition of W*-algebras, 29 (1971), 494-498. 46L10
4 Property L and direct integral decompositions of W*-algebras, 30 (1971), 87-91. 46L10

Willmott, R. C.
1 On the uniformization of Souslin $\tau$ sets, 22 (1969), 148-155. 54H05; 04A15 28A05

Wils, W. I. M.
1 On semigroups near the identity, 21 (1969), 762-763. 47D05

Wilson, M. Wayne
1 Nonnegative expansions of polynomials, 24 (1970), 100-102. 42A52 42A60; 33A65

Wilson, R. G.
1 (with De Marco, Giuseppe) Realcompactness and partitions of unity, 30 (1971), 189-194. 54C40 54D60; 54A25 54D20 54E15

Wilson, Robert Lee
1 Irreducible Lie algebras of infinite type, 29 (1971), 243-249. 17B05 17B10 17B20; 17B65 22E65 58H05

Winter, David L.
1 Finite linear groups containing an irreducible solvable normal subgroup, 25 (1970), 716. 20C15

Winthrop, Joel
1 (with Cutler, Doyle O.) A note on a paper of Paul Hill and Charles Megibben, 22 (1969), 428-429. 20K10

Wiscamb, Margaret Reames
1 The discrete countable chain condition, 23 (1969), 608-612. 54D15 54D20

Wishart, E.
1 (with Davis, R. D.) Galois extensions and the ramification sequence of some wildly ramified $\pi$-adic fields, 30 (1971), 212-216. 12B10 12B15

Witthoft, William G.
1 A class of flexible nilstable algebras, 22 (1969), 361-363. 17A05 17A10 17A15 17A20 17A30; 17C05
2 (with Kass, Seymour) Irreducible polynomial identities in anticommutative algebras, 26 (1970), 1-9. 17A05 17A30; 17A10
<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Volume(Year)</th>
<th>Pages</th>
<th>Abstract Keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wogen, Warren</td>
<td>On special generators for properly infinite von Neumann algebras</td>
<td>28 (1971)</td>
<td>107-113</td>
<td>47C10; 46L10</td>
</tr>
<tr>
<td>Wolf, Joseph A.</td>
<td>A commutativity criterion for closed subgroups of compact Lie groups</td>
<td>27 (1971)</td>
<td>619-622</td>
<td>22C05</td>
</tr>
<tr>
<td></td>
<td>Remark on discrete subgroups</td>
<td>29 (1971)</td>
<td>423-425</td>
<td>22E40</td>
</tr>
<tr>
<td></td>
<td>Remark on Siegel domains of type III</td>
<td>30 (1971)</td>
<td>487-491</td>
<td>32M15</td>
</tr>
<tr>
<td>Wolfe, Peter</td>
<td>An existence theorem for the reduced wave equation</td>
<td>21 (1969)</td>
<td>663-666</td>
<td>35L05</td>
</tr>
<tr>
<td></td>
<td>On the inverse of an integral operator</td>
<td>25 (1970)</td>
<td>443-448</td>
<td>47G05</td>
</tr>
<tr>
<td></td>
<td>A uniformization theorem for arbitrary Riemann surfaces with signature</td>
<td>28 (1971)</td>
<td>489-495</td>
<td>30A46 30A58</td>
</tr>
<tr>
<td>Wong, James C. S.</td>
<td>Topological invariant means on locally compact groups and fixed points</td>
<td>27 (1971)</td>
<td>572-578</td>
<td>22D99</td>
</tr>
<tr>
<td></td>
<td>On the Arens product and annihilator algebras</td>
<td>30 (1971)</td>
<td>79-83</td>
<td>46C05; 46K99</td>
</tr>
<tr>
<td>Wong, Pui-kei</td>
<td>A criterion for disfocality</td>
<td>30 (1971)</td>
<td>112-114</td>
<td>34A20 34C10</td>
</tr>
<tr>
<td>Wong, Raymond Y. T.</td>
<td>Some remarks on hyperspaces</td>
<td>21 (1969)</td>
<td>600-602</td>
<td>54E35</td>
</tr>
<tr>
<td></td>
<td>Extending homeomorphisms in compactification of Fréchet spaces</td>
<td>25 (1970)</td>
<td>548-550</td>
<td>54C20 54D35 57A17</td>
</tr>
<tr>
<td></td>
<td>A note on stable homeomorphisms of infinite-dimensional manifolds</td>
<td>28 (1971)</td>
<td>271-272</td>
<td>37A20 57A20; 54H15</td>
</tr>
<tr>
<td>Wong, Yim-ming</td>
<td>Lattice-invariant properties of topological spaces</td>
<td>26 (1970)</td>
<td>206-208</td>
<td>54D05 54D10 54D15 54D20 54D45; 06A20</td>
</tr>
<tr>
<td>Wood, Bruce</td>
<td>On l - l summability</td>
<td>25 (1970)</td>
<td>433-436</td>
<td>40J05</td>
</tr>
<tr>
<td>Wood, Geoffrey V.</td>
<td>A note on isomorphisms of group algebras</td>
<td>25 (1970)</td>
<td>771-775</td>
<td>43A20 43A22; 22C05</td>
</tr>
<tr>
<td>Woods, S. M.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1971] AUTHOR INDEX FOR VOLUMES 21-30 709

1 On perfect group rings, 27 (1971), 49-52. 16A26 16A48; 20C05
Worrell, John M., Jr.
1 (with Wicke, Howard H.) Extension of a result of Dieudonné, 25 (1970), 634-637. 54D15 54D45 54E15; 54D20
Wright, D. J.
1 (with Merkes, E. P.) On the univalence of a certain integral, 27 (1971), 97-100. 30A32
Wright, Fred M.
Wright, Perrin
1 Covering isotopies of $M^{n-1}$ in $N^n$, 29 (1971), 591-598. 57A35 57A99 57E05; 55F05 57A50
Wu, Ta-sun
1 A certain type locally compact totally disconnected topological groups, 23 (1969), 613-614. 22B05
2 (with Lee, Dong Hoon) On existence of compact open normal subgroups of zero-dimensional groups, 26 (1970), 526-528. 22D05
Wulbert, Daniel E.
1 A problem of Bosák concerning the graphs of semigroups $C(X)$ for locally connected $X$, 21 (1969), 269-272. 54D05
Wyler, Oswald
1 A characterization of regularity in topology, 29 (1971), 588-590. 54A20 54D10; 18B10 54C05 54C60
Yabuta, Kôzô
1 Unicity of the extremum problems in $H^1(U^n)$, 28 (1971), 181-184. 46J15; 30A78 32A99
Yamashita, Shinji
1 A remark on Neuwirth and Newman’s paper: “Positive $H^{1/2}$ functions are constants”, 23 (1969), 147; Erratum: 25 (1970), 462. 30A78
Yang, Chung-chun
1 A generalization of a theorem of P. Montel on entire functions, 26 (1970), 332-334. 30A66 30A68 30A70
Yang, Gou-sheng
1 (with Shawyer, Bruce Lockhart Robertson) On the relation between the Abel-type and Borel-type methods of summability, 26 (1970), 323-328. 40D25 40G10
Yang, Jaw-ching
1 A theorem on the semigroup of binary relations, 22 (1969), 134-135. 20M10
Yap, Leonard Y. H.
Yasuhara, Ann
1 The solvability of the word problem for certain semigroups, 26 (1970), 645-650. 20M05; 02F05 02G05 20F10
Yeh, J.
1 Approximate evaluation of a class of Wiener integrals, 23 (1969), 513-517. 65D30
2 Minimal coefficients in Hölder conditions in the Wiener space, 25 (1970), 385-390.  
28A40

Yeh, R. Z.
1 A geometric proof of Markov ergodic theorem, 26 (1970), 335-340.  
15A51 60J10; 50D05 52A25 54H25

Yen, Ti
1 On $\aleph$-normalizers, 26 (1970), 49-56.  
20D10

Yohe, Cleon R.
1 Commutative rings whose matrix rings are Baer rings, 22 (1969), 189-191.  
13E99 13F05; 13C10

Yohe, J. M.
54F20 54F45; 54C10

Yorke, James A.
34K05

34C25

3 (with Strauss, Aaron) Identifying perturbations which preserve asymptotic stability, 22 (1969), 513-518.  
34D10

34D10

Young, Eutiquio C.
35G15; 35A05 35L20

Young, Sam W.
1 The representation of chainable continua with only two bonding maps, 23 (1969), 653-654.  
54F15 54F20; 54C30 54C35

Young, W. L.
1 A product space with the fixed point property, 25 (1970), 313-317.  
54H25; 54B10 54F50

Zaidman, Samuel
34D20 34G05

34D05 34G05

Zaks, Abraham
1 (with Evyatar, Asriel) Purely transcendental subfields of $k (x_1, ..., x_n)$, 22 (1969), 582-586.  
12F20 12F99 13F99; 13B99

13B25; 13C15

Zaks, Joseph
52A15 52A25

Zalcman, Lawrence
1 Addendum to ‘Analytic functions and Jordan arcs’, 21 (1969), 507.  
30A30; 30A60

Zame, Alan
1 A note on Wallman spaces, 22 (1969), 141-144.  
54E45; 54B99 54D35
Zee, Yun-cheng
1 The Jacobi sums of order twenty-two, 28 (1971), 25-31. 10G05 12C20

Zeitlin, David
1 A new class of generating functions for hypergeometric polynomials, 25 (1970), 405-412. 33A65; 33A70

Zelmanowitz, Julius Martin
1 (with Ware, Roger) The Jacobson radical of the endomorphism ring of a projective module, 26 (1970), 15-20. 16A21 16A42; 16A50

Zemmer, Joseph L., Jr.
1 (with Narayana Rao, M. L.) A question of Foulseron $\lambda$-systems of characteristic two, 21 (1969), 373-378. 12K05; 50D35

Zenor, Phillip
1 A note on $Z$-mappings and $WZ$-mappings, 23 (1969), 273-275. 54C10 54D15; 54C50 54D30
2 A class of countably paracompact spaces, 24 (1970), 258-262. 54D20; 54A25
3 On the completeness of the space of compact subsets, 26 (1970), 190-192. 54B99 54D30 54D60
4 Countable paracompactness in product spaces, 30 (1971), 199-201. 54B10 54D15 54D20

Zettl, Anton
1 A note on square integrable solutions of linear differential equations, 21 (1969), 671-672. 34B05 34D05
2 Square integrable solutions of $Ly = f(t, y)$, 26 (1970), 635-639. 34B05 34D05; 47E05
3 Factorization of differential operators, 27 (1971), 425-426. 34A05

Zink, Robert E.
1 On some subspaces of Banach spaces whose duals are $L_1$ spaces, 23 (1969), 378-385. 46E30
2 Existence of universal members in certain families of bases of Banach spaces, 26 (1970), 294-300. 46B15

Zlotkiewicz, Eligiusz
1 (with Read, Maxwell O.) On univalent functions with two preassigned values, 30 (1971), 539-544. 30A32

Zuckerman, Martin M.
1 Choices from finite sets and choices of finite subsets, 27 (1971), 133-138. 02K20; 04A20 04A25
### SUBJECT INDEX

**00—XX GENERAL**

00—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

00—01 Elementary exposition (collegiate level)

00—02 Advanced exposition (research surveys, etc.)

00A05 General mathematics

00A10 Collections of papers: Proceedings of conferences of general interest, translation volumes, etc. [See also 01A75.]

00A15 General bibliographies

00A20 Dictionaries and other general reference works

00A25 Methodology and philosophy of mathematics

**01—XX HISTORY AND BIOGRAPHY**

01—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

01A05 General histories, source books

01A10 Primitive

01A15 Pre-Greek, Babylonian, Egyptian

01A20 Greek

01A25 Far East

01A30 Islam

01A35 Medieval

01A40 15th and 16th centuries, Renaissance

01A45 17th century

01A50 18th century

01A55 19th century

01A60 20th century

01A65 Contemporary

01A70 Biographies, obituaries, personalia

01A75 Collected or selected works; reprints or translations of classics

**02—XX LOGIC AND FOUNDATIONS**

02—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

02—01 Elementary exposition (collegiate level)

02—02 Advanced exposition (research surveys, etc.)

02—03 Historical

02—04 Explicit machine computation and programs (not the theory of computation or programming)

02A05 Philosophical and critical

02Bxx Classical logical systems

02B05 Propositional calculus

02B10 Predicate calculus

Monk, J. Donald 1P

02B15 Higher order predicate calculus

02B20 Unusual quantifiers

02B25 Infinitely long sentences

Eklof, Paul C. 1P

02B99 None of the above, but in this section

02Cxx Nonclassical formal systems

02C05 Many-valued logic

Ulrich, Dolph 1P

Eklof, Paul C. 1P

02C10 Modal logic, etc.

02C15 Formalizations of intuitionism, etc.

02C20 Combinatory logic

Hindley, Roger 1P

Lercher, Bruce 1P

02C99 None of the above, but in this section

02Dxx Proof theory {For theorems proving by machines, see 68A40.}

02D05 Proof-theoretic ordinals

02D99 Other proof theory

02Exx Constructive mathematics

02E05 Intuitionistic mathematics

02E10 Algorithms

02E15 Computable functions

Aberth, Oliver 1P

Aberth, Oliver 2P

713
02E99 None of the above, but in this section

Adler, Andrew 1P

02Fxx Recursion theory

02F05 Thue and Post systems, etc.

02F10 Automata [See also 18B20, 68A25, 94A30, 94A35.]

Santos, Eugene S. 1P
Bednarek, Alexander R. 1S

02F15 Turing machines

02F20 Classification of recursive functions

Payne, T. H. 1P

02F25 Recursively enumerable sets

Robinson, Julia 1P

02F27 Recursion theory on ordinals and sets and other abstract structures

Kent, C. F. 2P
Fabian, R. J. 1P

02F29 Recursion theory at higher types

02F30 Degrees of unsolvability

Soare, Robert I. 1P
Platek, Richard A. 2P

02F35 Hierarchies

Platek, Richard A. 1P

02F40 Recursive equivalence types

02F43 Formal systems for computability

02F45 Combinatorial functions

02F47 Word problems

02F50 Applications

02F99 None of the above, but in this section

02Gxx Methodology of deductive systems

02G05 Decidability and undecidability

Adler, Andrew 1P

02G10 Axiomatizability

Jones, John P. 1P

02G15 Finite axiomatizability

02G20 Completeness, categoricity, etc.

02G99 None of the above, but in this section

02Hxx Model theory

02H05 Models for theories in classical predicate calculus

02H10 Models for other theories

Eklof, Paul C. 1P

02H13 Model constructions

Adler, Andrew 2P

02H15 Applications to algebra, number theory, etc. [See also 13L05.]

Billis, M. J. 1S

02H20 Nonstandard models

Phillips, R. G. 1P

02H25 Applications of nonstandard models [See also 10N15, 12L15, 26A98, 30A91.]

02H99 None of the above, but in this section

02Jxx Algebraic logic

02J05 Boolean algebras, lattices, topologies

Stringall, Robert W. 2S

02J10 Algebra of relations

02J15 Cylindric and polyadic algebras

02J99 None of the above, but in this section

02Kxx Set theory

02K05 Consistency and independence results

02K10 Nonclassical set theories

02K15 Axiomatics

02K20 Axiom of choice and equivalent propositions (Zorn’s Lemma, etc.) [See also 04A25.]

Brown, Arlen 1P
Halpern, James D. 1P
Howard, Paul E. 1P

02K25 Continuum hypothesis, generalized continuum hypothesis [See also 04A30.]

Hindman, Neil 1S
Darst, Richard B. 5P

02K30 Descriptive set theory; Borel classifications, Suslin schemes, etc. [See also 04A15, 28A05, 54H05.]

Darst, Richard B. 3P
Mansfield, Richard 1P
Darst, Richard B. 4P
Hansell, Roger W. 1P
Darst, Richard B. 5P

02K35 Large cardinals and ordinals
(inaccessible, etc.)
Jorgensen, Murray ISP
Adler, Andrew 2P
Kleinberg, E. M. IS

02K99 None of the above, but in this section

04—XX SET THEORY
04—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
04—01 Elementary exposition (collegiate level)
04—02 Advanced exposition (research surveys, etc.)
04—03 Historical
04—04 Explicit machine computation and programs (not the theory of computation or programming)

04A05 Relations, functions [See also 08A05.]
Morse, Anthony P. 1P
Bednarek, Alexander R. 1P
Sharp, Henry S. 1P

04A10 Transfinite numbers
Bednarek, Alexander R. 1P
Jorgensen, Murray 1P
Adler, Andrew 2P

04A15 Descriptive set theory; Borel classifications, Suslin schemes, etc. [See also 02K30, 28A05, 54H05.]
Willmott, R. C. 1S
Stone, A. H. 1P
Erdős, Paul 1P
Mrówka, Stanisław 1P
Darst, Richard B. 3P
Sharp, Henry S. 1S
Mansfield, Richard 1P
Darst, Richard B. 4P
Hansell, Roger W. 1P
Darst, Richard B. 5P

04A20 Combinatorial [See also 05A05.]
Walker, Elbert A. 1P
Richman, Fred 1P
Brown, Terrence J. 1S
Bednarek, Alexander R. 1S
Kleinberg, E. M. 1P

04A25 Axiom of choice and equivalent propositions (Zorn's Lemma, etc.) [See also 02K20.]
Brown, Arlen 1P
Howard, Paul E. 1P
Halpern, James D. 1P

04A30 Continuum hypothesis, generalized continuum hypothesis [See also 02K25.]
Hindman, Neil 1S
Darst, Richard B. 5P

05—XX COMBINATORICS
05—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
05—01 Elementary exposition (collegiate level)
05—02 Advanced exposition (research surveys, etc.)
05—03 Historical
05—04 Explicit machine computation and programs (not the theory of computation or programming)

05Axx Classical combinatorial problems
05A05 Combinatorial choice problems; subsets, representatives
Brown, Terrence J. 1P
Kohn, S. 1S
Chvátal, Václav 1P
Kleitman, Daniel J. 3P
Erdős, Paul 2P

05A10 Factorials, binomial coefficients, combinatorial functions
Sharp, Henry S. 1P
Howard, F. T. 3P

05A15 Combinatorial enumeration problems, generating functions
Vidyasagar, M. 1S
Subbarao, M. V. 1S
Howard, F. T. 2P

05A17 Partitions [See also 10A45.]

05A19 Combinatorial identities
Vidyasagar, M. 1P
Subbarao, M. V. 1P

05A20 Combinatorial inequalities
Erdős, Paul 2P
Kleitman, Daniel J. 3P

05A99 None of the above, but in this section

05Bxx Designs and configurations
05B05 Block designs [See also 62Kxx.]
05B10 Difference sets (number-theoretic, group-theoretic, etc.)
Payne, Stanley E. 1P
### Subject Index for Volumes 21-30

**05B15** Orthogonal arrays, Latin squares
- Lindner, Charles C. 1P
- O’Neil, Patrick Eugene 2P
- Payne, Stanley E. 1P
- Sharp, Henry S. 1P
- Gibson, Peter M. IS

**05B20** Matrices (incidence, Hadamard, etc.)
- Johnson, Norman Lloyd 1S
- Mason, J. H. IP

**05B25** Finite geometries
- Kleitman, Daniel J. 2P
- Amoroso, S. 1P
- Cooper, G. 1P
- Lindner, Charles C. 2P

**05B30** Other designs, configurations
- Beineke, Lowell W.
- Greenwell, D. L.

**05B35** Matroids, geometric lattices
- Mason, J. H. 1P

**05B40** Packing and covering [See also 10E30, 52A45.]

**05B45** Tessellation and tiling problems

**05B99** None of the above, but in this section

**05Cxx** Graph theory [For applications of graphs, see 94A20.]

**05C05** Trees

**05C10** Topological graph theory, embedding [See also 55A15, 55A25.]
- Marx, Morris L. 1P

**05C15** Chromatic theory of graphs and maps
- Chvátal, Václav 1P

**05C20** Directed graphs (digraphs)
- Plemmons, Robert J. 1P

**05C25** Graphs and groups
- Plemmons, Robert J. 1P
- Lin, You-feng 3P

**05C30** Enumeration of graphs and maps
- Swan, Richard G. 1P
- O’Neil, Patrick Eugene 2S
- Chvátal, Václav 1P

**05C35** Paths and extremal problems
- O’Neil, Patrick Eugene 2P

**05C99** None of the above, but in this section
- Lin, You-feng 2P
- Ratti, Joginder S. 4P
- Rosenfeld, M. 1P
- Behzad, Mehdi 1P
- Schwartz, Benjamin L. 1P

### 06—XX Order, Lattices, Ordered Algebraic Structures

#### 06—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

#### 06—01 Elementary exposition (collegiate level)

#### 06—02 Advanced exposition (research surveys, etc.)

#### 06—03 Historical

#### 06—04 Explicit machine computation and programs (not the theory of computation or programming)

**06A05** Total order
- Cobb, John IS
- Bednarek, Alexander R. 1P
- Armacost, David Lee IS

**06A10** Partial order
- DeMarr, Ralph E. 1P
- Bednarek, Alexander R. 1P
- Schein, R. H. 1P
- Gudder, Stanley P. 2P
- Davies, Roy O. 1P
- Rousseau, George 1P
- Hayes, Allan 1P
- Venkatanarasimhan, P. V. 1P
- Smithson, Raymond E. 3P
- Gudder, Stanley P. 3P
- Haskins, L. 1P

**06A15** Galois correspondence, closure operators

**06A20** Lattices, semi-lattices, generalizations

**06A23** Complete lattices
- Jensen, G. A. 1P
- Randall, Charles H. 1P
- Holland, Samuel S., Jr. 1P
- Olson, Milton Philip 1S
- Catlin, Donald E. 1S

**06A25** Complemented lattices,
generalizations
  Randall, Charles H.  IP
  Anderson, Bruce A.  IS
  Stewart, D. G.  IS
  Holland, Samuel S., Jr.  IP
  Schelp, R. H.  IS
  Gudder, Stanley P.  2S
  Catlin, Donald E.  IP

06A30 Modular lattices, continuous geometries, generalizations [See also 16A30.]
  Edmondson, Don E.  IP
  Randall, Charles H.  IP
  Bogart, Kenneth P.  2P
  Pfaltz, John L.  IP
  Holland, Samuel S., Jr.  IP
  Schelp, R. H.  IS
  Gudder, Stanley P.  2S
  Morash, Ronald P.  IP
  Johnson, J. A.  IP

06A35 Distributive lattices, generalizations
  Choe, Tae Ho  IP
  Lakser, H.  IP
  Balbes, Raymond  IP
  Catlin, Donald E.  IP

06A40 Boolean algebras and rings
  Bogart, Kenneth P.  IS
  Wiegand, Roger  IS
  Abian, Alexander  IS
  Lakser, H.  IP
  Holland, Samuel S., Jr.  IS
  Chew, Kim-pei  IS
  Venkatararashan, P. V.  IS
  Stringall, Robert W.  IP
  Nosal, Miloslav  1P
  Stringall, Robert W.  2P
  Catlin, Donald E.  IS

06A45 Order topologies [See also 54F05.]
  Lutzer, David J.  IS
  Bennett, Harold R.  IS
  Lutzer, David J.  2S
  Gulden, Samuel L.  IS
  Weston, J. H.  IS
  Fleischman, W. M.  IS
  Madell, Robert L.  IS
  Madell, Robert L.  1P
  Breuer, Shiamo  2P

06A50 Ordered semigroups, other generalizations of groups
  Johnson, R. E.  IP
  Bogart, Kenneth P.  IP
  Bogart, Kenneth P.  2P
  Bogart, Kenneth P.  IP

06A55 Ordered groups
  Madell, Robert L.  IP
  Hursey, R. J., Jr.  IP
  Minassian, Donald P.  IP

06A60 Ordered abelian groups
  Kohls, Carl W.  IP
  Shmalys, Donald A.  IP
  Minassian, Donald P.  IS

06A65 Ordered linear spaces [See also 46A40.]
  Waterman, Alan G.  1P
  Shmalys, Donald A.  IP

06A70 Ordered rings, algebras, modules [For ordered fields, see 10M15, 12J15.]
  DeMarr, Ralph E.  1P
  Abian, Alexander  IS
  Kohls, Carl W.  1P
  Carns, Gail L.  1P
  Geller, Ralph  2P

06A75 Other ordered algebraic structures

08—XX GENERAL MATHEMATICAL SYSTEMS

08—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

08—01 Elementary exposition (collegiate level)

08—02 Advanced exposition (research surveys, etc.)

08—03 Historical

08—04 Explicit machine computation and programs (not the theory of computation or programming)

08A05 Structure of general algebras and relational systems [For topological representations, see 54H10.]

08A10 Free algebras, sums, products, limits, colimits

08A15 Varieties of algebras and generalizations

08A20 Axiomatic model classes

08A25 Universal algebra
SUBJECT INDEX FOR VOLUMES 21-30

Grätzer, György 1P

10—XX NUMBER THEORY
[Excluding 10Axx and 10Mxx, this classification scheme does not distinguish work in the rational number fields from that in other algebraic number fields.]

10—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

10—01 Elementary exposition (collegiate level)

10—02 Advanced exposition (research surveys, etc.)

10—03 Historical

10—04 Explicit machine computation and programs (not the theory of computation or programming)

10Axx Elementary number theory
[For analogues in number fields, see 12A05.]

10A05 Multiplicative structure of the integers (GCD, etc.)

10A10 Congruences, primitive roots

Vanden Eynden, C. L. 1P
Crittenden, Richard B. 1P
Howard, F. T. 2P

10A15 Power residues, reciprocity

Brown, Ezra 1P

10A20 Number-theoretic functions, related numbers; inversion formulas

Brown, Terrence J. 1S
Buschman, R. G. 1P
Howard, F. T. 2P
Aizley, Paul 1P

10A25 Elementary prime number theory, factorization

Howard, F. T. 3S

10A30 Algorithms and expansions, digital properties [Approximation results in 10F20; metric results in 10K10.]

Newman, Donald J. 3P
Cuick, T. W. 1P

10A35 Recurrence sequences

10A40 Special numbers, sequences and polynomials (e.g. Bernoulli)

Howard, F. T. 1P

10A45 Partitions

Alder, Henry L. 1P
Subbarao, M. V. 2P
Subbarao, M. V. 3P

10A99 None of the above, but in this section

10Bxx Diophantine equations
[For all papers involving algebra-geometric methods, see 14Gxx.]

10B05 Linear, quadratic and bilinear equations

10B10 Cubic and quartic equations

Webb, William A. 1P
Cohn, John H. E. 1S

10B15 Higher degree equations

Mordell, Louis Joel 1P

10B20 Multiplicative equations

10B25 Nonpolynomial equations

10B30 Equations in sufficiently many variables [See also 10J10.]

10B35 Representation problems [See also 10J10.]

Cohn, John H. E. 1P

10B40 p-adic and power series fields

10B45 Diophantine inequalities

10B99 None of the above, but in this section

10Cxx Forms

10C05 Quadratic and hermitian forms [See also 10E25.]

James, D. G. 1P
Connors, Edward A. 1P
Moore, Theral O. 1P
Hadlock, E. H. 1P
Mills, W. H. 1P
Rice, Bart Francis 1P

10C10 Higher degree forms

10C15 Analytic theory

10C25 Minima of forms [See also 10E20.]

10C30 Arithmetic properties of classical groups [See also 20Gxx.]

10C99 None of the above, but in this section

10Dxx Automorphic theory

10D05 Modular functions and groups
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10D10</td>
<td>Automorphic functions, one variable</td>
</tr>
<tr>
<td>10D15</td>
<td>Automorphic forms, one variable</td>
</tr>
<tr>
<td>10D20</td>
<td>Automorphic theory, several variables</td>
</tr>
<tr>
<td>10D25</td>
<td>Complex multiplication [See also 14K22.]</td>
</tr>
<tr>
<td>10D99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>10E05</td>
<td>Lattices and convex bodies [See also 10J25.]</td>
</tr>
<tr>
<td>10E10</td>
<td>Nonconvex bodies</td>
</tr>
<tr>
<td>10E15</td>
<td>Products of linear forms</td>
</tr>
<tr>
<td>10E20</td>
<td>Minima of forms</td>
</tr>
<tr>
<td>10E25</td>
<td>Quadratic forms (reduction, extreme forms, etc.)</td>
</tr>
<tr>
<td>10E30</td>
<td>Lattice packing and covering [See also 05B40, 52A40.]</td>
</tr>
<tr>
<td>10E35</td>
<td>Mean value theorems</td>
</tr>
<tr>
<td>10E40</td>
<td>Transfer theorems</td>
</tr>
<tr>
<td>10E45</td>
<td>Automorphism groups of lattices</td>
</tr>
<tr>
<td>10E99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>10F05</td>
<td>Lattices and convex bodies</td>
</tr>
<tr>
<td>10F10</td>
<td>Simultaneous approximation</td>
</tr>
<tr>
<td>10F15</td>
<td>Nonhomogeneous approximation</td>
</tr>
<tr>
<td>10F20</td>
<td>Continued fractions and generalizations [See also 10A30.]</td>
</tr>
<tr>
<td>10F25</td>
<td>Approximation to algebraic numbers</td>
</tr>
<tr>
<td>10F30</td>
<td>Approximation by numbers from a fixed field</td>
</tr>
<tr>
<td>10F35</td>
<td>Irrationality and transcendence</td>
</tr>
<tr>
<td>10F40</td>
<td>Distribution modulo one [See also 10K05.]</td>
</tr>
<tr>
<td>10G05</td>
<td>Exponential sums, character sums</td>
</tr>
<tr>
<td>10H05</td>
<td>Riemann zeta-function</td>
</tr>
<tr>
<td>10H10</td>
<td>Other zeta-functions, L-functions [For local and global ground fields, see 12A70, 12A80, 12B30, 12B35; for algebro-geometric methods, see 14G10.]</td>
</tr>
<tr>
<td>10H15</td>
<td>Distribution of primes and of integers with specified multiplicative properties</td>
</tr>
<tr>
<td>10H20</td>
<td>Distribution in progressions and other sequences</td>
</tr>
<tr>
<td>10H25</td>
<td>Asymptotic results on arithmetic functions</td>
</tr>
<tr>
<td>10H30</td>
<td>Sieves</td>
</tr>
<tr>
<td>10H35</td>
<td>Distribution of residue classes (primitive roots, power residues, etc.)</td>
</tr>
<tr>
<td>10H40</td>
<td>Generalized primes and integers</td>
</tr>
<tr>
<td>10H99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>10J05</td>
<td>Sums of squares</td>
</tr>
<tr>
<td>10J10</td>
<td>Applications of Hardy-Littlewood method [See also 10B35.]</td>
</tr>
<tr>
<td>10J15</td>
<td>Additive questions involving primes</td>
</tr>
<tr>
<td>10J20</td>
<td>Analytic work on partitions [See also 10A45.]</td>
</tr>
<tr>
<td>10K05</td>
<td>Distribution modulo one [See also 10K05.]</td>
</tr>
<tr>
<td>Classification</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>10J25</td>
<td>Lattice points in large regions</td>
</tr>
<tr>
<td>10J99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>10Kxx</td>
<td>Probabilistic theory; measure, dimension, etc.</td>
</tr>
<tr>
<td>10K05</td>
<td>Distribution modulo one</td>
</tr>
<tr>
<td>10K10</td>
<td>Algorithms and expansions</td>
</tr>
<tr>
<td>10K15</td>
<td>Diophantine approximation</td>
</tr>
<tr>
<td></td>
<td>Liu, Ming-chit 1P</td>
</tr>
<tr>
<td>10K20</td>
<td>Arithmetic functions</td>
</tr>
<tr>
<td></td>
<td>Duncan, R. L. 2P</td>
</tr>
<tr>
<td>10K25</td>
<td>Normal numbers</td>
</tr>
<tr>
<td>10K30</td>
<td>Irregularities of distribution</td>
</tr>
<tr>
<td>10K35</td>
<td>Harmonic analysis and almost periodicity</td>
</tr>
<tr>
<td>10K40</td>
<td>Nonarchimedean theory</td>
</tr>
<tr>
<td>10K99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>10Lxx</td>
<td>Sequences of integers</td>
</tr>
<tr>
<td>10L05</td>
<td>Addition of sequences</td>
</tr>
<tr>
<td>10L10</td>
<td>Special sequences (density, etc.)</td>
</tr>
<tr>
<td>10L15</td>
<td>Representation functions</td>
</tr>
<tr>
<td>10L99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>10Mxx</td>
<td>Rational arithmetic of algebraic objects</td>
</tr>
<tr>
<td>10M05</td>
<td>Polynomials [See also 13F20.]</td>
</tr>
<tr>
<td></td>
<td>Enochs, Edgar E. 1P</td>
</tr>
<tr>
<td></td>
<td>Coleman, Donald B. 2P</td>
</tr>
<tr>
<td>10M10</td>
<td>Valued fields</td>
</tr>
<tr>
<td>10M15</td>
<td>Ordered fields</td>
</tr>
<tr>
<td>10M20</td>
<td>Matrices [See also 15A36.]</td>
</tr>
<tr>
<td>10M99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>10Nxx</td>
<td>Connections with logic</td>
</tr>
<tr>
<td>10N05</td>
<td>Decidability</td>
</tr>
<tr>
<td></td>
<td>Robinson, Julia 2P</td>
</tr>
<tr>
<td>10N10</td>
<td>Ultraproducts</td>
</tr>
<tr>
<td>10N15</td>
<td>Nonstandard arithmetic [See also 02H25.]</td>
</tr>
<tr>
<td>10N99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>12—XX</td>
<td>ALGEBRAIC NUMBER THEORY, FIELD THEORY AND POLYNOMIALS</td>
</tr>
<tr>
<td>12—00</td>
<td>Difficult to classify at the second level (must also be assigned at least one other classification number in this section)</td>
</tr>
<tr>
<td>12—01</td>
<td>Elementary exposition (collegiate level)</td>
</tr>
<tr>
<td>12—02</td>
<td>Advanced exposition (research surveys, etc.)</td>
</tr>
<tr>
<td>12—03</td>
<td>Historical</td>
</tr>
<tr>
<td>12—04</td>
<td>Explicit machine computation and programs (not the theory of computation or programming)</td>
</tr>
<tr>
<td>12Axx</td>
<td>Algebraic number theory: global fields [For complex multiplication, see 10D25.]</td>
</tr>
<tr>
<td>12A05</td>
<td>Analogues in number fields of elementary number theory</td>
</tr>
<tr>
<td>12A10</td>
<td>Characterizations of algebraic numbers and algebraic functions</td>
</tr>
<tr>
<td>12A15</td>
<td>Special algebraic numbers (PV numbers, etc.)</td>
</tr>
<tr>
<td>12A20</td>
<td>Polynomials (irreducibility, etc.)</td>
</tr>
<tr>
<td>12A25</td>
<td>Quadratic fields</td>
</tr>
<tr>
<td></td>
<td>Stark, H. M. 1P</td>
</tr>
<tr>
<td></td>
<td>Trotter, Hale F. 1P</td>
</tr>
<tr>
<td></td>
<td>Hall, Michael H. 1P</td>
</tr>
<tr>
<td>12A30</td>
<td>Cubic and quartic fields</td>
</tr>
<tr>
<td>12A35</td>
<td>Abelian and metabelian extensions (including cyclotomic, Kummer, cyclic)</td>
</tr>
<tr>
<td></td>
<td>Smith, John H. 1P</td>
</tr>
<tr>
<td>12A40</td>
<td>Other number fields</td>
</tr>
<tr>
<td>12A45</td>
<td>Units and factorization</td>
</tr>
<tr>
<td></td>
<td>Trotter, Hale F. 1P</td>
</tr>
<tr>
<td></td>
<td>May, Warren L. 1P</td>
</tr>
<tr>
<td>12A50</td>
<td>Class number, discriminant</td>
</tr>
<tr>
<td></td>
<td>Stark, H. M. 1P</td>
</tr>
<tr>
<td>12A55</td>
<td>Galois theory</td>
</tr>
<tr>
<td>12A60</td>
<td>Galois cohomology</td>
</tr>
<tr>
<td>12A65</td>
<td>Class field theory</td>
</tr>
<tr>
<td></td>
<td>Brown, Ezra 1S</td>
</tr>
<tr>
<td>12A70</td>
<td>Zeta-functions and L-functions of number fields [See also 10H10.]</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>12A75</td>
<td>Density theorems</td>
</tr>
<tr>
<td>12A80</td>
<td>Arithmetic and zeta-functions of algebras</td>
</tr>
<tr>
<td>12A85</td>
<td>Analysis in adele rings and groups</td>
</tr>
<tr>
<td>12A90</td>
<td>Arithmetic theory of algebra function fields [See also 14—XX.]</td>
</tr>
<tr>
<td>12A95</td>
<td>Totally real and totally positive fields</td>
</tr>
<tr>
<td>12A99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>12B05</td>
<td>Polynomials</td>
</tr>
<tr>
<td>12B10</td>
<td>Ramification and extension theory</td>
</tr>
<tr>
<td>12B15</td>
<td>Galois theory</td>
</tr>
<tr>
<td>12B20</td>
<td>Galois cohomology</td>
</tr>
<tr>
<td>12B25</td>
<td>Class field theory</td>
</tr>
<tr>
<td>12B30</td>
<td>Zeta- and L-functions [See also 10H10.]</td>
</tr>
<tr>
<td>12B35</td>
<td>Arithmetic and zeta-functions of algebras</td>
</tr>
<tr>
<td>12B40</td>
<td>Other analytic theory</td>
</tr>
<tr>
<td>12B99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>12C05</td>
<td>Polynomials</td>
</tr>
<tr>
<td>12C10</td>
<td>Linear sequences</td>
</tr>
<tr>
<td>12C15</td>
<td>Arithmetic</td>
</tr>
<tr>
<td>12C20</td>
<td>Cyclotomy</td>
</tr>
<tr>
<td>12C25</td>
<td>Exponential sums</td>
</tr>
<tr>
<td>12C30</td>
<td>Structure theory</td>
</tr>
<tr>
<td>12C99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>12D05</td>
<td>Polynomials: factorization</td>
</tr>
<tr>
<td>12D10</td>
<td>Polynomials: location of zeros [Algebraic theorems; for the analytic theory, see 26A78, 30A08.]</td>
</tr>
<tr>
<td>12D15</td>
<td>Formally real fields</td>
</tr>
<tr>
<td>12D99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>12E05</td>
<td>Polynomials (irreducibility, etc.)</td>
</tr>
<tr>
<td>12E10</td>
<td>Special polynomials</td>
</tr>
<tr>
<td>12E99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>12F05</td>
<td>Algebraic extensions</td>
</tr>
<tr>
<td>12F10</td>
<td>Separable extensions, Galois theory</td>
</tr>
<tr>
<td>12F15</td>
<td>Inseparable extensions, derivations</td>
</tr>
<tr>
<td>12F20</td>
<td>Transcendental extensions</td>
</tr>
<tr>
<td>12F99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>12G05</td>
<td>Galois cohomology [See also 12A60, 18H10.]</td>
</tr>
<tr>
<td>12G10</td>
<td>Cohomological dimension</td>
</tr>
<tr>
<td>12G99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>12H05</td>
<td>Differential and difference algebra</td>
</tr>
</tbody>
</table>
Seidenberg, A. 1P
Blum, Peter 1P
Goldman, Lawrence 1P
Newton, M. E. 1P

12H10 Difference algebra
Franke, Charles H. 1P

12Jxx Topological fields

12J05 Normed fields
12J10 Valued fields
12J15 Ordered fields
Lachlan, A. H. 1P
Madison, Eugene W. 1P
Cams, Gail L. 1P

12J20 General valuation theory
Bergman, George M. 1S

12J99 None of the above, but in this section
Kiltinen, John O. 1P

12K05 Near-fields and other generalizations
Narayana Rao, M. L. 1P
Wilke, F. W. 1P
Narayana Rao, M. L. 2P
Narayana Rao, M. L. 3S
Narayana Rao, M. L. 4S

12Lxx Connections with logic

12L05 Decidability
12L10 Ultraproducts
12L15 Nonstandard arithmetic [See also 02H25.]
12L99 None of the above, but in this section
Lachlan, A. H. 1P
Madison, Eugene W. 1P

13—XX COMMUTATIVE RINGS AND ALGEBRAS [For finite commutative rings, see 12Cxx.]

13—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
13—01 Elementary exposition (collegiate level)
13—02 Advanced exposition (research surveys, etc.)
13—03 Historical
13—04 Explicit machine computation and programs (not the theory of computation or programming)

13Axx General commutative ring theory

13A05 Divisibility
Canfell, M. J. 1P
13A10 Radical theory
Abian, Alexander 1S
Orsatti, Adalberto 1P
De Marco, Giuseppe 2P
13A15 Ideals, prime ideals, valuations and generalizations
Heinzer, William J. 1P
Warfield, R. B., Jr. 3S
Fields, David E. 1P
Bergman, George M. 1P
Johnson, E. W. 1S
Ledineg, John P. 1S
Heinzer, William J. 2P
Warner, Seth 2P
McCarty, Paul J. 1P
Kelly, Patrick H. 1P
Larsen, Max D. 2P
Smith, William W. 1P
De Marco, Giuseppe 2P
Orsatti, Adalberto 1P

13A20 Brauer group [See also 16A16.]
Schwartz, Alan L. 2S
Heinzer, William J. 2P
Auslander, Bernice 1P
13A99 None of the above, but in this section
Abian, Alexander 1P
Vasconcelos, Wolmer V. 2S

13Bxx Ring extensions and related topics

13B05 Galois theory
Franke, Charles H. 1P
13B10 Automorphisms and derivations
Heinzer, Martin N. 1P
13B15 Ramification theory
Heinzer, Martin N. 1P
13B20 Integral dependence; integral closure; integrally closed rings, related rings (Japanese, etc.)
Mattuck, Arthur 2P
Seidenberg, A. 2S

13B25 Polynomials over commutative rings
Arnold, Jimmy T. 1P
Gilmer, Robert W., Jr. 2P
SUBJECT INDEX FOR VOLUMES 21-30

1971

Evyatar, Asriel 2P
Brewer, J. W. 1P
Arnold, Jimmy T. 2P
Seidenberg, A. 2P
Lindberg, John A., Jr. 1S

13B99 None of the above, but in this section

Zaks, Abraham 1S
Kohls, Carl W. 2P
Fields, David E. 1P

13Cxx Theory of modules and ideals

13C05 Structure, classification theorems

Bogart, Kenneth P. 2S
Wiegand, Roger 1S
Warfield, R. B., Jr. 3P
Vasconcelos, Wolmer V. 2P
Waterhouse, William C. 1P
Johnson, J. A. 1S
Bang, Chang Mo 1P
Shores, T. S. 1P

13C10 Special types (projective, injective, free, flat, torsion, reflexive, etc.)

Cox, S. H., Jr. 1P
Yohe, Cleon R. 1S
Gilmer, Robert W., Jr. 1P
Vasconcelos, Wolmer V. 1P
Kahn, Donald W. 1S
Jendrups, S. 1P
Tepley, Mark L. 2P
Vasconcelos, Wolmer V. 1P
Shores, T. S. 1P

13C15 Dimension theory, depth, related rings (catenary, etc.)

Evyatar, Asriel 2S
Vasconcelos, Wolmer V. 2P

13C99 None of the above, but in this section

Vasconcelos, Wolmer V. 2P
Mattuck, Arthur 2S

13Dxx Homological methods [For cohomology of rings and algebras, see 18H20.]

13D05 Homological dimension

Vasconcelos, Wolmer V. 3S

13D10 Deformations and infinitesimal methods

13D15 Class group, Grothendieck group, K-theory [See also 18F25.]

Gersten, Stephen M. 1P

13D99 None of the above, but in this section

Davis, Robert 2P
Vasconcelos, Wolmer V. 2S

13Exx Chain conditions

13E05 Noetherian rings

Hochster, M. 1S
Heinzer, William J. 1P
Fields, David E. 1S
Ledaev, John P. 1S
Johnson, E. W. 1S

13E10 Artin rings, finite dimensional algebras

Dickson, Spencer E. 1P
Puller, Kent R. 1P
Vasconcelos, Wolmer V. 2P

13E99 None of the above, but in this section

Yohe, Cleon R. 1P
Huckaba, James A. 1S
Seidenberg, A. 2P

13Fxx Arithmetic rings

13F05 Dedekind and Prüfer rings and their generalizations

Yohe, Cleon R. 1P
Arnold, Jimmy T. 2P
Brewer, J. W. 1P
Jacobinski, H. 2S
Ledaev, John P. 1P
Johnson, E. W. 1P
McCarty, Paul J. 1S
Shores, T. S. 1S

13F10 Principal ideal rings

13F15 Factorial rings, unique factorization domains

13F20 Polynomial rings [See also 10M05.]

Arnold, Jimmy T. 1P
Gilmer, Robert W., Jr. 2P
Coleman, Donald B. 2P
Enochs, Edgar E. 1P
Jendrups, S. 1S

13F99 None of the above, but in this section

Zaks, Abraham 1P

13G05 Integral domains

Gilmer, Robert W., Jr. 1S
Beauregard, Raymond A. 1S
Johnson, R. E. 2S
Kohls, Carl W. 2S

13Hxx Local rings and semilocal rings

13H05 Regular local rings

Lipman, Joseph 1P
Bogart, Kenneth P. 3S
SUBJECT INDEX FOR VOLUMES 21-30

Barshay, Jacob

13H10 Special types (Macaulay, Gorenstein, etc.)
13H15 Multiplicity theory and related topics
13H99 None of the above, but in this section

Ingraham, Edward C.
Brown, William C.
Lediaev, John P.
Johnson, E. W.
Riley, John A.

13Jxx Topological rings {For ordered rings, see 06A70; see also 16A80.}

13J05 Power series rings
Fields, David E.

13J10 Complete rings
13J15 Henselian rings
Ingraham, Edward C.
Brown, William C.

13J20 Global topological rings
Evans, E. Graham, Jr.

13J99 None of the above, but in this section
Hochster, M.
Warner, Seth

13K05 Witt vectors and related rings

13L05 Applications of logic to commutative algebra
Greenleaf, Newcomb
Mott, Joe Leonard

14—XX ALGEBRAIC GEOMETRY

14—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
14—01 Elementary exposition (collegiate level)
14—02 Advanced exposition (research surveys, etc.)
14—03 Historical
14—04 Explicit machine computation and programs (not the theory of computation or programming)

14Axx Foundations

14A05 Relevant commutative algebra [See also 13—XX.]
Mattuck, Arthur

14A10 Varieties
14A15 Schemes
14A20 Generalizations (algebraic spaces, motifs)

14A25 Elementary questions
Mattuck, Arthur
Mott, Joe Leonard

14A99 None of the above, but in this section
Vasconcelos, Wolmer V.

14Bxx Local theory

14B05 Singularities [See also 14E15.]
Lipman, Joseph

14B10 Infinitesimal methods
14B15 Local cohomology [See also 18F20.]
14B20 Formal neighborhoods
14B99 None of the above, but in this section

14Cxx Cycles and subschemes

14C05 Parametrization (Chow and Hilbert schemes)
14C10 Equivalence relations
14C15 Rational equivalence rings, intersection theory
14C20 Divisors, linear systems, Picard groups
14C25 Zero-cycles
Mattuck, Arthur

14C30 Transcendental methods, Hodge theory
14C99 None of the above, but in this section

14Dxx Families, fibrations

14D05 Structure of families (Picard-Lefschetz, Picard-Fuchs theory, etc.)
14D10 Arithmetic ground fields (finite, local, global)
14D15 Formal methods; deformations [See also 32Gxx.]
14D20 Algebraic moduli problems [For analytic moduli problems, see 32G13.]
14D99 None of the above, but in this section

14Exx Mappings and correspondences
14E05 Rational maps, birational correspondences
14E10 General correspondences
14E15 Global theory of singularities, resolution
14E20 Coverings, fundamental group
14E25 Embeddings
14E30 Minimal models
14E35 Results in dimension \( \leq 3 \)
14E99 None of the above, but in this section

14Fxx Cohomology theory [See also 13Dxx, 18—XX.]
14F05 Vector bundles, sheaves, related constructions
14F10 Differentials and other special sheaves
14F15 Serre cohomology, K-theory [See also 13D15, 18F25.]
14F20 Grothendieck cohomology and topology
14F25 Classical real and complex cohomology
14F30 p-adic cohomology
14F35 Homotopy theory
14F99 None of the above, but in this section

14Gxx Arithmetic problems [For complex multiplication, see 10D25, 14K22.]
14G05 Rationality questions
14G06 Zeta-functions and related questions
14G10 Zero-dimensional schemes
14G13 Weil-Tate conjectures
14G15 Finite ground fields

Leitzen, J. R. C. 2P
14G20 p-adic ground fields (local fields)
14G25 Global ground fields
14G99 None of the above, but in this section

14Hxx Curves
14H05 Algebraic function fields
14H10 Families, moduli (algebraic)
14H15 Families, moduli (analytic) [See also 32G15.]
Mumford, David 1S
14H20 Singularities, local rings
14H25 Arithmetic ground fields
14H30 Coverings, fundamental group
14H35 Correspondences
14H40 Jacobians [See also 32G20.]
14H45 Special curves
14H99 None of the above, but in this section

14Jxx Surfaces and 3-dimensional varieties
14J05 Picard group
14J10 Families, moduli, classification: algebraic theory
14J15 Singularities, moduli, classification: analytic theory [See also 32J15.]
Mattuck, Arthur 2P
14J20 Arithmetic ground fields
14J25 Special surfaces
Matuck, Arthur 1P
14J99 None of the above, but in this section

14Kxx Abelian varieties and schemes
14K05 Algebraic theory
14K10 Algebraic moduli, classification
MacLachlan, C. 1S
14K15 Arithmetic ground fields
14K20 Analytic theory
14K22 Complex multiplication [See also 10D25.]
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>14K25</td>
<td>$\mathfrak{g}$-functions</td>
</tr>
<tr>
<td>14K30</td>
<td>Picard schemes, higher Jacobians</td>
</tr>
<tr>
<td>14K99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>14Lxx</td>
<td>Group schemes [For linear algebraic groups, see 20Gxx.]</td>
</tr>
<tr>
<td>14L05</td>
<td>Formal groups, p-divisible groups</td>
</tr>
<tr>
<td>14L10</td>
<td>Group varieties</td>
</tr>
<tr>
<td>14L15</td>
<td>Group schemes</td>
</tr>
<tr>
<td>14L20</td>
<td>Finite group schemes</td>
</tr>
<tr>
<td>14L25</td>
<td>Pro-algebraic group schemes</td>
</tr>
<tr>
<td>14L99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>14Mxx</td>
<td>Special varieties</td>
</tr>
<tr>
<td>14M05</td>
<td>Varieties defined by ring conditions (factorial, Macaulay)</td>
</tr>
<tr>
<td>14M10</td>
<td>Complete intersections</td>
</tr>
<tr>
<td>14M15</td>
<td>Grassmannians, homogeneous spaces</td>
</tr>
<tr>
<td>14M20</td>
<td>Rational varieties</td>
</tr>
<tr>
<td>14M99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>14Nxx</td>
<td>Classical methods and problems</td>
</tr>
<tr>
<td>14N05</td>
<td>Projective techniques</td>
</tr>
<tr>
<td>14N10</td>
<td>Enumerative problems</td>
</tr>
<tr>
<td>14N99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>15—XX</td>
<td>LINEAR AND MULTILINEAR ALGEBRA; MATRIX THEORY (finite and infinite)</td>
</tr>
<tr>
<td>15—00</td>
<td>Difficult to classify at the second level (must also be assigned at least one other classification number in this section)</td>
</tr>
<tr>
<td>15—01</td>
<td>Elementary exposition (collegiate level)</td>
</tr>
<tr>
<td>15—02</td>
<td>Advanced exposition (research surveys, etc.)</td>
</tr>
<tr>
<td>15—03</td>
<td>Historical</td>
</tr>
<tr>
<td>15—04</td>
<td>Explicit machine computation and programs (not the theory of computation or programming)</td>
</tr>
<tr>
<td>15A03</td>
<td>Vector spaces, linear dependence, rank</td>
</tr>
<tr>
<td>15A06</td>
<td>Linear equations</td>
</tr>
<tr>
<td>15A09</td>
<td>Matrix inversion, generalized inverses</td>
</tr>
<tr>
<td>15A12</td>
<td>Conditioning of matrices [See also 65F35.]</td>
</tr>
<tr>
<td>15A15</td>
<td>Determinants, permanents, other special matrix functions</td>
</tr>
<tr>
<td>15A18</td>
<td>Eigenvalues and eigenvectors</td>
</tr>
<tr>
<td>15A21</td>
<td>Canonical forms, reductions, classification</td>
</tr>
<tr>
<td>15A24</td>
<td>Matrix equations and identities</td>
</tr>
<tr>
<td>15A27</td>
<td>Commutativity</td>
</tr>
<tr>
<td>15A30</td>
<td>Algebraic systems of matrices [See also 16A42, 20Gxx, 20Hxx.]</td>
</tr>
<tr>
<td>15A33</td>
<td>Matrices over special rings (quaternions, finite fields, etc.)</td>
</tr>
</tbody>
</table>
SUBJECT INDEX FOR VOLUMES 21-30

15A36 Matrices of integers [See also 10M20.]
  Minc, Henryk 1P
  Hartfiel, D. J. 2S

15A39 Linear inequalities
  Flatto, Leopold 1P
  Levin, Simon A. 1P
  Block, Henry David 1P

15A42 Inequalities involving eigenvalues and eigenvectors
  Salehi, Habib 2P
  Gellar, Ralph 2P

15A45 Miscellaneous inequalities involving matrices
  Đoković, Dragomir Đ. 2P

15A48 Positive matrices and their generalizations
  Đoković, Dragomir Đ. 1P
  Taylor, Gerald D. 1S
  Salehi, Habib 1S
  Hartfiel, D. J. 2S
  Schaefer, Helmut H. 1S
  Salehi, Habib 2P
  Gellar, Ralph 2P

15A51 Stochastic matrices
  Sinkhorn, Richard 1P
  DeMarr, Ralph E. 1P
  Đoković, Dragomir Đ. 1P
  Yeh, R. Z. 1P
  Sinkhorn, Richard 2P

15A54 Matrices over function rings in one or more variables
  Salehi, Habib 2P

15A57 Other types of matrices (hermitian, skew-hermitian, etc.)
  Radjavi, Heydar 3P
  Brand, Louis 1P
  Au-yeung, Yik-hoi 1P
  Au-ypecting, Yik-hoi 2P

15A60 Norms of matrices, applications of functional analysis to matrix theory [See also 65F35, 65J05.]
  McCoy, R. A. 1P
  Salehi, Habib 2S
  Hartfiel, D. J. 3S

15A63 Quadratic and bilinear forms, inner products
  James, D. G. 1P
  Au-ypecting, Yik-hoi 1P
  Đoković, Dragomir Đ. 2P

15A66 Clifford algebras
15A69 Multilinear algebra, tensor products
  Huq, Syed A. 1P

15A72 Vector and tensor algebra, theory of invariants
  Huq, Syed A. 1S
  Sinkhorn, Richard 2P

15A75 Exterior algebra, Grassmann algebras
15A78 Other algebras built from modules
  Barshay, Jacob 1P

16—XX ASSOCIATIVE RINGS AND ALGEBRAS {For the commutative case, see 13—XX.}

16—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
16—01 Elementary exposition (collegiate level)
16—02 Advanced exposition (research surveys, etc.)
16—03 Historical
16—04 Explicit machine computation and programs (not the theory of computation or programming)

16A02 Integral domains, unique factorization domains (noncommutative)
  Van de Water, Arthur 1P
  Johnson, R. E. 2P
  Baueggard, Raymond A. 1P
  Baueggard, Raymond A. 2P

16A04 Noncommutative principal ideal rings, rings with a division algorithm
  Brungs, Hans-Heinrich 1P

16A06 Free algebras, free ideal rings (firs) and their generalizations [See also tensor algebra in 15A72.]
  Williams, R. E. 1P
  Klein, Abraham 1P
  Fisher, J. L. 1S

16A08 Rings of quotients, noncommutative localization
  Neggers, Joseph 1S
  Chwe, Byoung-song 1S
  Teply, Mark L. 1S
  Brungs, Hans-Heinrich 1S
  Hutchinson, John J. 1P
  Fisher, J. L. 1P

16A10 Noncommutative local rings
  Lenzing, Helmut 1P

16A12 Prime and semiprime rings
  Martindale, Wallace S., III 1S
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>16A14</td>
<td>Noncommutative analogues of Dedekind and Prüfer domains</td>
</tr>
<tr>
<td>16A16</td>
<td>Separable algebras, Azumaya algebras and their generalizations [See also 13A20.]</td>
</tr>
<tr>
<td>16A18</td>
<td>Orders, arithmetic in rings</td>
</tr>
<tr>
<td>16A20</td>
<td>Primitive and semiprimitive rings</td>
</tr>
<tr>
<td>16A21</td>
<td>Radical theory</td>
</tr>
<tr>
<td>16A22</td>
<td>Nil, nilpotent and radical rings</td>
</tr>
<tr>
<td>16A24</td>
<td>Hopf algebras, algebraic theory [See also 57F05.]</td>
</tr>
<tr>
<td>16A26</td>
<td>Group rings [See also 20C05.]</td>
</tr>
<tr>
<td>16A28</td>
<td>Rings with involution [See also 46Kxx.]</td>
</tr>
<tr>
<td>16A30</td>
<td>von Neumann regular rings and their generalizations [See also 06A30.]</td>
</tr>
<tr>
<td>16A32</td>
<td>Idempotents in rings</td>
</tr>
<tr>
<td>16A34</td>
<td>Rings with annihilator conditions</td>
</tr>
<tr>
<td>16A36</td>
<td>Frobenius algebras, quasi-Frobenius rings and their generalizations</td>
</tr>
<tr>
<td>16A40</td>
<td>Division rings, simple and semisimple Artin rings</td>
</tr>
<tr>
<td>16A42</td>
<td>Rings of linear transformations, matrix rings, infinite matrix rings</td>
</tr>
<tr>
<td>16A44</td>
<td>Finite rings [See also 12Cxx.]</td>
</tr>
<tr>
<td>16A46</td>
<td>Chain conditions; finite dimensional algebras, Artin rings, Noetherian rings</td>
</tr>
<tr>
<td>16A48</td>
<td>Structure, classification</td>
</tr>
</tbody>
</table>
1971

SUBJECT INDEX FOR VOLUMES 21-30

Montgomery, Susan 1S
Bruning, L. M. 1S
Leavitt, William G. 3S
Koh, Kwangil 3S

16A49 Duality theory

16A50 Projective and flat modules and generalizations

Sandomierski, Francis L. 1P
Sandomierski, Francis L. 2S
Turnidge, Darrell R. 1P
Shannon, Richard T. 1P
Koehler, Anne 1P
Zelmanowitz, Julius Martin 1S
Ware, Roger 1S
Bialynicki-Birula, Andrezej 1P
Tepley, Mark L. 1P
Wagoner, Ronald L. 1P
Jendrups, S. 1P
Lenzing, Helmut 1P

16A52 Injective modules, self-injective rings and generalizations

Gentile, Enzo R. 1P
Armendarias, Efraim P. 1P
Koehler, Anne 1S
Van de Water, Arthur 1P
Sandomierski, Francis L. 3P
Megibben, Charles K. 1P
Wagoner, Ronald L. 1P

16A54 Grothendieck groups of rings, K-theory of noncommutative rings [See also 18F25.]

Gersten, Stephen M. 1P

16A56 Extension theory

Nobusawa, Nobuo 1P
Kohls, Carl W. 2P

16A58 Deformation theory of rings and algebras [See also 13D10, 32Gxx.]

16A60 Homological dimension

Sandomierski, Francis L. 2P
Megibben, Charles K. 1P
Jacobinski, H. 2S

16A62 Homological methods [For cohomology of algebras and rings, see 18H15.]

Tepley, Mark L. 1S
Alin, J. S. 1S

16A64 Modules and representations

Quillen, Daniel G. 1P
Chwe, Byoung-song 1P
Neggers, Joseph 1P
Koh, Kwangil 2P
Sandomierski, Francis L. 3S
Bialynicki-Birula, Andrezej 1S
Alin, J. S. 1P
Leavitt, William G. 3P
Bruning, L. M. 1P
Wagoner, Ronald L. 1S
Bang, Chang Mo 1P
Warner, Seth 2S

16A66 Ideal theory, prime ideals and their generalizations

Koh, Kwangil 1P
Riley, John A. 1P

16A68 Lie, Jordan and other nonassociative structures on associative rings

Speers, Richard 1P
Montgomery, Susan 1P

16A70 Commutativity theorems

Montgomery, Susan 2P

16A72 Automorphisms, derivations

Faudree, R. J. 1S
Knus, Max-Albert 1P
Barr, Michael 1P

16A74 Galois theory

Bialynicki-Birula, Andrezej 1S

16A76 Near rings

Chandy, A. John 1S

16A78 Semirings and other generalizations of rings

Allen, Paul J. 1P
Ratti, Jogindar S. 4P
Lin, You-feng 2P
Lin, You-feng 3P

16A80 Topological rings and semirings [For ordered rings, see 06A70; see also 13Jxx.]

Warner, Seth 1P
Evans, E. Graham, Jr. 2P
Warner, Seth 2P

17—XX NONASSOCIATIVE RINGS AND ALGEBRAS

17—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

17—01 Elementary exposition (collegiate level)

17—02 Advanced exposition (research surveys, etc.)

17—03 Historical

17—04 Explicit machine computation and programs (not the theory of computation or programming)

17Axx General nonassociative algebras

17A05 Power-associative

Kass, Seymour 1P
Witthoft, William G. 2P

17A10 Commutative power-associative
Kaas, Seymour 1P
Witthoft, William G. 2P

17A15 Noncommutative Jordan algebras
Ravisankar, T. S. 1P
Goldman, Jerry I. 1P

17A20 Flexible algebras

17A25 Nodal algebras
Ravisankar, T. S. 1P
Goldman, Jerry I. 1P
Rich, Michael 1P

17A30 Algebras satisfying other identities
Lorimer, P. J. 1P
Hentzel, Irvin Roy 1P
Hentzel, Irvin Roy 2P
Narayana Rao, M. L. 3P
Narayana Rao, M. L. 4P
Rich, Michael 1P
Witthoft, William G. 2P
Kaas, Seymour 1P
Thedy, Armin 1P

17A99 None of the above, but in this section
Leavitt, William G. 1P
Ravisankar, T. S. 2P
Leavitt, William G. 2P
Rich, Michael 2P

17Bxx Lie algebras [For Lie groups, see 22Exx.]

17B05 Structure theory
Schenkman, Eugene 2P
Ravisankar, T. S. 2P
May, J. Peter 1S
Stitzinger, Ernest L. 3P
Putcha, Mohan S. 1P

17B10 Representations, algebraic theory (weights)
Wallach, Nolan R. 1P
Lemire, F. W. 1P

17B15 Representations, analytic theory

17B20 Simple, semisimple, reductive algebras (roots)
Wallach, Nolan R. 1P
Ravisankar, T. S. 2P
Lemire, F. W. 1P

17B25 Exceptional algebras

17B30 Solvable, nilpotent algebras
Quillen, Daniel G. 1S
Chao, Chong-yun 1P
Stitzinger, Ernest L. 3P
Putcha, Mohan S. 1P

17B35 Universal enveloping algebras
Quillen, Daniel G. 1S

17B40 Automorphisms, derivations, other operators
Schenkman, Eugene 2P
Ravisankar, T. S. 2P
Putcha, Mohan S. 1P
Hochschild, G. 1S

17B50 Lie p-algebras and bialgebras (Hopf algebras) of formal groups [See also 14L05, 16A24.]
Hochschild, G. 1P

17B55 Homological methods in Lie algebra [For homology of Lie algebras, see 18H25.]

17B60 Lie rings associated with other structures (associative, Jordan, etc.) [See also 15A30, 16A68, 17C40, 17C50.]

17B65 Infinite dimensional Lie algebras [See also 22E65.]

17B99 None of the above, but in this section

17Cxx Jordan algebras (commutative)

17C05 Identities
McCrimmon, Kevin 2P

17C10 Structure theory
Tsa, Chester E. 1P

17C15 Representations

17C20 Simple, semisimple algebras

17C25 Universal enveloping algebras

17C30 Automorphisms, derivations, other operators

17C35 Formally real domains of positivity [See also 32Nxx.]
Resnikoff, H. L. 1P

17C40 Exceptional Jordan algebras and associated Lie groups

17C45 Homological methods in Jordan algebras [For homology of Jordan algebras, see 18H30.]

17C50 Jordan rings associated with other structures [See also 16A68, 17B60.]

17C99 None of the above, but in this section

17D05 Alternative rings
<table>
<thead>
<tr>
<th>Subject</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kleinfeld, Erwin</td>
<td>1P</td>
</tr>
<tr>
<td>Kleinfeld, Margaret Humm</td>
<td>1P</td>
</tr>
<tr>
<td>Hentzel, Irvin Roy</td>
<td>1P</td>
</tr>
<tr>
<td>Hentzel, Irvin Roy</td>
<td>2P</td>
</tr>
<tr>
<td>Jenkins, Terry L.</td>
<td>1P</td>
</tr>
<tr>
<td>Kreiling, Daryl</td>
<td>1P</td>
</tr>
<tr>
<td>Leavitt, William G.</td>
<td>1P</td>
</tr>
<tr>
<td>Ravisankar, T. S.</td>
<td>2P</td>
</tr>
<tr>
<td>Hentzel, Irvin Roy</td>
<td>1P</td>
</tr>
<tr>
<td>Hentzel, Irvin Roy</td>
<td>2P</td>
</tr>
<tr>
<td>Rich, Michael</td>
<td>1P</td>
</tr>
<tr>
<td>Jenkins, Terry L.</td>
<td>1S</td>
</tr>
<tr>
<td>Kreiling, Daryl</td>
<td>1S</td>
</tr>
<tr>
<td>Thedy, Armin</td>
<td>1P</td>
</tr>
<tr>
<td>Rich, Michael</td>
<td>2P</td>
</tr>
</tbody>
</table>

### 17E05 Other nonassociative rings and algebras
- Leavitt, William G. 1P
- Ravisankar, T. S. 2P
- Hentzel, Irvin Roy 1P
- Hentzel, Irvin Roy 2P
- Rich, Michael 1P
- Jenkins, Terry L. 1S
- Kreiling, Daryl 1S
- Thedy, Armin 1P
- Rich, Michael 2P

### 18—XX CATEGORY THEORY, HOMOLOGICAL ALGEBRA

#### 18—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

#### 18—01 Elementary exposition (collegiate level)

#### 18—02 Advanced exposition (research surveys, etc.)

#### 18—04 Explicit machine computation and programs (not the theory of computation or programming)

#### 18Axx General theory of categories and functors

##### 18A05 Definitions, generalizations

##### 18A10 Graphs, groupoids, neofunctors [See also 20Lxx.]

##### 18A15 Foundations, relations to logic and deductive systems [See also 02—XX.]

##### 18A20 Epimorphisms, monomorphisms, special classes of morphisms, null morphisms, factorization (bicategories)
- Noll, Walter 1P
- Klein, Aaron 1S

##### 18A25 Functor categories, comma categories

##### 18A30 Limits and colimits (products, sums, pushouts, fiber products, equalizers, kernels, ends and coends, etc.)

##### 18A35 Complete categories, completions

##### 18A40 Adjoint functors (representable functors, universal constructions, reflexive subcategories, etc.), constructions of adjoints (Kan extensions, etc.)
- Davis, Robert 3P

#### 18A99 None of the above, but in this section
- Klein, Aaron 1P

#### 18Bxx Special categories

##### 18B05 Category of sets, characterizations
- Davis, Robert 1S

##### 18B10 Category of relations, additive relations, semigroups [See also 20Mxx.]
- Huq, Syed A. 1P
- Wyler, Oswald 1S

##### 18B15 Embedding theorems, universal categories [See also 18E20.]

##### 18B20 Categories of machines, automata, operative categories [See also 02F10, 68A25, 94A30, 94A35.]

#### 18B99 None of the above, but in this section
- Hager, Anthony W. 2S

#### 18Cxx Categories and algebraic theories

##### 18C05 Equational categories [See also 02—XX.]
- Huq, Syed A. 1S

##### 18C10 Theories (e.g. algebraic theories), structure, and semantics
- Davis, Robert 2P
- Huq, Syed A. 1S

##### 18C15 Triples (= standard construction, monad or triad), algebras for a triple, homology and derived functors for triples [See also 18Gxx.]
- Davis, Robert 1P

#### 18C99 None of the above, but in this section

#### 18Dxx Categories with structure

##### 18D05 Double categories, 2-categories, bicategories, hypercategories

##### 18D10 Monoidal categories (= multiplicative categories)

##### 18D15 Closed categories (closed monoidal and cartesian closed categories, etc.)

##### 18D20 Enriched categories (over closed or monoidal categories)
18D25 Strong functors, strong adjunctions
18D30 Fibered categories
18D35 Structured objects in a category (group objects, etc.)
   Hall, C. E. 1S
18D99 None of the above, but in this section

18Exx Abelian categories
18E05 Preadditive, additive categories
18E10 Exact categories, abelian categories
18E15 Grothendieck categories
18E20 Embedding theorems [See also 18B10.]
18E25 Derived functors and satellites
18E30 Derived categories, triangulated categories
18E35 Localization of categories
18E40 Torsion theories, radicals
   Bernhardt, Robert L. 1P
   Teply, Mark L. 2S
18E99 None of the above, but in this section
   Noll, Walter 1P
   Klein, Aaron 1S

18Fxx Categories and geometry
18F05 Local categories and functors
18F10 Grothendieck topologies [See also 14F20.]
18F15 Abstract manifolds and fiber bundles [See also 55Fxx, 55Bxx.]
18F20 Presheaves and sheaves [See also 14F05, 32C35, 32L10, 55B30.]
18F25 Algebraic K-theory [See also 13D15, 14F15, 16A54.]
   Evans, E. Graham, Jr. 2P
   Gersten, Stephen M. 1P
18F30 Grothendieck groups [See also 13D15, 16A54.]
18F99 None of the above, but in this section

18Gxx Homological algebra
18G05 Projectives and injectives [See also 13C10, 16A50, 16A52.]
   Cox, S. H., Jr. 1P
   Hall, C. E. 1P
   Megiben, Charles K. 1S
   Teply, Mark L. 1S
   Wagoner, Ronald L. 1S
18G10 Resolutions; derived functors [See also 18E25.]
18G15 Ext and Tor, generalizations, Künneth formula [See also 55J25.]
18G20 Homological dimension [See also 13Dxx, 16A62.]
   Landweber, Peter S. 1P
18G25 Relative homological algebra, projective classes
18G30 Simplicial sets, simplicial objects (in a category) [See also 55J10.]
18G35 Chain complexes [See also 18E30, 55J15.]
   Fleury, Patrick J. 1P
18G40 Spectral sequences, hypercohomology [See also 55Hxx.]
18G99 None of the above, but in this section

18Hxx Cohomology of specified algebraic systems
18H05 General methods; models [See also 18E25, 18G25.]
18H10 Cohomology and homology of groups [See also 20Jxx.]
   Ribes, Luis 1P
   Rinehart, George S. 1P
   Formanek, Edward 1P
   Landweber, Peter S. 1P
   Summers, D. W. 1P
18H15 Cohomology and homology of algebras and rings [See also 16A62.]
   Bialynicki-Birula, Andrzej 1P
18H20 Cohomology and homology of commutative rings [See also 13Dxx.]
   Greenleaf, Newcomb 1P
   Fleury, Patrick J. 1P
18H25 Cohomology of Lie algebras [See also 17B55.]
18H30 Cohomology of Jordan algebras [See also 17C45.]
18H35 Cohomology of other nonassociative algebras [See also 17—XX.]
18H40 Cohomology of other algebraic systems
   Westman, Joel J. 1P
18H99 None of the above, but in this section
section

20—XX GROUP THEORY
AND GENERALIZATIONS
{For ordered groups, see 06A55.}

20—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

20—01 Elementary exposition (collegiate level)

20—02 Advanced exposition (research surveys, etc.)

20—03 Historical

20—04 Explicit machine computation and programs (not the theory of computation or programming)

20Axx Foundations

20A05 Axiomatics and elementary properties

20A10 Metamathematical considerations [For word problems, see 20F10.]

20A99 None of the above, but in this section

20Bxx Finite permutation groups

20B05 General theory

20B10 Characterization theorems

20B15 Uniprimitive groups

20B20 Multiply transitive groups

20B25 Automorphism groups of algebraic, geometric, or combinatorial structures [See also 05Bxx, 20G40, 20H30, 50—XX.]

Plemmons, Robert J. 1S
Huskey, R. J., Jr. 1P
Huskey, R. J., Jr. 1P
Richards, James W. 1P

20B99 None of the above, but in this section

20Cxx Representation theory of finite groups

20C05 Group rings and their modules [See also 16A26.]

Faudree, R. J. 1P
Passman, D. S. 1P
Reiner, Irving 1P
Lam, Tsit-yuen 1P
Passman, D. S. 2P
Coleman, Donald B. 1P
Plemmons, Robert J. 1S
Hill, E. T. 1P
Woods, S. M. 1S
Hill, E. T. 2P
Benard, Mark 1S
Fields, K. L. 1P
Fleury, Patrick J. 1S

20C10 Integral representations

Grove, Larry C. 1P
Bialynicki-Birula, Andrzej 1S

20C15 Ordinary representations and characters

 Isaacs, I. M. 1P
Fossum, Timothy V. 1P
Coury, John E. 1S
DeMeyer, Frank R. 1P
Fein, Burton 2P
Winter, David L. 1P
Herzog, Marcel 3P
Blau, Harvey I. 1P
Formanek, Edward 2P
Benard, Mark 1P
Fields, K. L. 1P

20C20 Modular representations and characters

Fein, Burton 1P
Hill, E. T. 2P

20C25 Projective representations and multipliers

20C30 Representations of symmetric groups and other special groups

20C35 Applications to physics

20C99 None of the above, but in this section

20Dxx Abstract finite groups

20D05 Simple groups [See also 20G40.]

Herzog, Marcel 1P
Herzog, Marcel 2P

20D10 Solvable groups

Bauman, Steven F. 1P
Isaacs, I. M. 1P
Basmaji, B. G. 1P
Faudree, R. J. 1S
Randolph, J. W. 1P
Parker, Donald B. 1P
Dornhoff, Larry 1P
Schmidt, H. J., Jr. 1P
DeMeyer, Frank R. 1P
Inagaki, Nobuo 1P
Yen, T. 1P
Kotzen, Marshall 1P
Faudree, R. J. 2S
Gilman, Robert 1P
Chambers, Graham A. 1P
Richards, James W. 1P

20D15 Nilpotent groups, p-groups

Davitt, Richard M. 1P
Jain, N. C. 1P
<table>
<thead>
<tr>
<th>Subject</th>
<th>Authors</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>20D20 Sylow subgroups, λ-groups</td>
<td>Richen, Forrest</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Inagaki, Nobuo</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Landweber, Peter S.</td>
<td>1S</td>
</tr>
<tr>
<td>20D25 Special subgroups (Frattini, Fitting, etc.)</td>
<td>Randolph, J. W.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Stitzinger, Ernest L.</td>
<td>2P</td>
</tr>
<tr>
<td></td>
<td>Macdonald, Ian D.</td>
<td>1P</td>
</tr>
<tr>
<td>20D30 Series and lattices of subgroups</td>
<td>Richen, Forrest</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Kotzen, Marshall</td>
<td>1P</td>
</tr>
<tr>
<td>20D35 Subnormal subgroups</td>
<td>Schenkman, Eugene</td>
<td>3S</td>
</tr>
<tr>
<td>20D40 Products of subgroups</td>
<td>Parker, Donald B.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Reilly, Norman R.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Gilman, Robert</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Friesen, Donald K.</td>
<td>1P</td>
</tr>
<tr>
<td>20D45 Automorphisms</td>
<td>Schenkman, Eugene</td>
<td>3P</td>
</tr>
<tr>
<td></td>
<td>Davitt, Richard M.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Jain, N. C.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Richards, James W.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Formanek, Edward</td>
<td>2P</td>
</tr>
<tr>
<td></td>
<td>Otto, Albert D.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Davitt, Richard M.</td>
<td>2P</td>
</tr>
<tr>
<td>20D99 None of the above, but in this section</td>
<td>Bernstein, Herbert J.</td>
<td>1P</td>
</tr>
<tr>
<td>20Exx Infinite groups</td>
<td>20E05 Free nonabelian groups</td>
<td>Karrass, Abraham</td>
</tr>
<tr>
<td></td>
<td>Burns, R. G.</td>
<td>1P</td>
</tr>
<tr>
<td>20E10 Varieties of groups</td>
<td>Hickin, Kenneth K.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Schwabauer, Robert</td>
<td>1S</td>
</tr>
<tr>
<td>20E15 Chains of subgroups (solvable groups, nilpotent groups, etc.)</td>
<td>Hickin, Kenneth K.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Faudree, R. J.</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Hill, Paul D.</td>
<td>2P</td>
</tr>
<tr>
<td></td>
<td>Hursey, R. J., Jr.</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Chandy, A. John</td>
<td>1P</td>
</tr>
<tr>
<td>20E20 Special subgroups other than commutator types</td>
<td>Faudree, R. J.</td>
<td>1P</td>
</tr>
<tr>
<td>20E25 Local properties, residual properties</td>
<td>Stebe, Peter</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Hursey, R. J., Jr.</td>
<td>1S</td>
</tr>
<tr>
<td>20E30 Free products, generalized properties</td>
<td>Billis, M. J.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Hirshon, R.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Gregorac, Robert J.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Baumslag, Gilbert</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Karrass, Abraham</td>
<td>3P</td>
</tr>
<tr>
<td>20E35 Representation in associative rings, Lie rings, combinatorial structures, etc.</td>
<td>Faudree, R. J.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Bialynicki-Birula, Andrzej</td>
<td>1P</td>
</tr>
<tr>
<td>20E40 Fundamental groups, etc. [See also 55A05, 57Exx.]</td>
<td>Tollefson, Jefferey L.</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Birman, Joan S.</td>
<td>1P</td>
</tr>
<tr>
<td>20E99 None of the above, but in this section</td>
<td>20Fxx General groups, finite or infinite</td>
<td>20F05 Generators and relations</td>
</tr>
<tr>
<td></td>
<td>Emerson, William R.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Grove, Larry C.</td>
<td>2P</td>
</tr>
<tr>
<td></td>
<td>Benson, Clark T.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Formanek, Edward</td>
<td>1S</td>
</tr>
<tr>
<td>20F10 Word problems</td>
<td>Appel, K. I.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Lipschutz, Seymour</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Stebe, Peter</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>McCool, James</td>
<td>1P</td>
</tr>
<tr>
<td>20F15 Structure theorems</td>
<td>Whittemore, Alice</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Cossey, John</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Gregorac, Robert J.</td>
<td>1P</td>
</tr>
<tr>
<td>20F20 Limits, profinite groups</td>
<td>20F25 Extensions, wreath products, other compositions</td>
<td>Simon, Hermann</td>
</tr>
<tr>
<td></td>
<td>Amberg, Bernhard</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Scott, W. R.</td>
<td>2P</td>
</tr>
<tr>
<td>20F30 Subgroup lattices, maximal subgroups, subnormal subgroups, etc.</td>
<td>Whittemore, Alice</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Cossey, John</td>
<td>1P</td>
</tr>
<tr>
<td>20F35 Commutator subgroups and their generalizations</td>
<td>Schenkman, Eugene</td>
<td>2P</td>
</tr>
<tr>
<td>20F40 Associated Lie structures</td>
<td>Schenkman, Eugene</td>
<td>2P</td>
</tr>
<tr>
<td></td>
<td>Stitzinger, Ernest L.</td>
<td>3S</td>
</tr>
</tbody>
</table>
1971]

SUBJECT INDEX FOR VOLUMES 21-30

Putcha, Mohan S. 1S

20F45 Engel conditions

Faudree, R. J. 2S
Putcha, Mohan S. 1S

20F50 Periodic groups

Gupta, Narain Datt 1P

20F55 Automorphisms

Schenkman, Eugene 2P
Conlon, Lawrence 1P
Chandy, A. John 1P

20F99 None of the above, but in this section

20Gxx Linear algebraic groups

(classical groups) See also 10C30, 14—XX.

20G05 Representation theory [For infinite dimensional representations, see 22E50.]

20G10 Cohomology theory

20G15 Linear algebraic groups over arbitrary fields

Hochschild, G. 1P

20G20 Linear algebraic groups over the reals, the complexes, the quaternions

Blass, Harvey I. 1P
Hochschild, G. 1P

20G25 Linear algebraic groups over local fields and their integers

20G30 Linear algebraic groups over global fields and their integers

Weisman, Carl S. 1P

20G35 Linear algebraic groups over adeles and other rings and schemes

Weisman, Carl S. 1P

20G40 Linear algebraic groups over finite fields

20G45 Applications to physics; explicit representations

20G99 None of the above, but in this section

20Hxx Other groups of matrices

20H05 Unimodular groups, congruence subgroups

Mason, A. W. 1P

20H10 Fuchsian groups and their generalizations [See also 30A58, 32Nxx.]

Mason, A. W. 1P
MacLachlan, C. 1S
Peur, R. D. 1P

20H15 Other geometric groups, including crystallographic groups [See also 50—XX.]

Grove, Larry C. 2P
Benson, Clark T. 1P

20H20 Other matrix groups over fields

Dornhoff, Larry 1P

20H25 Other matrix groups over rings

20H30 Other matrix groups over finite fields

20H99 None of the above, but in this section

20Jxx Connections with homological algebra and category theory

20J05 Homological methods in group theory

Rinehart, George S. 1P
Formanek, Edward 1P
Landweber, Peter S. 1P

20J10 Groups arising as cohomology groups

20J15 Category of groups

20J99 None of the above, but in this section

Ribes, Luis 1S

20Kxx Abelian groups

20K05 Finitely generated groups

Karras, Abraham 2P
Richards, James W. 1S

20K10 Torsion groups

Winthrop, Joel 1P
Cutler, Doyle O. 1P
Griffith, Phillip A. 1P
Cutler, Doyle O. 2P
Hill, Paul D. 4P
Stringall, Robert W. 1P

20K15 Torsion free groups, finite rank

20K20 Torsion free groups, infinite rank

Beaumont, Ross A. 1P
Kohls, Carl W. 1P
Cornelius, E. F., Jr. 1P

20K25 Direct sums, direct products, etc.

Walker, Elbert A. 1P
Richman, Fred 1P
Bang, Chang Mo 1P

20K30 Automorphisms,
homomorphisms, endomorphisms
Hill, Paul D. 1P
Tarwater, J. Dalton 1P
Hill, Paul D. 3P

20K35 Extensions
Griffith, Phillip A. 1P
Hill, Paul D. 4P

20K40 Homological and categorical methods [See also 18H10.]

20K45 Topological methods
Armacost, David Lee 1P

20K99 None of the above, but in this section
Sperry, P. L. 1P

20Lxx Groupoids (small categories in which all morphisms are isomorphisms)

20L05 General theory
Grätzer, Géorgy 1S
Padmanabhan, R. 1S

20L10 Connections with group theory
20L15 Connections with topology
20L99 None of the above, but in this section

20Mxx Semigroups
20M05 Free semigroups, generators and relations, word problem
Hochster, M. 2P
Dean, Richard A. 1P
Evans, Trevor 1P
Jenkins, Joe W. 3S
Burris, S. 1P

20M10 Structure theory, ideals, idempotents, etc.
Ferguson, Edward N. 1S
Petrich, Mario 1P
Clark, C. E. 1P
Carruth, J. H. 1P
Stepp, James W. 2S
Rigelsor, Roger 2P
Iyengar, R. R. Krishna 1P
LaTorre, D. R. 2P

20M15 Mappings of semigroups
Johnson, R. E. 1P
Schelp, R. H. 1P
Gudder, Stanley P. 2P

20M20 Semigroups of transformations, etc. [See also 47D05.]

20M25 Semigroup rings, multiplicative semigroups of rings

20M30 Representation of semigroups

20M35 Semigroups in automata theory, linguistics, etc. [See also 02F10.]
Bednarek, Alexander R. 1S

20M99 None of the above, but in this section
Chrislock, J. L. 1P
Lin, You-feng 1P
Schwabauer, Robert 1P
Jenkins, Joe W. 3S

20Nxx Other generalizations of groups
20N05 Loops, quasigroups [See also 05Bxx.]
Lindner, Charles C. 2P

20N10 Ternary systems (heaps, semiheaps, heapoids, etc.)
20N15 n-ary systems
20N99 None of the above, but in this section

22—XX TOPOLOGICAL GROUPS, LIE GROUPS [For transformation groups, see 54H15, 57Exx, 58—XX. For abstract harmonic analysis, see 43—XX.]

22—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
22—01 Elementary exposition (collegiate level)
22—02 Advanced exposition (research surveys, etc.)
22—03 Historical
22—04 Explicit machine computation and programs (not the theory of computation or programming)

22Axx Topological algebraic systems [For topological rings and fields, see 12Jxx, 13Jxx, 16A80; for dual spaces of operator algebras and topological groups, see 46L05.]

22A05 Structure of general topological groups
Hudson, Sigmund N. 1P
Atalla, Robert E. 2P
Hall, C. E. 1P
Bagley, Robert W. 2P
Lau, K. K. 1P
### 22A10 Analysis on general topological groups
- Pym, John S. 1S
- Peterson, H. LeRoy 1P
- Atalla, Robert E. 2S

### 22A15 Structure of topological semigroups
- Edmondson, Don E. 1S
- Rothman, Neal J. 1P
- Hildebrant, John A. 1P
- Borrego, Joseph T. 1P
- Ferguson, Edward N. 1P
- Jenkins, Joe W. 1P
- Hansson, T. H. McH. 1P
- Brown, Robert F. 3P
- Janos, Ludvik 2S
- Jenkins, Joe W. 2P
- Clark, C. E. 1P
- Carruth, J. H. 1P
- Pulp, Ronald O. 1P
- Stepp, James W. 2S
- Wilder, B. E. 1P

### 22A20 Analysis on topological semigroups
- Rothman, Neal J. 1P
- Jenkins, Joe W. 1P
- Jenkins, Joe W. 3P

### 22A25 Representations of general topological groups and semigroups
- Madell, Robert L. 1S

### 22A30 Representations of other topological algebraic systems
- Warner, Seth 1P

### 22A99 None of the above, but in this section
- Jamison, Benton 2P
- Orey, Steven 1P
- Madell, Robert L. 1S

### 22Bxx Locally compact abelian groups (LCA groups)

#### 22B05 General properties and structure of LCA groups
- Hooper, R. C. 1P
- Wu, Ta-sun 1P
- Armacost, David Lee 1P
- Armacost, David Lee 1P
- Rigelhof, Roger 2P
- Hawley, Douglas 1P

#### 22B10 Structure of group algebras of LCA groups
- Graham, Colin C. 2S

#### 22B99 None of the above, but in this section
- Coven, Ethan M. 2S
- Reddy, William L. 1S
- Wang, Ju-kwei 1S

### 22C05 Compact groups
- Lazarov, Connor 1P
- Vasquez, Alphonse T. 1P
- Dugundji, John 1P
- Curtis, Morton L. 1P
- Coury, John E. 1P
- Wood, Geoffrey V. 1S
- Poguntke, Detlev 1P
- Wolf, Joseph A. 1P
- Wilson, Howard J. 1P
- Joffe, A. D. 1P
- Elliott, George A. 2P

### 22Dxx Locally compact groups and their algebras

#### 22D05 General properties and structure of locally compact groups
- Hudson, Sigmund N. 1P
- Wu, Ta-sun 2P
- Jenkins, Joe W. 2P
- Jenkins, Joe W. 3P
- Bagley, Robert W. 2P
- Lau, K. K. 1P
- Schochetman, Irwin 2P
- Milnes, Paul 1S
- Mosak, Richard D. 1P

#### 22D10 Unitary representations of locally compact groups
- Baggett, Larry 1P
- Coury, John E. 1P
- Schochetman, Irwin 2S

#### 22D12 Other representations of locally compact groups
- Vasquez, Alphonse T. 1S
- Lazarov, Connor 1S

#### 22D15 Group algebras of locally compact groups
- Rigelhof, Roger 1P
- Mosak, Richard D. 1P
- Flory, Volker 1P

#### 22D20 Representations of group algebras
- Rigelhof, Roger 1P
- Flory, Volker 1P

#### 22D25 C*-algebras and W*-algebras arising from group representations
- Baggett, Larry 1S
- Milnes, Paul 1P
- Flory, Volker 1P

#### 22D30 Induced representations
- Schochetman, Irwin 2S
- Busby, Robert C. 1P

#### 22D35 Duality theorems
- Milnes, Paul 1S

#### 22D40 Ergodic theory on groups [See also 28A65.]
- Schochetman, Irwin 2P
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>22D45</td>
<td>Automorphism groups of locally compact groups</td>
<td>1P</td>
<td></td>
</tr>
<tr>
<td>22D99</td>
<td>None of the above, but in this section</td>
<td>1S</td>
<td></td>
</tr>
<tr>
<td>22E05</td>
<td>Local Lie groups</td>
<td>1P</td>
<td></td>
</tr>
<tr>
<td>22E20</td>
<td>General properties and structure of other Lie groups</td>
<td>1P</td>
<td></td>
</tr>
<tr>
<td>22E25</td>
<td>Nilpotent and solvable Lie groups</td>
<td>1P</td>
<td></td>
</tr>
<tr>
<td>22E30</td>
<td>Analysis on real and complex Lie groups</td>
<td>1P</td>
<td></td>
</tr>
<tr>
<td>22E35</td>
<td>Analysis on p-adic Lie groups</td>
<td>1P</td>
<td></td>
</tr>
<tr>
<td>22E40</td>
<td>Discrete subgroups of Lie groups</td>
<td>1P</td>
<td></td>
</tr>
<tr>
<td>22E43</td>
<td>Structure and representation of the Lorentz group</td>
<td>1P</td>
<td></td>
</tr>
<tr>
<td>22E45</td>
<td>Representations of Lie and linear algebraic groups: analytic methods</td>
<td>1P</td>
<td></td>
</tr>
<tr>
<td>22E50</td>
<td>Representations of Lie and linear algebraic groups over local fields: analytic methods</td>
<td>1P</td>
<td></td>
</tr>
</tbody>
</table>

**22E55** Representations of Lie and linear algebraic groups over global fields and adele rings: analytic methods [For the purely algebraic theory, see 20G05.]

**22E60** Lie algebras of Lie groups [For the algebraic theory of Lie algebras, see 17Bxx.]

**22E65** Infinite dimensional Lie groups and their Lie algebras [See also 17B65, 58H05.]

**22E70** Applications of Lie groups to physics; explicit representations [See also 81—XX.]

**22E99** None of the above, but in this section

*26—XX REAL FUNCTIONS*  
*See also 54C30.*

26—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

26—01 Elementary exposition (collegiate level)

26—02 Advanced exposition (research surveys, etc.)

26—03 Historical

26—04 Explicit machine computation and programs (not the theory of computation or programming)

26A03 Foundations: limits and generalizations, elementary topology of the line

26A06 One-variable calculus

26A09 Elementary functions

26A12 Rate of growth of functions, orders of infinity, slowly increasing functions [See also 26A48.]

26A15 Continuity and related questions (modulus of continuity, semicontinuity, discontinuities, etc.) [For properties determined by Fourier coefficients, see 42A16; for those determined by approximation properties, see 41A25.]

26A16 Lipschitz (Hölder) classes
Kaufman, Robert P. 1P

26A18 Iteration [See also 39A20.]
Huneke, John Philip 1P
Franks, R. L. 1P
Marzec, R. P. 1P

26A21 Classification of real functions; Baire classification of sets and functions [See also 04A15, 28A05, 54C50.]
Erdös, Paul 1P
Stone, A. H. 1P
Lewis, Paul W. 2S
Dinculeanu, Nicolae IS
Darst, Richard B. 1P
Peek, Darwin E. 1P

26A24 Differentiation (functions of one variable): general theory, generalized derivatives, mean-value theorems [See also 28A15.]
Baisnab, A. P. 1P
Kaufman, Robert P. 1P

26A27 Nondifferentiability (nondifferentiable functions, points of nondifferentiability), discontinuous derivatives
McCarty, G. S., Jr. IS
Kronheimer, E. H. IS
Geroch, Robert P. IS

26A30 Singular functions, Cantor functions, functions with other special properties
Herod, J. V. 2P
Huneke, John Philip 1P
Kaufman, Robert P. 1P
Peek, Darwin E. 1S

26A33 Fractional derivatives and integrals
Kaufman, Robert P. 1S

26A36 Antidifferentiation

26A39 Denjoy and Perron integrals, other special integrals
Manougian, Manoug N. 1P
Helton, Burrell, W. 1P
Helton, Burrell, W. 2P
Chatfield, J. A. 1P
Davis, Wilbor P. 1P

26A42 Integrals of Riemann, Stieltjes and Lebesgue type [See also 28—XX.]
Baker, James D. 1P
Oxtoby, John C. 1P
Chatfield, J. A. 1P
Davis, Wilbor P. 1P
Pollard, Harry 2P
Darst, Richard B. 2P
Wright, Fred M. 2P
Klasi, M. L. 1P

26A45 Functions of bounded variation, generalizations
Chatfield, J. A. 1P
Davis, Wilbor P. 1P
Kaufman, Robert P. 1P

26A48 Monotonic functions, generalizations
Baisnab, A. P. 1P

26A51 Convexity, generalizations
Gollwitzer, H. E. 1S

26A54 Several variables: continuity and differentiation questions
Kaczynski, T. J. 1P

26A57 Several variables: implicit function theorems, Jacobians, transformations with several variables
McShane, Edward James 1P
Warfield, R. B., Jr. 1P

26A60 Calculus of vector functions

26A63 Integration: length, area, volume

26A66 Integral formulas (Stokes, Gauss, Green, etc.)

26A69 Special properties of functions of several variables, Hölder conditions, etc.

26A72 Superposition of functions

26A75 Polynomials (analytic properties, inequalities, etc.)

26A78 Polynomials (location of zeros) [See also 12D10, 30A08, 65H05.]
Das, Minaketan 1P

26A81 Rational functions

26A82 Inequalities for trigonometric functions and polynomials

26A84 Inequalities involving derivatives and differential and integral operators
Das, K. M. 1P
Helton, Burrell, W. 1P
Gollwitzer, H. E. 1P
Pollard, Harry 2P
Darst, Richard B. 2P

26A86 Inequalities for sums, series and integrals
Menon, K. V. 1P
Ostrow, Donald S. 2P
Herod, J. V. 2P
Darst, Richard B. 2P
Pollard, Harry 2P
Daykin, David E. 1P
Wright, Fred M. 2P
Klasi, M. L. 1P

26A87 Other analytical inequalities

26A90 Real-analytic functions

26A93 C∞ functions, quasi-analytic functions
Darst, Richard B.  4P
Hughes, Robert B.  1P
Darst, Richard B.  5S

26A96 Calculus of functions on infinite-dimensional spaces
Einhorn, Sheldon J.  1P
Goodman, Victor  1P

26A98 Nonstandard analysis [See also 02H25.]

28—XX MEASURE AND INTEGRATION  [For analysis on manifolds, see 58 —XX. ]
28—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
28—01 Elementary exposition (collegiate level)
28—02 Advanced exposition (research surveys, etc.)
28—03 Historical
28—04 Explicit machine computation and programs (not the theory of computation or programming)

28A05 Classes of sets (Borel fields, \sigma-rings, etc.) measurable sets, Suslin sets, analytic sets [See also 04A15, 26A21, 54H05.]

Gelbaum, Bernard R.  1S
Willmott, R. C.  1S
Stone, A. H.  1P
Erdin, Paul  1P
Neubrunn, Tibor  1P
Comfort, W. W.  1P
Darst, Richard B.  1P
Sharp, Henry S.  1S
Mansfield, Richard  1P
Darst, Richard B.  1P
Hansell, Roger W.  1P
Darst, Richard B.  5P
Peek, Darwin E.  1S

28A10 Real- or complex-valued set functions, contents, measures, outer measures, capacities, etc.

Uhl, J. J., Jr.  1P
Johnson, Roy A.  1P
Flech, M. Ann  1P
Gelbaum, Bernard R.  2P
Oxtoby, John C.  1P
Kemperman, J. H. B.  1P
Maharam, Dorothy  1P
Apppling, William D. L.  1P
Johnson, Roy A.  2P
Dinculeanu, Nicolae  1S
Lewis, Paul W.  2S
Graham, Colin C.  2S
Darst, Richard B.  5P

Walsh, B. J.  1P

28A15 Abstract differentiation theory, differentiation of set functions [See also 26A24.]

Pfeffer, W.  1S
Wilbur, W. John  1S
Uhl, J. J., Jr.  1S

28A20 Measurable and nonmeasurable functions, sequences of measurable functions, modes of convergence

Darst, Richard B.  4S
Halpern, Benjamin R.  2P
Hawley, Douglas  1S

28A25 Integration with respect to measures and other set functions

Uhl, J. J., Jr.  1P
Schmeidler, David  1P
Darst, Richard B.  5P

28A30 Integration theory via linear functionals (Radon measures, Daniell integrals, etc.)

Foguel, Shaul Reuven  1P

28A35 Measures and integrals in product spaces

Jamison, Benton  2P
Gray, Steven  1P
Darst, Richard B.  5S

28A40 Measures and integrals in function spaces and linear spaces, Weiner measure [See also 46G10.]

Park, Chul  1P
Jamison, Benton  2P
Gray, Steven  1P
Johnson, Gerald W.  2P
Yeh, J.  2P
Jain, N. C.  1P
Kuelbs, J. D.  1P
Johnson, Gerald W.  3P

28A45 Vector-valued measures and integrals, integration of vector-valued functions [See also 46G10.]

Brooks, James K.  1P
Uhl, J. J., Jr.  1P
Uhl, J. J., Jr.  2P
Darst, Richard B.  1P
Schmeidler, David  1P
Lewis, Paul W.  2P
Dinculeanu, Nicolae  1P
Walsh, B. J.  1P
Edwards, J. R.  2P
Waymert, S. G.  3P
Edwards, J. R.  3P

28A50 Integration and disintegration of measures [For lifting theory, see 46G15.]

28A55 Measures and integrals with values in general ordered systems

28A60 Measures on Boolean rings,
measure algebras [See also 54H10.]
Darst, Richard B. 5P

28A65 Measure-preserving transformations, flows (dynamical systems), measure-theoretic ergodic theory [See also 47A35, 54H20, 58Fxx.]

Sentilles, F. Dennis 1P
Ornstein, Donald S. 2P
Chacon, Rafael V. 1P
Goodwyn, Lew Wayne 1P
Akcoglu, M. A. 1P
Cusolito, J. 1P
Simons, F. H. 1P
Hartman, Philip 1P
Sime, R. C. 3P
Chacon, Rafael V. 3P
Schwartzbauer, T. 1P
Akcoglu, M. A. 2P
Baxter, J. R. 1P
Jones, Lee 1P
Kufner, Velimir 2P
Westman, Joel J. 1P

28A70 Invariant measures, Haar measure [See also 43A05.]
Petersen, H. LeRoy 1P
Coury, John E. 1S
Atalla, Robert E. 2P
Chou, Ching 2S
Rigell, Roger 2P
Tserpes, Nicholas 1P
Mukherjea, Arunava 1P
Joffe, A. D. 1P
Chou, Ching 3P
Hawley, Douglas 1S

28A75 Length, area, volume, other geometric measure theory [See also 26A63, 49F20.]

Garnett, John 1S
Kaufman, Robert P. 1P
Kaufman, Robert P. 1S

30—XX FUNCTIONS OF A COMPLEX VARIABLE

30—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

30—01 Elementary exposition (collegiate level)
Dixon, John D. 1P

30—02 Advanced exposition (research surveys, etc.)

30—03 Historical

30—04 Explicit machine computation and programs (not the theory of computation or programming)

30A02 Monogenic properties of complex functions (including polygenic and areolar monogenic functions)
Krajkiewicz, P. 2S

30A04 Inequalities in the complex domain
Widom, Harold 1P

30A06 Polynomials
Nassif, M. 1S
Shaffer, Dorothy Browne 1P
Beller, E. 1P
Saff, E. B. 3S
Rubinstein, Zalman 1S
Beller, E. 2P

30A08 Zeros of polynomials, rational functions, and other analytic functions (e.g. zeros of functions with bounded Dirichlet integral) [For algebraic theory, see 12D10; for real methods, see 26A78.]

Goodman, Adolph W. 1P
Ratti, Jogindar S. 2P
Borod, Bruce C. 1P
Caughman, James G. 1S
Twomey, J. B. 2P
Saff, E. B. 1P
Flaschka, Hermann 1P
Marden, Morris 2S

30A10 Power series (including lacunary series)

30A12 Boundary behavior of power series, overconvergence

30A14 Analytic continuation
Bogdanowicz, Witold M. 1P

30A16 Dirichlet series and other series expansions, exponential series [See also 40—XX, 41—XX, 42—XX.]

Ogg, A. P. 1P
Layman, J. W. 1P

30A18 Completeness problems, closure of a system of functions
Chang, John S. M. 1P

30A20 Functional equations in the complex domain, iteration and composition of analytic functions [See also 34A20, 39A15.]
Brady, Michael M. 1P

30A22 Continued fractions [See also 10A30, 40A15.]

30A24 Conformal mappings of special domains

30A26 Covering theorems in conformal
### SUBJECT INDEX FOR VOLUMES 21-30

**Dec.**

### 30A28 Numerical methods in conformal mapping theory
- **Sinclair, Allan M.**
- **Robertson, M. S.**

### 30A30 General theory of conformal mappings
- Rosenthal, Paul
- Zalcman, Lawrence
- Jenkins, James A.
- Arsove, Maynard G.
- Parnes, Milton N.
- Baggöze, Türkan
- Warren, Hugh E.
- Geveci, Tunc

### 30A31 Kernel functions and applications
- Rosenthal, Paul
- Suffridge, Ted J.
- Goldstein, Myron

### 30A32 Special classes of univalent and multivalent functions (star-like, convex, bounded rotation, etc.)
- Livingston, Albert E.
- Hummel, James A.
- Twomey, J. B.
- Bernardi, S. D.
- Miller, James
- Baggöze, Türkan
- Wright, D. J.
- Merkes, E. P.
- Hengartner, Walter
- Al-Amiri, Hassoon S.
- Noonan, James W.
- Liu, Ming-chih
- Miller, Sanford S.
- Livingston, Arthur E.
- Miller, Sanford S.
- Zlotkiewicz, Eligiusz

### 30A34 Coefficient problems for univalent and multivalent functions
- Livingston, Albert E.
- Hummel, James A.
- Causey, W. M.
- Duren, Peter L.
- Hengartner, Walter
- Noonan, James W.
- Miller, Sanford S.

### 30A36 General theory of univalent and multivalent functions
- Robertson, M. S.

### 30A38 Extremal problems, variational methods

### 30A40 Extremal problems, other methods
- Beller, E.

### 30A42 Maximum principle; Schwarz' Lemma, Lindelöf principle, analogues and generalizations
- Williams, D. L.

### 30A44 Capacity and harmonic measure in the complex plane [See also 31A15.]
- Garnett, John

### 30A46 Compact Riemann surfaces and uniformization [See also 14H15, 32G15.]
- Kra, Irwin
- Wong, C. K.
- Rao, K. V. R.
- Metzger, Thomas A.
- MacLachlan, C.

### 30A48 Classification theory of Riemann surfaces
- Accola, Robert D. M.

### 30A50 Ideal boundary theory

### 30A52 Differentials on Riemann surfaces
- Farkas, Hershel M.

### 30A58 Discontinuous groups and automorphic functions [See also 10Dxx, 20H10, 32Nxx.]
- Accola, Robert D. M.
- Kra, Irwin
- Wong, C. K.
- Rao, K. V. R.
- Metzger, Thomas A.
- MacLachlan, C.

### 30A60 Quasiconformal mappings and functions
- Zalcman, Lawrence
- MacLachlan, C.

### 30A62 Representations of entire functions by series and integrals
- Bose, Anil Kumar
- Marden, Morris

### 30A64 Special classes of entire functions and growth estimates
- Bose, Anil Kumar
- Pugh, W. J.
- Marden, Morris

### 30A66 Entire functions, general theory
- Bose, Anil Kumar
- Yang, Chung-chun

### 30A68 Meromorphic functions, general theory
- Miles, Joseph
- Cullen, Michael R.
- Yang, Chung-chun

### 30A70 Distribution of values, Nevanlinna theory
- Bank, Steven
<table>
<thead>
<tr>
<th>Subject</th>
<th>Authors</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>30A74</td>
<td>Tse, Kam-fook</td>
<td>2P</td>
</tr>
<tr>
<td>30A76</td>
<td>Barth, K. F., Schneider, W. J., Cullen, Michael R., Caughran, James G., Robertson, M. S., Tse, Kam-fook, McLaughlin, Renate</td>
<td>1P, 1P, 1S, 1P, 1P, 1P, 1P</td>
</tr>
<tr>
<td>30A80</td>
<td>Caveny, D. J., Novinger, W. P., Tse, Kam-fook</td>
<td>1P, 1P, 2P</td>
</tr>
<tr>
<td>30A84</td>
<td>Asymptotic representations in the complex domain</td>
<td></td>
</tr>
<tr>
<td>30A86</td>
<td>Integration, integrals of Cauchy type, integral representations of analytic functions [See also 45Exx.]</td>
<td></td>
</tr>
<tr>
<td>31—XX</td>
<td>Asymptotic representations in the complex domain</td>
<td>1P</td>
</tr>
<tr>
<td>31—00</td>
<td>Difficult to classify at the second level (must also be assigned at least one other classification number in this section)</td>
<td></td>
</tr>
<tr>
<td>31—01</td>
<td>Elementary exposition (collegiate level)</td>
<td></td>
</tr>
<tr>
<td>31—02</td>
<td>Advanced exposition (research level)</td>
<td></td>
</tr>
</tbody>
</table>
surveys, etc.)
31—03 Historical
31—04 Explicit machine computation and programs (not the theory of computation or programming)

31Axx Two-dimensional theory
31A05 Harmonic, subharmonic, superharmonic functions
  Goldstein, Myron 2P

31A10 Integral representations
31A15 Potentials and capacity, harmonic measure, extremal length
31A20 Boundary behavior (Fatou type theorems, etc.)
  Weiss, Max L. 1P
  Boehme, T. K. 1P
  Gehret, T. K. 2P
  Meek, James L. 1P
31A25 Boundary value and inverse problems
  Goldstein, Myron 1S

31A30 Biharmonic, polyharmonic functions and equations, Poisson's equation
31A35 Connections with differential equations
31A99 None of the above, but in this section

31Bxx Higher dimensional theory
31B05 Harmonic, subharmonic, superharmonic functions
  Chow, Kwang-nan 1P
  Glasner, Moses 1P
  Sibuya, Yasutaka 1S
31B10 Integral representations
31B15 Potentials and capacities, extremal length
31B20 Boundary value and inverse problems
31B25 Boundary behavior
31B30 Biharmonic and polyharmonic equations and functions
31B35 Connections with differential equations
  Chow, Kwang-nan 1P
  Glasner, Moses 1P
  Sibuya, Yasutaka 1P
31B99 None of the above, but in this section

31Cxx Other generalizations
31C05 Harmonic, subharmonic, superharmonic functions
  Stanford, David P. 1P
  Meek, James L. 1P
31C10 Pluriharmonic and plurisubharmonic functions [See also 32F05.]
31C15 Potentials and capacities
  Hebert, D. J., Jr. 1P
31C20 Discrete potential theory and numerical methods
  Dubuc, Serge 1P
31C25 Dirichlet spaces
  Glasner, Moses 1S
  Chow, Kwang-nan 1S
31C99 None of the above, but in this section

31D05 Axiomatic potential theory
  Glasner, Moses 1S
  Chow, Kwang-nan 1S

32—XX SEVERAL COMPLEX VARIABLES AND ANALYTIC SPACES
32—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
32—01 Elementary exposition (collegiate level)
32—02 Advanced exposition (research surveys, etc.)
32—03 Historical
32—04 Explicit machine computation and programs (not the theory of computation or programming)

32Axx Holomorphic functions of several complex variables
32A05 Power series, series of functions
32A07 Special domains (Reinhardt, Hartogs, tube domains, etc.)
  Kraut, Edgar A. 1S
32A10 Holomorphic functions
  Greenfield, Stephen J. 1P
  Williams, G. Kenneth 1P
  Busenberg, Stavros 1P
32A15 Entire functions
32A17 Normal families
32A20 Meromorphic functions
32A25 Integral representation and residue theory
  Busenberg, Stavros 1P
32A30 Other generalizations of function theory of one complex variable [For functions of several hypercomplex variables, see 30A97.]
32A99 None of the above, but in this section
  Yabuta, Kôzô 1P
32Bxx Local analytic geometry {See also 13—XX and 14—XX.}
32B05 Analytic algebras and generalizations, preparation theorems
  Allan, G. R. 1P
32B10 Germs of analytic sets
32B15 Analytic subsets of affine space
32B20 Semi-analytic sets
32B99 None of the above, but in this section
32Cxx General theory of analytic spaces
32C05 Real-analytic manifolds, real-analytic spaces
  Greenfield, Stephen J. 1P
  Hunt, L. R. 1P
32C10 Complex manifolds [For almost complex manifolds, see 53C15.]
  Barth, Theodore J. 1P
  Stoll, Wilhelm 2P
  Chen, Su-shing 1P
32C15 Complex spaces
  Siu, Yum-tong 2P
  Forholz, E. R. 1P
32C20 Normal analytic spaces
32C25 Analytic subsets and submanifolds
  Emerson, William R. 1P
  Thie, Paul R. 1P
  Stoll, Wilhelm 1P
  Kerman, Peter 1P
  Thie, Paul R. 2P
  Shiffman, Bernard 1P
32C30 Integration on analytic sets and spaces
  Emerson, William R. 1P
  Thie, Paul R. 1P
32C35 Analytic sheaves and cohomology groups [See also 18F20, 55B30.]
  Kripke, Bernard R. 1P
32C40 Singularities
32C45 Modifications, resolution of singularities [See also 14E15.]
32C99 None of the above, but in this section
32Dxx Analytic continuation
32D05 Domains of holomorphy
32D10 Envelopes of holomorphy
  Weinstock, Barnet M. 1P
  Schaeffer, David G. 2P
  Hunt, L. R. 1P
32D15 Continuation of analytic objects
  Fitzgerald, Carl H. 1P
  Weinstock, Barnet M. 2P
32D20 Removable singularities
32D99 None of the above, but in this section
32Exx Holomorphic convexity
32E05 Holomorphically convex complex spaces, reduction theory
  Forholz, E. R. 1P
  Greenfield, Stephen J. 1P
32E10 Stein spaces, Stein manifolds
  Kalmbach, Gudrun 1P
  Hunt, L. R. 1S
32E15 Runge pairs
32E20 Polynomial convexity
32E25 Algebras of holomorphic functions
32E30 Holomorphic and polynomial approximation
  Weinstock, Barnet M. 2P
32E99 None of the above, but in this section
32Fxx Geometric convexity
32F05 Plurisubharmonic functions and generalizations [See also 31C10.]
32F10 q-convexity, q-concavity
32F15 Pseudoconvex domains
  Weinstock, Barnet M. 1P
32F99 None of the above, but in this section [For the theory of the $\partial$-Neumann problem on pseudoconvex domains, see 35N15.]
### 32Gxx Deformations of analytic structures
- **32G05** Deformations of complex structures [See also 13D10, 16A58, 58H05.]
- **32G10** Deformations of submanifolds and subspaces
- **32G13** Analytic moduli problems [For algebraic moduli problems, see 14D20.]
- **32G15** Moduli of Riemann surfaces, Teichmüller theory [See also 30A46.]
- **32G20** Period matrices
- **32G99** None of the above, but in this section

### 32Hxx Analytic mappings
- **32H05** Representative domains
- **32H10** Bergman kernel function
  - Fitzgerald, Carl H. 1P
- **32H15** Invariant metrics and pseudodistances
  - Kiernan, Peter 1P
- **32H20** Hyperbolic complex manifolds
  - Kiernan, Peter 2P
- **32H25** Picard type theorems and generalizations
- **32H99** None of the above, but in this section

### 32Jxx Compact analytic spaces
- **32J05** Compactification
- **32J10** Algebraic dependence theorems
- **32J15** Compact surfaces [See also 14Jxx.]
- **32J20** Algebraicity criteria
- **32J25** Transcendental methods of algebraic geometry [See also 14C30.]
- **32J99** None of the above, but in this section

### 32Kxx Generalizations of analytic spaces
- **32K05** Banach analytic spaces [See also 58Bxx.]
- **32K15** Differentiable functions on analytic spaces, differentiable spaces [See also 58C25.]
- **32K99** None of the above, but in this section

### 32Lxx Holomorphic fiber spaces
- **32L05** Holomorphic fiber bundles and generalizations
- **32L10** Sheaves and cohomology of sections of holomorphic vector bundles [See also 18F20, 55B30.]
  - Stoll, Wilhelm 2P
- **32L99** None of the above, but in this section

### 32Mxx Complex spaces with a group of automorphisms
- **32M05** Complex Lie groups, automorphism groups of complex spaces [See also 22E10.]
  - Chen, Su-shing 1P
- **32M10** Homogeneous complex manifolds [See also 57F15.]
- **32M15** Hermitian symmetric spaces, bounded symmetric domains [See also 22E10, 22E40, 53C35, 57F15.]
  - Wolf, Joseph A. 1P
- **32M99** None of the above, but in this section

### 32Nxx Automorphic functions
- **32N05** General theory of automorphic functions of several complex variables
- **32N10** Automorphic forms
- **32N15** Automorphic functions in symmetric domains
  - Resnikoff, H. L. 1P
  - Mumford, David 1P
- **32N99** None of the above, but in this section

### 33—XX SPECIAL FUNCTIONS
- **33—XX deals with the properties of functions as...**
functions. General systems of orthogonal functions are treated in 42A52. Expansions in orthogonal functions are treated in 42A56.}

33—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

33—01 Elementary exposition (collegiate level)

33—02 Advanced exposition (research surveys, etc.)

33—03 Historical

33—04 Explicit machine computation and programs (not the theory of computation or programming)

33A10 Exponential and trigonometric functions

33A15 Gamma and beta functions

33A20 Error function, probability integral

33A25 Elliptic functions and integrals

33A30 Hypergeometric functions of one and several variables, generalizations

33A35 E-functions, G-functions, etc.

33A40 Cylindrical functions, Bessel functions

33A45 Spherical functions (Legendre polynomials and functions, spherical harmonics), ultraspherical polynomials

33A50 Gegenbauer functions

33A55 Lamé, Mathieu, spheroidal wave functions

33A60 Other wave functions

33A65 Orthogonal special functions and polynomials (Cebyshev, Hermite, Jacobi, Laguerre, etc.)

33A70 Other special functions

34—XX ORDINARY DIFFERENTIAL EQUATIONS

34—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

34—01 Elementary exposition (collegiate level)

34—02 Advanced exposition (research surveys, etc.)

34—03 Historical

34—04 Explicit machine computation and programs (not the theory of computation or programming)

34Axx General theory

34A05 Solutions in closed form, integration by quadratures, reduction of differential equations

34A10 Initial value problems: general existence and uniqueness theorems; continuous dependence of solutions on parameters, initial conditions and boundary conditions
<table>
<thead>
<tr>
<th>Index Section</th>
<th>Title</th>
<th>Authors</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>34A15</td>
<td>Initial value problems: continuation of solutions</td>
<td>Burton, T. A.; Grimmer, R. C.</td>
<td>IP</td>
</tr>
<tr>
<td>34A20</td>
<td>Differential equations in the complex domain [See also 30A70.].</td>
<td>Bank, Steven; Wong, C. K.; Wong, Pui-kei</td>
<td>IP</td>
</tr>
<tr>
<td>34A25</td>
<td>Analytical theory: series, transformations, transforms, operational calculus, etc. [See also 44—XX, 47E05.]</td>
<td>Al-Salam, Waleed A.; Dickey, R. W.; Ebin, David G.</td>
<td>IS</td>
</tr>
<tr>
<td>34A30</td>
<td>Linear equations and systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34A35</td>
<td>Differential equations of infinite order</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34A40</td>
<td>Differential inequalities</td>
<td>Murdehswar, M. G.; Deo, S. G.; Lovelady, David Lowell; Gunderson, R. W.; Fraker, Ross; Bebenroes, J. W.; Fraker, Ross; Deo, S. G.</td>
<td>IS</td>
</tr>
<tr>
<td>34A45</td>
<td>Theoretical approximation of solutions</td>
<td>Stein, F. Max; Henry, Myron S.</td>
<td>IS</td>
</tr>
<tr>
<td>34A50</td>
<td>Numerical approximation of solutions [For numerical analysis, see 65Lxx.]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34B05</td>
<td>Linear equations</td>
<td>Zettl, Anton; Hochstadt, Harry; Bogar, Gary A.; Hughes, David K.; Zettl, Anton</td>
<td>IS</td>
</tr>
<tr>
<td>34B10</td>
<td>Multipoint boundary value problems</td>
<td>Bryan, Robert Neff</td>
<td>IP</td>
</tr>
<tr>
<td>34B15</td>
<td>Nonlinear boundary value problems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34B20</td>
<td>Weyl theory and its generalizations</td>
<td>Schrader, Keith W.; Waltman, Paul E.; George, John H.; Sutton, W. G.; Fraker, Ross; Bebernes, J. W.; Fraker, Ross</td>
<td>IP</td>
</tr>
<tr>
<td>34B25</td>
<td>Spectral theory, Sturm-Liouville, and scattering theory: eigenfunctions, eigenvalues, and expansions [See also 42—XX, 43—XX, 47Axx, 47Bxx, 47E05.]</td>
<td>Eastham, M. S. P.; Banks, Dallas O.; Kaufman, Robert M.</td>
<td>IP</td>
</tr>
<tr>
<td>34B30</td>
<td>Special equations (Mathieu, Hill, Bessel, etc.) [See also 33—XX.]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34B99</td>
<td>None of the above, but in this section</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34C05</td>
<td>Limit cycles, singular points</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34C10</td>
<td>Zeros, disconjugacy, growth, boundedness, oscillation and comparison of solutions</td>
<td>Sherman, Thomas L.; Fink, A. M.; St. Mary, Donald F.; Hochstadt, Harry; Kim, Wool Jong; Peterson, Allan C.; Hartman, Philip; Hethcote, Herbert W.; Gustafson, G. B.; Wend, David V. V.; Ryder, Gerald H.; Kreith, Kurt; Galbraith, A. S.; Utz, W. Roy; Kim, Wool Jong; Eigen, Garret J.; Leighton, Walter; Ke, William Oo Kian; Schneider, Leo J.; Kim, Wool Jong; Eigen, Garret J.; Scott, J. B.; Breuer, Shlomo; Wong, Pui-kei</td>
<td>IP</td>
</tr>
</tbody>
</table>
SUBJECT INDEX FOR VOLUMES 21-30

1971

Cronin-Scanlon, Jane 1P
Lasota, Andrzej 1P
Bernfeld, Stephen R. 2P

34C20 Transformation and reduction of equations and systems
Proctor, Thomas Gilmer 1P

34C25 Periodic and almost periodic solutions
Yorke, James A. 2P
Proctor, Thomas Gilmer 2P
Schmitt, Klaus 1P
Fink, A. M. 2P
Cronin-Scanlon, Jane 1P

34C30 Manifolds of solutions, averaging method [See also 47H10, 58Fxx.]

34C35 Dynamical systems [See also 58Fxx, 70—XX.]
Gordon, William B. 1P
Weinstein, Alan D. 2P
Marsden, Jerrold E. 1P
Ebin, David G. 1P
Hájek, Otomar 1P
Palis, J. 1P

34C40 Equations and systems on manifolds [See also 58Fxx, 58Gxx.]

34C99 None of the above, but in this section

34Dxx Stability theory [See also 58Fxx, 93Dxx.]

34D05 Asymptotic properties, characteristic exponents
Katz, I. Norman 1P
Zettl, Anton 1P
Mayes, Vivienne 1P
Zaidman, Samuel 2P
Zettl, Anton 2P
Lakshmikantham, V. 1P
Ladas, Gerasimos 1P
Leela, S. 1P
Hallam, Thomas G. 2P
Hammett, Michael E. 1P
Bernfeld, Stephen R. 2P
Lasota, Andrzej 1P

34D10 Perturbations
Yorke, James A. 3P
Strauss, Aaron 2P

34D15 Singular perturbations

34D20 Lyapunov stability
Zaidman, Samuel 1P
Gunderson, R. W. 1S
Deo, S. G. 2P

34D25 Popov-type stability

34D30 Structural stability and analogous concepts [See also 58Fxx.]

34D35 Stability of manifolds of solutions

34D99 None of the above, but in this section

34Exx Asymptotic theory

34E05 Asymptotic expansions
Hallam, Thomas G. 1P
Muckenhoupt, Benjamin 2P

34E10 Perturbations
Ladas, Gerasimos 1P
Lakshmikantham, V. 1P
Leela, S. 1P

34E15 Singular perturbations, general theory
Chang, K. W. 1P

34E20 Singular perturbations, turning point theory, WKB-methods

34E99 None of the above, but in this section

34F05 Equations and systems with randomness [See also 60K05, 93Exx.]

34G05 Differential equations in Banach and other abstract spaces

34H05 Control problems [See also 49—XX, 93—XX.]

34Jxx Functional differential equations

34J05 General theory
Benson, Donald C. 1P
Kreith, Kurt 3P

34J10 Differential-difference equations
Hughes, David K. 1P

34J99 None of the above, but in this section

34Kxx Functional-differential equations with retarded arguments, functional-differential equations with
<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>34K05</td>
<td>General theory</td>
<td>Yorke, James A. 1P, Grimm, L. J. 1P</td>
</tr>
<tr>
<td>34K10</td>
<td>Boundary value problems</td>
<td>Schmitt, Klaus 1P</td>
</tr>
<tr>
<td>34K15</td>
<td>Qualitative theory</td>
<td>Abramowich, John 1P, Izé, Antonio F. 2P, Hale, Jack K. 1P</td>
</tr>
<tr>
<td>34K25</td>
<td>Asymptotic theory</td>
<td>Rupp, Russell D., Jr. 1S, Sigillito, Vincent G. 1S, Garabedian, Paul R. 1P, Diaz, Joaquin B. 1S</td>
</tr>
<tr>
<td>34K99</td>
<td>None of the above, but in this section</td>
<td></td>
</tr>
<tr>
<td>35—XX</td>
<td>PARTIAL DIFFERENTIAL EQUATIONS</td>
<td></td>
</tr>
<tr>
<td>35—00</td>
<td>Difficult to classify at the second level (must also be assigned at least one other classification number in this section)</td>
<td></td>
</tr>
<tr>
<td>35—01</td>
<td>Elementary exposition (collegiate level)</td>
<td></td>
</tr>
<tr>
<td>35—02</td>
<td>Advanced exposition (research surveys, etc.)</td>
<td></td>
</tr>
<tr>
<td>35—03</td>
<td>Historical</td>
<td></td>
</tr>
<tr>
<td>35—04</td>
<td>Explicit machine computation and programs (not the theory of computation or programming)</td>
<td></td>
</tr>
<tr>
<td>35A05</td>
<td>General existence and uniqueness theorems</td>
<td>Rupp, Russell D., Jr. 1S, Sigillito, Vincent G. 1S, Garabedian, Paul R. 1P, Diaz, Joaquin B. 1S</td>
</tr>
<tr>
<td>35A10</td>
<td>Cauchy-Kowalewski theorems</td>
<td></td>
</tr>
<tr>
<td>35A15</td>
<td>Variational methods</td>
<td></td>
</tr>
<tr>
<td>35A20</td>
<td>Analytic methods, singularities</td>
<td>Bragg, Louis R. 2P</td>
</tr>
<tr>
<td>35A22</td>
<td>Transform methods</td>
<td>Dettman, John W. 1P, Bragg, Louis R. 1P</td>
</tr>
<tr>
<td>35A25</td>
<td>Other special methods</td>
<td></td>
</tr>
<tr>
<td>35A30</td>
<td>Geometric theory, characteristics, transformations</td>
<td></td>
</tr>
<tr>
<td>35A35</td>
<td>Theoretical approximation to solutions</td>
<td></td>
</tr>
<tr>
<td>35A40</td>
<td>Numerical approximation to solutions [For numerical analysis, see 65Mxx, 65Nxx, 65P05.]</td>
<td></td>
</tr>
<tr>
<td>35A99</td>
<td>None of the above, but in this section</td>
<td></td>
</tr>
<tr>
<td>35B05</td>
<td>Comparison theorems; oscillation, zeros and growth of solutions</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Authors</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>---------</td>
</tr>
<tr>
<td>35D99</td>
<td>None of the above, but in this section</td>
<td>Sibuya, Yasutaka</td>
</tr>
<tr>
<td>35G30</td>
<td>Boundary value problems for nonlinear equations and systems</td>
<td></td>
</tr>
<tr>
<td>35G99</td>
<td>None of the above, but in this section</td>
<td></td>
</tr>
<tr>
<td>35H05</td>
<td>Hypoelliptic equations and systems</td>
<td></td>
</tr>
<tr>
<td>35Jxx</td>
<td>Elliptic equations and systems</td>
<td></td>
</tr>
<tr>
<td>35J05</td>
<td>Laplace's equation, reduced wave equation (Helmholtz), Poisson's equation</td>
<td>Sibuya, Yasutaka</td>
</tr>
<tr>
<td>35J10</td>
<td>Schrödinger operator [See also 47A40.]</td>
<td></td>
</tr>
<tr>
<td>35J15</td>
<td>Second order equations, general</td>
<td>Headley, V. B.</td>
</tr>
<tr>
<td>35J20</td>
<td>Second order equations, variational methods</td>
<td>Chow, Kwang-nan, Glasner, Moses</td>
</tr>
<tr>
<td>35J25</td>
<td>Second order equations, boundary value problems</td>
<td></td>
</tr>
<tr>
<td>35J30</td>
<td>Higher order equations, general</td>
<td>Schaeffer, David G.</td>
</tr>
<tr>
<td>35J35</td>
<td>Higher order equations, variational problems</td>
<td></td>
</tr>
<tr>
<td>35J40</td>
<td>Higher order equations, boundary value problems</td>
<td>Greenlee, W. M.</td>
</tr>
<tr>
<td>35J45</td>
<td>Systems, general</td>
<td></td>
</tr>
<tr>
<td>35J50</td>
<td>Systems, variational methods</td>
<td></td>
</tr>
<tr>
<td>35J55</td>
<td>Systems, boundary value problems</td>
<td></td>
</tr>
<tr>
<td>35J60</td>
<td>Nonlinear equations and systems</td>
<td>Swanson, C. A.</td>
</tr>
<tr>
<td>35J65</td>
<td>Nonlinear boundary value problems for linear equations and systems</td>
<td>Allegretto, Walter</td>
</tr>
<tr>
<td>35J67</td>
<td>Boundary values of solutions</td>
<td></td>
</tr>
<tr>
<td>35J70</td>
<td>Equations and systems of degenerate type</td>
<td>Allegretto, Walter</td>
</tr>
<tr>
<td>35J99</td>
<td>None of the above, but in this section</td>
<td></td>
</tr>
<tr>
<td>35Kxx</td>
<td>Parabolic equations and systems</td>
<td></td>
</tr>
<tr>
<td>35K05</td>
<td>Heat equation</td>
<td></td>
</tr>
</tbody>
</table>
Hughes, Robert B. IS
Haimo, Deborah Tepper IP

35K10 Second order equations, general
35K15 Second order equations, initial value problems

Rosencrans, S. I. IS

35K20 Second order equations, boundary value problems
Rupp, Russell D., Jr. IP

35K25 Higher order equations, general
35K30 Higher order equations, initial value problems
35K35 Higher order equations, boundary value problems

35K40 Systems, general
35K45 Systems, initial value problems
35K50 Systems, boundary value problems
35K55 Nonlinear equations and systems
35K60 Nonlinear boundary value problems for linear equations and systems
35K99 None of the above, but in this section

35Lxx Hyperbolic equations and systems
35L05 Wave equation
Wolfe, Peter IP
Sigillito, Vincent G. IP

35L10 Second order equations, general
35L15 Second order equations, initial value problems

Rosencrans, S. I. IS

35L20 Second order equations, boundary value problems
Diaz, Joaquin B. IS

35L25 Higher order equations, general
Peyser, Gideon IP

35L30 Higher order equations, initial value problems
35L35 Higher order equations, boundary value problems

35L40 First order systems, general
35L45 First order systems, initial value problems
35L50 First order systems, boundary value problems
35L55 Higher order hyperbolic systems
35L60 Nonlinear equations and systems, general
35L65 Conservation laws [See also 76Axx.]
35L99 None of the above, but in this section

35M05 Equations and systems of mixed type (Tricomi, etc.) [For degenerate types, elliptic, see 35Jxx, hyperbolic, see 35Lxx, etc.]

35Nxx Overdetermined systems
35N05 Constant coefficients
35N10 Variable coefficients, general
35N15 \alpha -Neumann problem and generalizations; formal complexes [See also 58G05.]
35N99 None of the above, but in this section

35Pxx Spectral theory and eigenvalue problems [See also 47Axx, 47Bxx, 47F05.]
35P05 General spectral theory
35P10 Completeness of eigenfunctions, eigenfunction expansions

Seeley, Robert T. IP

35P15 Estimation of eigenvalues, upper and lower bounds
35P20 Asymptotic distribution of eigenvalues and eigenfunctions
35P25 Scattering theory [See also 47A40.]
35P99 None of the above, but in this section

35Qxx Special equations and problems [See also 35J05, 35K05, 35L05.]
35Q05 Euler-Poisson-Darboux equation and generalizations

Bragg, Louis R. 2P

35Q10 Navier-Stokes equation [See also 76D05.]
35Q15 Riemann-Hilbert problems [See also 30A88, 31A25.]
35Q99 None of the above, but in this section
35Rxx Miscellaneous topics [For equations on manifolds, see 58Gxx; for manifolds of solutions, see 58Bxx; for stochastic PDE's, see 60H15.]
35R05 Equations with discontinuous coefficients or data
35R10 Difference-partial differential equations, equations with time lag
35R15 Equations on function spaces
35R20 Operator equations, general [See also 34G05, 47A50, 47H15.]
35R25 Improperly posed problems
Sigillito, Vincent G. 1P
35R30 Inverse problems (undetermined coefficients, etc.)
35R99 None of the above, but in this section
35Sxx Pseudodifferential operators
[See also 47G05.]
35S05 General theory
Cardoso, Fernando 1P
Petersen, Bent E. 1S
35S10 Initial value problems
35S15 Boundary value problems
35S99 None of the above, but in this section
39—XX FINITE DIFFERENCES AND FUNCTIONAL EQUATIONS
39—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
39—01 Elementary exposition (collegiate level)
39—02 Advanced exposition (research surveys, etc.)
39—03 Historical
39—04 Explicit machine computation and programs (not the theory of computation or programming)
39A05 Finite differences, general
Fort, Tomlinson 1P
**40B05** Multiple sequences and series

**40Cxx** General summability methods

**40C05** Matrix methods
- Bustoz, Joaquin
- Atalla, Robert E.
- Skerry, Herbert
- Roach, F. A.
- Fridy, J. A.
- Atalla, Robert E.
- Rainwater, John

**40C10** Integral methods

**40C15** Function theoretic methods (including power series methods and semicontinuous methods)
- Hartmann, Frederick
- Lorch, Lee

**40C99** None of the above, but in this section

**40Dxx** Direct theorems on summability

**40D05** General theorems
- Skerry, Herbert

**40D10** Tauberian constants and oscillation limits

**40D15** Convergence factors and summability factors

**40D20** Summability and bounded fields of methods
- Atalla, Robert E.
- Rainwater, John

**40D25** Inclusion and equivalence theorems
- Hartmann, Frederick
- Shawyer, Bruce Lockhart Robertson
- Yang, Gou-sheng
- Shawyer, Bruce Lockhart Robertson

**40D99** None of the above, but in this section
- Lorch, Lee

**40E05** Tauberian theorems
- Shea, Daniel F.
- Saari, Donald G.
- Pollard, Harry
- Saari, Donald G.
- Dikshit, H. P.
- Leviatan, Dany

**40F05** Absolute and strong summability
- Borwein, David
- Fridy, J. A.
- Singh, Sheo Ram

**40Gxx** Special methods of summability

**40G05** Cesàro, Euler, Nörlund and Hausdorff methods
- Dikshit, H. P.
- Singh, Sheo Ram

**40G10** Abel, Borel and power series methods
- Shawyer, Bruce Lockhart Robertson
- Borwein, David
- Yang, Gou-sheng
- Shawyer, Bruce Lockhart Robertson

**40G99** None of the above, but in this section
- Hartmann, Frederick
- Skerry, Herbert

**40H05** Functional analytic methods in summability
- Bustoz, Joaquin
- Atalla, Robert E.
- Kerr, Donald R., Jr.
- Stratton, Howard H., Jr.
- Brown, Herbert I.
- Brown, Herbert I.
- Wilansky, Albert

**40J05** Summability in abstract structures [See also 43A55.]
- Powell, Robert E.
- Cox, Raymond H.
- Wood, Bruce
- Brown, Herbert I.

### 41—XX APPROXIMATIONS AND EXPANSIONS

For all approximation theory in the complex domain, see 30A80 and 30A82; for all trigonometric approximation and interpolation, see 42A08, 42A12.

41—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

41—01 Elementary exposition (collegiate level)
41—02 Advanced exposition (research surveys, etc.)
41—03 Historical
41—04 Explicit machine computation and programs (not the theory of computation or programming)
41A05 Interpolation [See also 42A12 and 65D05.]
41A10 Approximation by polynomials [For approximation by trigonometric polynomials, see 42A08.]

Warren, Hugh E. 1P
Toone, Philip C. 1P
Pasew, E. 1P
Raymon, L. 1P
Byrnes, J. S. 2P
Newman, Donald J. 4P
Rubinstein, Zalman 1P
Saff, E. B. 3P

41A15 Spline approximation
41A20 Approximation by rational functions

Saff, E. B. 2P

41A25 Rate of convergence, degree of approximation

Raymon, L. 1P
Pasew, E. 1P
Prosser, Reese T. 1S

41A30 Approximation by other special function classes

Peek, Darwin E. 1P

41A35 Approximation by operators (in particular, by integral operators)

41A40 Saturation classes

41A45 Approximation by arbitrary linear and nonlinear expressions; widths and entropy

Jerome, Joseph W. 1P
Schumaker, Larry L. 1P
Prosser, Reese T. 1S

41A50 Best approximation (Čebyšev, etc.)

Krukal, Joseph B. 1P
Byrnes, J. S. 2P
Newman, Donald J. 4P
Hoffmann, Laurence D. 1S

41A55 Approximate quadratures

41A60 Asymptotic approximations, asymptotic expansions (steepest descent, etc.) [See also 30A84.]

Nelson, Stuart 2P

41A63 Multidimensional problems

Warren, Hugh E. 1P

41A65 Abstract approximation theory (approximation in normed linear spaces and other abstract spaces)

Singer, Ivan 1P
Restrepo, Guillermo 1P

42—XX FOURIER ANALYSIS
42—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
42—01 Elementary exposition (collegiate level)
42—02 Advanced exposition (research surveys, etc.)
42—03 Historical
42—04 Explicit machine computation and programs (not the theory of computation or programming)
42A04 Trigonometric polynomials, inequalities, extremal problems

Beller, E. 1P
Beller, E. 2P

42A08 Approximation by trigonometric polynomials

42A12 Trigonometric interpolation

42A16 Fourier coefficients, Fourier series of functions with special properties, special Fourier series

Wallen, Lawrence J. 1P
Carlitz, Leonard 1P

42A18 Multipliers

Jodeit, Max, Jr. 1P
Pigno, Louis 1P

42A20 Convergence of Fourier and trigonometric series

Park, Chul 1P

42A24 Summability of trigonometric series

Dikshit, H. P. 1P
Koce, Bum-kung 1P

42A28 Absolute convergence, absolute summability

Dikshit, H. P. 2P

42A32 Trigonometric series of special types (positive coefficients, monotonic coefficients, etc.)

42A36 Probabilistic methods in Fourier analysis

42A40 Conjugate functions, conjugate series, singular integrals
<table>
<thead>
<tr>
<th>Class</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>42A44</td>
<td>Lacunary series of trigonometric and other functions</td>
<td>Dikshit, H. P.</td>
</tr>
<tr>
<td>42A48</td>
<td>Uniqueness of trigonometric expansions, uniqueness of Fourier expansions, Riemann theory, localization</td>
<td>Cooke, Roger</td>
</tr>
<tr>
<td>42A52</td>
<td>Orthogonal functions and polynomials, general theory [See also 33A65.]</td>
<td>Al-Salam, Waleed A.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Muckenhoupt, Benjamin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wilson, M. Wayne</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Das, Minaketan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wade, William R.</td>
</tr>
<tr>
<td>42A56</td>
<td>Fourier series in special orthogonal functions (Legendre polynomials, Walsh functions, etc.)</td>
<td>Zink, Robert E.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>McLaughlin, James R.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wells, Benjamin B., Jr.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wade, William R.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cambanis, Stamatis</td>
</tr>
<tr>
<td>42A60</td>
<td>Series of general orthogonal functions and generalized Fourier expansions</td>
<td>Newman, Donald J.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Byrnes, J. S.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seeley, Robert T.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Park, Chul</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wilson, M. Wayne</td>
</tr>
<tr>
<td>42A62</td>
<td>Uniqueness and localization for orthogonal series</td>
<td></td>
</tr>
<tr>
<td>42A64</td>
<td>Completeness of sets of functions</td>
<td>Cambanis, Stamatis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ginsberg, Jonathan I.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chang, John S. M.</td>
</tr>
<tr>
<td>42A68</td>
<td>Fourier transforms</td>
<td>Wallen, Lawrence J.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Busenberg, Stavros</td>
</tr>
<tr>
<td>42A72</td>
<td>Fourier-Stieltjes transforms [See also 60E05.]</td>
<td>Friedberg, Stephen</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nelson, Stuart</td>
</tr>
<tr>
<td>42A76</td>
<td>Other transforms of Fourier type [See also 44A60.]</td>
<td></td>
</tr>
<tr>
<td>42A80</td>
<td>Trigonometric moment problems</td>
<td></td>
</tr>
<tr>
<td>42A84</td>
<td>Classical almost periodic functions [See also 43A60.]</td>
<td>Sibuya, Yasutaka</td>
</tr>
<tr>
<td>42A88</td>
<td>Positive definite functions</td>
<td>Einhorn, Sheldon J.</td>
</tr>
<tr>
<td>42A92</td>
<td>Multiple Fourier series and integrals</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Schwartz, Alan L.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nelson, Stuart</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cooke, Roger</td>
</tr>
<tr>
<td>42A96</td>
<td>Convolution, factorization</td>
<td></td>
</tr>
</tbody>
</table>

**43—XX ABSTRACT**

**HARMONIC ANALYSIS** [For other analysis on topological and Lie groups, see 22Exx.]

43—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

43—01 Elementary exposition (collegiate level)

43—02 Advanced exposition (research surveys, etc.)

43—03 Historical

43A05 Measures on groups and semigroups

<table>
<thead>
<tr>
<th>Class</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tam, K. W.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jamison, Benton</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Orey, Steven</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Atalla, Robert E.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Doss, Rauf</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tserpes, Nicholas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mukherjea, Arunava</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Joffe, A. D.</td>
</tr>
</tbody>
</table>

43A07 Means on groups and semigroups

<table>
<thead>
<tr>
<th>Class</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Chou, Ching</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chou, Ching</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tserpes, Nicholas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mukherjea, Arunava</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chou, Ching</td>
</tr>
</tbody>
</table>

43A10 Measure algebras on groups and semigroups

<table>
<thead>
<tr>
<th>Class</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pym, John S.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Baker, John Warren</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Graham, Colin C.</td>
</tr>
</tbody>
</table>

43A15 $L_p$ spaces and other function spaces of groups and semigroups

<table>
<thead>
<tr>
<th>Class</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Dunkl, Charles F.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Figà-Talamanca, Alessandro</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yap, Leonard Y. H.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Brown, Leon</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bachelia, Gregory F.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Joditi, Max, Jr.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pigno, Louis</td>
</tr>
</tbody>
</table>

43A20 $L_q$ algebras on groups and semigroups

<table>
<thead>
<tr>
<th>Class</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Butt, Shu-shib</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dunkl, Charles F.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wood, Geoffrey V.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Baker, John Warren</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bachelia, Gregory F.</td>
</tr>
<tr>
<td>Code</td>
<td>Subject</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>43A22</td>
<td>Homomorphisms and multipliers of function spaces on groups</td>
<td></td>
</tr>
<tr>
<td>43A25</td>
<td>Fourier and Fourier-Stieltjes transforms on locally compact abelian groups</td>
<td></td>
</tr>
<tr>
<td>43A30</td>
<td>Fourier and Fourier-Stieltjes transforms on nonabelian groups and on semigroups</td>
<td></td>
</tr>
<tr>
<td>43A32</td>
<td>Other transforms and operators of Fourier type</td>
<td></td>
</tr>
<tr>
<td>43A35</td>
<td>Positive definite functions on groups</td>
<td></td>
</tr>
<tr>
<td>43A40</td>
<td>Character groups and dual objects</td>
<td></td>
</tr>
<tr>
<td>43A45</td>
<td>Spectral synthesis on groups and semigroups</td>
<td></td>
</tr>
<tr>
<td>43A50</td>
<td>Convergence of Fourier series and of inverse transforms</td>
<td></td>
</tr>
<tr>
<td>43A55</td>
<td>Summability methods on groups and semigroups</td>
<td></td>
</tr>
<tr>
<td>43A60</td>
<td>Almost periodic functions on groups and semigroups</td>
<td></td>
</tr>
<tr>
<td>43A65</td>
<td>Representations of groups and semigroups</td>
<td></td>
</tr>
<tr>
<td>43A70</td>
<td>Analysis on specific locally compact abelian groups [See also 12A85.]</td>
<td></td>
</tr>
<tr>
<td>43A75</td>
<td>Analysis on specific compact groups</td>
<td></td>
</tr>
</tbody>
</table>

**43A80** Analysis on other specific Lie groups

**43A85** Analysis on homogeneous spaces

**43A90** Spherical functions

**43A95** Categorical methods [See also 18—XX.]

**44—XX INTEGRAL TRANSFORMS, OPERATIONAL CALCULUS**

[For fractional derivatives and integrals, see 26A33.]

**44—00** Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

**44—01** Elementary exposition (collegiate level)

**44—02** Advanced exposition (research surveys, etc.)

**44—03** Historical

**44—04** Explicit machine computation and programs (not the theory of computation or programming)

**44A05** General transforms [See also 42A76.]

**44A10** Laplace transform

**44A15** Special transforms (Legendre, Hilbert, etc.)

**44A20** Transforms of special functions

**44A25** Singular integrals (Calderó n-Zygmund, etc.) [See also 47G05.]

**44A50** Moment problems [See also 42A80.]

**45—XX INTEGRAL**
EQUATIONS

45—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

45—01 Elementary exposition (collegiate level)

45—02 Advanced exposition (research surveys, etc.)

45—03 Historical

45—04 Explicit machine computation and programs (not the theory of computation or programming)

45A05 Linear integral equations

Helton, Burrell, W. 2P
Lovelady, David Lowell 2P

45B05 Fredholm integral equations

Kalaba, Robert E. 1P

45C05 Eigenvalue problems [See also 34B25, 35Pxx, 47E05.]

45D05 Volterra integral equations [See also 34A10.]

Herod, J. V. 1P
Martin, Robert H., Jr. 1P
Renke, James A. 1P
Miller, Richard K. 1P
Chatfield, J. A. 1S
Davis, Wilbor P. 1S
Hager, R. A. 1P
Gollwitzer, H. E. 3P
Izé, Antonio F. 1P

45Exx Singular integral equations

45E05 Integral equations with Cauchy type kernels [See also 30A88, 35J15, 44A15, 44A35.]

Miranda, Guilleremo 1S

45E10 Integral equations of the convolution type (Abel, Picard, Toeplitz and Wiener-Hopf type) [See also 44A15, 44A35, 47B35.]

Kraut, Edgar A. 1P
Busenberg, Stavros 1P

45E99 None of the above, but in this section

Miranda, Guilleremo 1P

45F05 Systems of linear integral equations

45Gxx Nonlinear integral equations {See also 47Hxx.}

45G05 Singular nonlinear integral equations

45G99 Other nonlinear integral equations

Hager, R. A. 1P
Gollwitzer, H. E. 3P
Izé, Antonio F. 1P
Hess, Peter 2P

45H05 Miscellaneous special kernels [See also 44A15.]

Fox, Charles 1P

45J05 Integro-ordinary differential equations

45K05 Integro-partial differential equations

45Lxx Approximation of solutions

45L05 Theoretical approximation of solutions

45L10 Numerical approximation of solutions [For numerical analysis, see 65R05.]

45Mxx Qualitative behavior

45M05 Asymptotics

Izé, Antonio F. 1P

45M10 Stability theory

Lovelady, David Lowell 2P

45M99 None of the above, but in this section

45N05 Abstract integral equations, integral equations in abstract spaces

46—XX FUNCTIONAL ANALYSIS {For manifolds modelled on topological linear spaces, see 57A20, 58Bxx.}

46—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

46—01 Elementary exposition (collegiate level)

46—02 Advanced exposition (research surveys, etc.)
### Subject Index for Volumes 21-30

#### 46—03 Historical

#### 46—04 Explicit machine computation and programs (not the theory of computation or programming)

#### 46Axx Topological linear spaces

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Authors</th>
</tr>
</thead>
</table>
| 46A05 Locally convex spaces | Curtis, Douglas W. 1P  
Washenberger, James K. IS  
Vidossich, Giovanni IS  
Johnson, Dudley Paul IS  
Brown, Herbert I. 2P  
Jain, N. C. IS  
Cochran, Allan C. IS  
Saxon, Stephen 2P  
Walsh, B. J. IS  
Chou, Ching 3P  
Hosack, John M. IS  |

| | Atalla, Robert E. 1P  
Bustos, Joaquin 1P  
Gellar, Ralph IS  
Tong, Alfred E. 1P  
Brown, Herbert I. 2P  |

#### 46A99 None of the above, but in this section

#### 46Bxx Normed linear spaces and Banach spaces (For function spaces, see 46Exx.)

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Authors</th>
</tr>
</thead>
</table>
| 46B05 Topology in terms of the norms | McCoy, R. A. 1P  
Jain, N. C. IS  
Stein, James D., Jr. 1P  |

| | Uhl, J. J., Jr. IS  
Holub, J. R. 2P  |

| 46B10 Duality and reflexivity | Zink, Robert E. 1P  
Davis, William J. 1P  
Holub, J. R. 1P  
Holub, J. R. 2P  
Jain, N. C. IS  
Merryman, Emory Hughes 1P  
Zippin, M. 2P  
Johnson, W. B. 2P  
Warren, Hugh E. 2P  |

| | Pothoven, Kenneth 1P  
Jerome, Joseph W. 1P  
Schumaker, Larry L. 1P  
Johnson, Dudley Paul IS  
Bilyeu, Russell, G. 1P  
Torrence, Ellen 2P  
Tzafriri, L. 2P  
Howland, James S. 2P  
Holub, J. R. 3S  
Koehler, Donald O. 1P  |

#### 46Cxx Inner product spaces, Hilbert spaces (For function spaces, see 46Exx.)

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Authors</th>
</tr>
</thead>
</table>
| 46C05 Geometry and topology of the spaces | Kruskal, Joseph B. 1P  
Johnson, Gordon G. 1P  
Dokovic, Dragomir Z. 2S  
Holbrook, John A. R. IS  
Wong, Pak-ken 3P  |

| | MacNerney, J. S. 1P  
Kuetta, J. D. 1P  
Moore, Berrien, III IS  
Giellis, George R. IS  |

| 46D05 Spaces with indefinite inner | |
### SUBJECT INDEX FOR VOLUMES 21-30

#### 46Exx Function spaces

**46E05** Lattices of continuous, differentiable or analytic functions
- Morris, Peter D. 1P
- Lacey, H. Elton 1P
- Shore, Samuel D. 1P

**46E10** Topological linear spaces of continuous, differentiable or analytic functions
- Atalla, Robert E. 1S
- Bustoz, Joaquin 1S
- Jain, N. C. 2S
- Wayment, S. G. 3P
- Edwards, J. R. 2P
- Edwards, J. R. 3P

**46E15** Banach spaces of continuous, differentiable or analytic functions
- Katz, Melvin L. Jr. 1P
- Friedman, Neal 1P
- Cima, Joseph A. 1P
- Kellogg, C. N. 1P
- Jamison, Benton 1P
- Ginsberg, Jonathan I. 1S
- Asimow, Leonard 1P
- Atalla, Robert E. 3S
- Hoffmann, Laurence D. 1P
- Warren, Hugh E. 2S
- Wilansky, Albert 1S
- Lacey, H. Elton 2S

**46E20** Hilbert spaces of continuous, differentiable or analytic functions
- Schubert, C. F. 1P
- Cambanis, Stamatis 1P

**46E25** Rings and algebras of continuous, differentiable or analytic functions
- Wilken, Donald R. 2S

**46E30** Spaces of measurable functions, $L^p$ spaces, Orlicz spaces

**46E35** Sobolev spaces, embedding theorems, trace theorems, interpolation spaces

**46E40** Spaces of vector- and operator-valued functions

**46E45** Distribution spaces

**46Fxx** Distributions, generalized functions, distribution spaces

**46F05** Topological linear spaces of test functions and distributions
- Dudley, R. M. 1P

**46F10** Operations with distributions
- Weinstock, Barnet M. 2S

**46F15** Hyperfunctions, analytic functionals

**46F99** None of the above, but in this section

**46Gxx** Measures, integration, derivatives

**46G05** Derivatives
- Uhl, J. J., Jr. 1S
- Goodman, Victor 1P

**46G10** Vector-valued measures and integration
- Uhl, J. J., Jr. 1P
- Johnson, Gerald W. 1P
- Goodrich, Robert K. 1P
- Johnson, Dudley Paul 1S
- Uhl, J. J., Jr. 3P
- Walsh, B. J. 1P

**46G15** Lifting theory

**46G99** None of the above, but in this section

**46Hxx** Topological algebras, normed rings and algebras, Banach algebras

**46Jxx** Function algebras

**46J10** Banach function algebras

**46J15** Commutative Banach function algebras
convolution algebras and measure algebras, see 43—XX.}

46H05 General theory

- Grabiner, Sandy 1P
- Collins, Heron Sherwood 1P
- Summers, W. H. 1P
- Chernoff, Paul R. 1P
- Gelbaum, Bernard R. 3P
- Etter, Daniel O., Jr. 1P
- Sinclair, Allan M. 1P
- Carpenter, R. L. 1P
- Cochran, Allan C. 2P

46H10 Ideals and subalgebras

- Gelbaum, Bernard R. 4P
- Laursen, Kjeld B. 2P
- Torrance, Ellen 1P
- Elliott, George A. 1S

46H15 Representations

- Johnson, Gerald W. 1P
- Gellar, Ralph 1P

46H20 Structure, classification

- Cochran, Allan C. 1P
- Cochran, Allan C. 2P

46H25 Normed modules and Banach modules

- Summers, W. H. 1P
- Collins, Heron Sherwood 1P
- Ramirez, Donald E. 1S
- Dunkl, Charles F. 2S
- Giellis, George R. 1P

46H99 None of the above, but in this section

- Spatz, I. N. 1P
- Wong, Pak-ken 1P
- Sibuya, Yasutaka 1S
- Sinclair, Allan M. 2P
- Carpenter, R. L. 2P

46Jxx Commutative Banach algebras

46J05 General theory

- Allan, G. R. 1P
- Lindberg, John A., Jr. 1P

46J10 Banach algebras of continuous functions, function algebras

- König, Heinz 1P
- Dietrich, William E., Jr. 1P
- Restrepo, Guillermo 1S
- Effler, Larry 1P
- Gonshor, Harry 1P
- Blumenthal, Robert George 1P
- Natitz, Boaz 1P
- Ito, Takashi 1P
- Sidney, S. J. 1P
- Sidney, S. J. 2P
- Warren, Hugh E. 3P
- Luchins, Edith H. 1P

46J15 Banach algebras of differentiable or analytic functions, H^p-spaces [See also 30A98, 32E25.]

- Yabuta, Közô 1P
- Davie, Alexander M. 1P
- Øksendal, B. K. 1P

46J20 Ideals, maximal ideals, boundaries

- Dietrich, William E., Jr. 1P
- Asimow, Leonard 1P
- Blumenthal, Robert George 1P
- Brandstein, A. G. 1P

46J25 Representations

46J30 Subalgebras

- Brown, Leon 1P

46J35 Structure, classification

46J99 None of the above, but in this section

- Ting, Wei-lung 1P
- Luchins, Edith H. 1S
- Rider, D. G. 1S

46Kxx Rings and algebras with an involution

46K05 Ideals, subalgebras

46K10 Representations

46K15 Hilbert algebras

- Friedell, J. C. 1P
- Saworotnow, Parfeny P. 1P
- Saworotnow, Parfeny P. 2P
- Giellis, George R. 1P

46K99 None of the above, but in this section

- Sinclair, Allan M. 2S
- Wong, Pak-ken 3S

46Lxx Rings and algebras of operators, with or without involution

{For other algebraic systems of operators, see 47Dxx.}

46L05 C*-algebras (= B*-algebras) [See also 22D25.]

- Aarnes, Johan F. 1P
- Kadison, Richard V. 1P
- Ono, Tamio 1P
- Bunce, John 1P
- Sinclair, Allan M. 1P
- Wong, Pak-ken 1P
- Torrance, Ellen 1P
- Andersen, Tage Bai 1P
- Reid, James L. 1P
- Elliott, George A. 1P
- Bunce, John 2P
<table>
<thead>
<tr>
<th>Subject Index for Volumes 21-30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barnes, Bruce Alan</td>
</tr>
<tr>
<td><strong>46L10 von Neumann algebras (</strong> = rings of operators, W* - algebras)**</td>
</tr>
<tr>
<td>Suzuki, Noboru</td>
</tr>
<tr>
<td>Berberian, Sterling K.</td>
</tr>
<tr>
<td>Willig, Paul</td>
</tr>
<tr>
<td>Kallman, Robert R.</td>
</tr>
<tr>
<td>Akemann, Charles A.</td>
</tr>
<tr>
<td>Willig, Paul</td>
</tr>
<tr>
<td>Olson, Milton Philip</td>
</tr>
<tr>
<td>Willig, Paul</td>
</tr>
<tr>
<td>Willig, Paul</td>
</tr>
<tr>
<td><strong>46L15 Nonselfadjoint operator algebras on Hilbert space</strong></td>
</tr>
<tr>
<td>Lambert, Alan</td>
</tr>
<tr>
<td><strong>46L20 Operator algebras on Banach and linear topological spaces</strong></td>
</tr>
<tr>
<td>Brown, Herbert I.</td>
</tr>
<tr>
<td>Stratton, Howard H., Jr.</td>
</tr>
<tr>
<td>Kerr, Donald R., Jr.</td>
</tr>
<tr>
<td>Wilansky, Albert</td>
</tr>
<tr>
<td>Barnes, Bruce Alan</td>
</tr>
<tr>
<td><strong>46L25 Dual spaces of operator algebras and topological groups</strong></td>
</tr>
<tr>
<td>Busby, Robert C.</td>
</tr>
<tr>
<td><strong>46L99 None of the above, but in this section</strong></td>
</tr>
<tr>
<td>Gilfeather, Frank</td>
</tr>
<tr>
<td>Helton, Burrell, W.</td>
</tr>
<tr>
<td>Catlin, Donald E.</td>
</tr>
<tr>
<td><strong>46Mxx Categorical methods {See also 18—XX.}</strong></td>
</tr>
<tr>
<td><strong>46M05 Tensor products</strong></td>
</tr>
<tr>
<td>Baker, J. M.</td>
</tr>
<tr>
<td>Gelbaum, Bernard R.</td>
</tr>
<tr>
<td>Howland, James S.</td>
</tr>
<tr>
<td><strong>46M10 Projective and injective objects</strong></td>
</tr>
<tr>
<td>Pothoven, Kenneth</td>
</tr>
<tr>
<td>Gosnror, Harry</td>
</tr>
<tr>
<td><strong>46M15 Functors</strong></td>
</tr>
<tr>
<td><strong>46M99 None of the above, but in this section</strong></td>
</tr>
<tr>
<td>Ting, Wei-lung</td>
</tr>
<tr>
<td><strong>46N05 Miscellaneous applications of functional analysis</strong></td>
</tr>
<tr>
<td>Chou, Ching</td>
</tr>
<tr>
<td><strong>47—XX OPERATOR THEORY</strong></td>
</tr>
<tr>
<td><strong>47—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)</strong></td>
</tr>
</tbody>
</table>
| 47—01 Elementary exposition (collegiate level)
| 47—02 Advanced exposition (research surveys, etc.)
| 47—03 Historical
| 47—04 Explicit machine computation and programs (not the theory of computation or programs)
| **47Axx Single linear operators: general theory** |
| **47A05 Adjoints, conjugates** |
| Wilansky, Albert                | 1S |
| Holtbrook, John A. R.           | 1P |
| **47A10 Spectrum, resolvent, numerical range** |
| Berberian, Sterling K.          | 1P |
| Hoscak, John M.                 | 1P |
| Gilfeather, Frank               | 2S |
| Fink, James P.                  | 1S |
| Gustafson, Karl                 | 1P |
| Bunce, John                     | 1P |
| Chow, T. R.                     | 1P |
| Proser, Reese T.                | 3P |
| Sinclair, Allan M.              | 2S |
| Putnam, Calvin K.               | 1P |
| Bouldin, Richard                | 1P |
| Furuta, Takayuki                | 1P |
| Nakamoto, Rituou                | 1P |
| Bunce, John                     | 3P |
| Holtbrook, John A. R.           | 1S |
| Koehler, Donald O.              | 1P |
| **47A15 Invariant subspaces** |
| Radjavi, Heydar                 | 1P |
| Rosenbalt, Peter                | 1P |
| Radjavi, Heydar                 | 2P |
| Caradus, S. R.                  | 1P |
| Nordgren, Eric A.               | 1P |
| Williams, James P.              | 1P |
| Harrison, K. J.                 | 1P |
| Rosenbalt, Peter                | 3P |
| Radjavi, Heydar                 | 4P |
| Deddens, James A.               | 2P |
| **47A20 Dilations, extensions, compressions** |
| Crandall, Michael G.            | 1P |
| Gilbert, Richard C.             | 2P |
| Hoscak, John M.                 | 1P |
| Chow, T. R.                     | 2P |
| Gilfeather, Frank               | 3P |
| Jones, Lee                      | 1P |
| Kufines, Velimir                | 2P |
| **47A25 Spectral sets** |
| Clancy, Kevin F.                | 1P |
| **47A30 Norms (inequalities, more than one norm, etc.)** |
| Nakamoto, Ritsuos               | 1P |
| Furuta, Takayuki                | 1P |
47A35 Ergodic theory [See also 28A65.]
  Baxter, J. R. 1S
  Jones, Lee 1P
  Kuftinec, Velimir 2P
  Kuftinec, Velimir 2P

47A40 Scattering theory [See also 35J10.]

47A45 Canonical models for contractions and nonselfadjoint operators
  Gilbert, Richard C. 1P
  Leech, Robert B. 1P
  Caradus, S. R. 1P
  Deddens, James A. 2P

47A50 Equations involving linear operators
  Gilfeather, Frank 1S
  Dotson, W. O., Jr. 1P
  Riddell, R. C. 2P
  Deddens, James A. 2S
  Salehi, Habib 2S
  Hess, Peter 2P

47A55 Perturbation theory
  Levine, Richard B. 1P
  Warner, Kenneth K. 2P
  Greenlee, W. M. 2P
  Kazdan, Jerry L. 1P
  Prosser, Reese T. 3P
  Howland, James S. 2S

47A60 Functional calculus
  Finkelstein, M. 1P
  Chow, T. R. 1P
  Kantorovitz, Shmuel 1P
  Kazdan, Jerry L. 1P
  Kritt, B. 1P

47A65 Structure theory
  Constantin, Gheorghe 1P
  Istrǎţescu, Ioana 1P
  Fuguel, Shaul Reuven 1P
  Pincus, Joel David 1P
  Ornstein, Donald S. 2P
  Gilfeather, Frank 2S
  Kritt, B. 1P

47A70 Eigenfunction expansions, rigged Hilbert spaces
  Kuelbs, J. D. 1S

47A99 None of the above, but in this section

47Bxx Single linear operators: special classes of operators

47B05 Compact operators, Riesz operators
  Constantin, Gheorghe 1P
  Istrǎţescu, Ioana 1P
  Summers, W. H. 1S
  Collins, Heron Sherwood 1S
  Gilfeather, Frank 1P

47B10 Hilbert-Schmidt operators, trace class operators, nuclear operators, etc.
  Straig, Peggy Tang 2S
  Friedell, J. C. 1P
  Sawayotnaw, Parfeny P. 1P
  Saworotnow, Parfeny P. 2P
  Clancey, Kevin F. 2P
  Kuelbs, J. D. 1P
  Holub, J. R. 3P

47B15 Hermitian and normal operators (spectral measures, functional calculus, etc.)
  Berberian, Sterling K. 2P
  Kazdan, Jerry L. 1P
  Kritt, B. 1P

47B20 Subnormal operators, hyponormal operators, etc.
  Constantin, Gheorghe 1S
  Istrǎţescu, Ioana 1S
  Suzuki, Noboru 2P
  Warner, Kenneth K. 2S
  Clancey, Kevin F. 1P
  Bünz, John 1S
  Putnam, Calvin R. 1P
  Lambert, Alan 1P
  Bünz, John 3P

47B25 Symmetric and selfadjoint operators (unbounded)
  Gilbert, Richard C. 1P
  Poulsen, Ebe Thue 1P
  Fink, James P. 1P
  Kazdan, Jerry L. 1P

47B30 Fredholm operators
  Washenberger, James K. 1P
  Pafflenberger, William 1S
  Douglas, Ronald George 1P
  Sarason, Donald 1P
  Bouldin, Richard 1P
  Hosack, John M. 2P

47B35 Toeplitz operators, Wiener-Hopf operators [For other integral operators, see also 47G05.]
  Sarason, Donald 1P
  Douglas, Ronald George 1P
  Moore, Berrien, III 1P

47B40 Spectral operators
  Pfaff, Stephen M. 1P
  Kritt, B. 1P

47B44 Dissipative operators
  Packel, Edward W. 1P
<table>
<thead>
<tr>
<th>Subject</th>
<th>Author(s)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difference operators</td>
<td>Crandall, Michael G.</td>
<td>1S</td>
</tr>
<tr>
<td>Commutators</td>
<td>Lavine, Richard B.</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Pincus, Joel David</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Lin, C.-S.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Schneebberger, C.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Patel, S. M.</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Ramanujan, P. B.</td>
<td>1S</td>
</tr>
<tr>
<td>Operators on a space with an indefinite metric</td>
<td>Huff, Robert E.</td>
<td>1P</td>
</tr>
<tr>
<td>Operators on ordered spaces</td>
<td>Gellar, Ralph</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Wilken, Donald R.</td>
<td>2S</td>
</tr>
<tr>
<td></td>
<td>Nordgren, Eric A.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Williams, James P.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Al-Luqaily, Robert E.</td>
<td>3P</td>
</tr>
<tr>
<td></td>
<td>Ramanujan, P. B.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Walsh, B. J.</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Koehler, Donald O.</td>
<td>1P</td>
</tr>
<tr>
<td>Operators in -algebras</td>
<td>Andersen, Tage Bai</td>
<td>1S</td>
</tr>
<tr>
<td>Operators in *-algebras</td>
<td>Gilfeather, Frank</td>
<td>3P</td>
</tr>
<tr>
<td></td>
<td>Chow, T. R.</td>
<td>2P</td>
</tr>
<tr>
<td>Operators in von Neumann algebras</td>
<td>Neuberger, J. W.</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Kato, Tosio</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Herod, J. V.</td>
<td>3P</td>
</tr>
<tr>
<td></td>
<td>Thomas, James W.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Pazy, Amnon</td>
<td>1P</td>
</tr>
<tr>
<td>Groups of operators</td>
<td>Kantorovitz, Shmuel</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Kaufman, Robert M.</td>
<td>2S</td>
</tr>
<tr>
<td>Linear spaces of operators</td>
<td>Baker, J. M.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Gellar, Ralph</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Wilken, Donald R.</td>
<td>2S</td>
</tr>
<tr>
<td></td>
<td>Nordgren, Eric A.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Williams, James P.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Aui'a, Robert E.</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Ramanujan, P. B.</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Patel, S. M.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Walsh, B. J.</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Koehler, Donald O.</td>
<td>1P</td>
</tr>
<tr>
<td>Ordinary differential operators</td>
<td>Zettl, Anton</td>
<td>2S</td>
</tr>
<tr>
<td></td>
<td>Kazdan, Jerry L.</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Kaufman, Robert M.</td>
<td>2P</td>
</tr>
<tr>
<td>Partial differential operators</td>
<td>Schreiber, Michel</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Targonski, Gyorgy I.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Wolfe, Peter</td>
<td>2P</td>
</tr>
<tr>
<td></td>
<td>Miranda, Guillermo</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Walsh, T.</td>
<td>1S</td>
</tr>
<tr>
<td>Integral, integro-differential, and pseudodifferential operators</td>
<td>Schreiber, Michel</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Targonski, Gyorgy I.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Wolfe, Peter</td>
<td>2P</td>
</tr>
<tr>
<td></td>
<td>Miranda, Guillermo</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Walsh, T.</td>
<td>1S</td>
</tr>
<tr>
<td>Nonlinear operators</td>
<td>Hess, Peter</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Van Vleck, F. S.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Himmelberg, Charles J.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Pellegrino, E. J.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Kirk, W. A.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Guseman, Lawrence F., Jr.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Kirk, W. A.</td>
<td>2P</td>
</tr>
<tr>
<td></td>
<td>Thomas, James W.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Franks, R. L.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Marzec, R. P.</td>
<td>1P</td>
</tr>
<tr>
<td>Equations involving nonlinear operators</td>
<td>Herod, J. V.</td>
<td>3P</td>
</tr>
<tr>
<td></td>
<td>Hess, Peter</td>
<td>2P</td>
</tr>
<tr>
<td>None of the above, but in this section</td>
<td>764</td>
<td>764</td>
</tr>
<tr>
<td>Section</td>
<td>Classification</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td>49—XX</td>
<td>CALCULUS OF VARIATIONS AND OPTIMAL CONTROL [See also 34H05, 93Exx.]</td>
<td></td>
</tr>
<tr>
<td>49—00</td>
<td>Difficult to classify at the second level (must also be assigned at least one other classification number in this section)</td>
<td></td>
</tr>
<tr>
<td>49—01</td>
<td>Elementary exposition (collegiate level)</td>
<td></td>
</tr>
<tr>
<td>49—02</td>
<td>Advanced exposition (research surveys, etc.)</td>
<td></td>
</tr>
<tr>
<td>49—03</td>
<td>Historical</td>
<td></td>
</tr>
<tr>
<td>49—04</td>
<td>Explicit machine computation and programs (not the theory of computation or programming)</td>
<td></td>
</tr>
<tr>
<td>49Axx</td>
<td>Existence theory for optimal solutions</td>
<td></td>
</tr>
<tr>
<td>49A05</td>
<td>Free problems in one independent variable</td>
<td></td>
</tr>
<tr>
<td>49A10</td>
<td>Problems involving ordinary differential equations</td>
<td></td>
</tr>
<tr>
<td>49A15</td>
<td>Free problems in two or more independent variables</td>
<td></td>
</tr>
<tr>
<td>49A20</td>
<td>Problems involving partial differential equations</td>
<td></td>
</tr>
<tr>
<td>49A25</td>
<td>Problems in abstract spaces</td>
<td></td>
</tr>
<tr>
<td>49A30</td>
<td>Problems involving functional relations other than differential equations</td>
<td></td>
</tr>
<tr>
<td>49A35</td>
<td>Optimal solutions belonging to restricted classes (bang-bang controls, etc.)</td>
<td></td>
</tr>
<tr>
<td>49A40</td>
<td>Minimax problems</td>
<td></td>
</tr>
<tr>
<td>49A50</td>
<td>Topology of solutions, weak and strong minima, semicontinuity, convexity, orientor fields</td>
<td></td>
</tr>
<tr>
<td>49A99</td>
<td>None of the above, but in this section</td>
<td></td>
</tr>
<tr>
<td>49Bxx</td>
<td>Necessary conditions and sufficient conditions for optimality</td>
<td></td>
</tr>
<tr>
<td>49B05</td>
<td>Free problems in one independent variable</td>
<td></td>
</tr>
<tr>
<td>49B10</td>
<td>Problems involving ordinary differential equations</td>
<td></td>
</tr>
<tr>
<td>49B15</td>
<td>Optimal solutions belonging to restricted classes</td>
<td></td>
</tr>
<tr>
<td>49B20</td>
<td>Free problems in two or more independent variables</td>
<td></td>
</tr>
<tr>
<td>49B25</td>
<td>Problems involving partial differential equations</td>
<td></td>
</tr>
<tr>
<td>49B30</td>
<td>Problems in abstract spaces</td>
<td></td>
</tr>
<tr>
<td>49B35</td>
<td>Problems involving functional relations other than differential equations</td>
<td></td>
</tr>
<tr>
<td>49B40</td>
<td>Minimax problems</td>
<td></td>
</tr>
<tr>
<td>49B50</td>
<td>Sensitivity of optimal solutions in the presence of perturbations</td>
<td></td>
</tr>
<tr>
<td>49B99</td>
<td>None of the above, but in this section</td>
<td></td>
</tr>
<tr>
<td>49Cxx</td>
<td>Caratheodory Hamilton-Jacobi theories, including dynamic programming</td>
<td></td>
</tr>
<tr>
<td>49C05</td>
<td>Free problems and problems involving ordinary differential equations</td>
<td></td>
</tr>
<tr>
<td>49C10</td>
<td>Free problems and problems involving partial differential equations</td>
<td></td>
</tr>
<tr>
<td>49C15</td>
<td>Problems in abstract spaces or involving functional relations other than differential equations</td>
<td></td>
</tr>
<tr>
<td>49C99</td>
<td>None of the above, but in this section</td>
<td></td>
</tr>
<tr>
<td>49Dxx</td>
<td>Methods of successive approximations</td>
<td></td>
</tr>
<tr>
<td>49D05</td>
<td>Methods based on necessary conditions</td>
<td></td>
</tr>
<tr>
<td>49D10</td>
<td>Methods of steepest descent type</td>
<td></td>
</tr>
<tr>
<td>49D15</td>
<td>Methods of Newton-Raphson, Galerkin and Ritz types</td>
<td></td>
</tr>
<tr>
<td>49D20</td>
<td>Methods of relaxation type</td>
<td></td>
</tr>
<tr>
<td>49D25</td>
<td>Finite difference methods</td>
<td></td>
</tr>
<tr>
<td>49D30</td>
<td>Other methods, not based on necessary conditions (penalty function, etc.)</td>
<td></td>
</tr>
<tr>
<td>49D35</td>
<td>Methods of linear programming type</td>
<td></td>
</tr>
<tr>
<td>49D40</td>
<td>Methods of quadratic programming type</td>
<td></td>
</tr>
<tr>
<td>49D45</td>
<td>Methods of convex programming type</td>
<td></td>
</tr>
<tr>
<td>49D99</td>
<td>None of the above, but in this section</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
<td>Authors</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>49Exx</td>
<td>Controllability and geometry of control problems</td>
<td></td>
</tr>
<tr>
<td>49E05</td>
<td>General dependence on controls</td>
<td></td>
</tr>
<tr>
<td>49E10</td>
<td>Orientor fields (contingency equations)</td>
<td></td>
</tr>
<tr>
<td>49E15</td>
<td>Attainable sets, controllability</td>
<td></td>
</tr>
<tr>
<td>49E20</td>
<td>Interrelations between stability problems and optimization problems</td>
<td></td>
</tr>
<tr>
<td>49E25</td>
<td>Effect of perturbations on controllability</td>
<td></td>
</tr>
<tr>
<td>49E30</td>
<td>Relations between controllability and optimal solutions</td>
<td></td>
</tr>
<tr>
<td>49E99</td>
<td>None of the above, but in this section</td>
<td></td>
</tr>
<tr>
<td>49Fxx</td>
<td>Manifolds</td>
<td></td>
</tr>
<tr>
<td>49F05</td>
<td>Exterior differential forms, invariant integrals (Cartan theory)</td>
<td></td>
</tr>
<tr>
<td>49F10</td>
<td>Minimal surfaces</td>
<td></td>
</tr>
<tr>
<td>49F15</td>
<td>Morse theory in Hilbert and other spaces</td>
<td></td>
</tr>
<tr>
<td>49F20</td>
<td>Geometric measure and integration theory, integral and normal currents, flat chains and cochains, varifolds</td>
<td></td>
</tr>
<tr>
<td>49F22</td>
<td>Existence and structure of solutions to variational problems in geometric measure-theoretic setting</td>
<td></td>
</tr>
<tr>
<td>49F25</td>
<td>Surface area</td>
<td></td>
</tr>
<tr>
<td>49F99</td>
<td>None of the above, but in this section</td>
<td></td>
</tr>
<tr>
<td>49Gxx</td>
<td>Variational methods and eigenvalues</td>
<td></td>
</tr>
<tr>
<td>49G05</td>
<td>Variational approach to eigenvalues</td>
<td>Hess, Peter</td>
</tr>
<tr>
<td>49G10</td>
<td>Rayleigh-Ritz methods</td>
<td></td>
</tr>
<tr>
<td>49G15</td>
<td>Weinstein and Aronszajn methods, intermediate problems</td>
<td></td>
</tr>
<tr>
<td>49G20</td>
<td>Linear operators in Hilbert spaces</td>
<td></td>
</tr>
<tr>
<td>49G99</td>
<td>None of the above, but in this section</td>
<td></td>
</tr>
<tr>
<td>49H05</td>
<td>Variational principles of physics</td>
<td></td>
</tr>
<tr>
<td>50—XX</td>
<td>GEOMETRY</td>
<td></td>
</tr>
<tr>
<td>50Axx</td>
<td>Foundations</td>
<td></td>
</tr>
<tr>
<td>50A05</td>
<td>Euclidean</td>
<td>Schwabhäuser, Wolfram</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gutiérrez-Novoa, Lino</td>
</tr>
<tr>
<td>50A10</td>
<td>Noneuclidean</td>
<td></td>
</tr>
<tr>
<td>50A15</td>
<td>Transformation groups</td>
<td></td>
</tr>
<tr>
<td>50A20</td>
<td>Algebraic characterizations</td>
<td></td>
</tr>
<tr>
<td>50A25</td>
<td>Models</td>
<td></td>
</tr>
<tr>
<td>50A30</td>
<td>Length, area, volume</td>
<td></td>
</tr>
<tr>
<td>50A99</td>
<td>None of the above, but in this section</td>
<td></td>
</tr>
<tr>
<td>50Bxx</td>
<td>Euclidean geometry</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(including equiform geometry)</td>
<td></td>
</tr>
<tr>
<td>50B05</td>
<td>Constructions</td>
<td></td>
</tr>
<tr>
<td>50B10</td>
<td>Metric formulae</td>
<td></td>
</tr>
<tr>
<td>50B15</td>
<td>Inequalities</td>
<td></td>
</tr>
<tr>
<td>50B20</td>
<td>Geometry of circles</td>
<td></td>
</tr>
<tr>
<td>50B25</td>
<td>Euclidean and equiform geometry over fields other than the reals</td>
<td></td>
</tr>
<tr>
<td>50B30</td>
<td>Regular figures, division of space</td>
<td></td>
</tr>
<tr>
<td>50B35</td>
<td>Other groups generated by reflections</td>
<td></td>
</tr>
<tr>
<td>50B99</td>
<td>None of the above, but in this section</td>
<td></td>
</tr>
<tr>
<td>50Cxx</td>
<td>Other metric geometries</td>
<td></td>
</tr>
<tr>
<td>50C05</td>
<td>Elliptic and hyperbolic, general</td>
<td>Valentine, Joseph E.</td>
</tr>
</tbody>
</table>

algebraic geometry, see 14 —XX.
50C10 Elliptic and hyperbolic inequalities
50C15 Groups generated by elliptic and hyperbolic reflections [See also 20H10.]
50C20 Hyperbolic convexity
Fillmore, Jay P. 1P
50C25 Other metric geometries
Petty, C. M. 1P
50Dxx Geometries of other transformation groups
50D05 Affine geometry, general
Yeh, R. Z. 1S
Johnson, Norman Lloyd 1P
50D10 Affine geometry, subgroups (centroaffine, equiaffine)
50D15 Descriptive geometry
50D20 Projective geometry over the reals
50D25 Projective geometry over other infinite fields
50D30 Projective geometry over finite fields
50D35 Projective geometry over combinatorial or nonfield structures
Lorimer, P. J. 1P
Narayana Rao, M. L. 1S
Wilke, F. W. 1P
Narayana Rao, M. L. 2P
Narayana Rao, M. L. 3P
Narayana Rao, M. L. 4P
50D40 Line geometry
50D45 Circle and sphere geometry: Lie, Laguerre, Möbius
50D50 Geometries of other space elements
50D99 None of the above, but in this section
52—XX CONVEX SETS AND GEOMETRIC INEQUALITIES
52—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
52—01 Elementary exposition (collegiate level)
52—02 Advanced exposition (research surveys, etc.)
52—03 Historical
52—04 Explicit machine computation and programs (not the theory of computation or programming)
52A05 Convex sets without dimension restrictions
Kenelly, John W., Jr. 2P
52A10 Convex sets in 2 dimensions
Chui, Charles Kam-tai 1P
Stavrakas, Nick M. 1P
Hare, William R. 3P
Sparks, Arthur G. 2P
52A15 Convex sets in 3 dimensions
52A20 Convex sets in n dimensions
Hansen, Wolfhard 1P
Kruskal, Joseph B. 1P
Buchman, E. O. 1P
Petty, C. M. 1P
Butler, G. J. 1P
52A25 Convex polyhedra
Hoffman, Alan J. 1P
Walkup, David W. 1P
Yeh, R. Z. 1S
Banchoff, Thomas F. 1S
Petty, C. M. 1S
52A30 Star-shaped sets
Hare, William R. 1P
Evans, B. D. 1P
Ludewiger, W. H. 1P
Kenelly, John W., Jr. 1P
Haiern, Benjamin R. 1P
Sparks, Arthur G. 1P
Buchman, E. O. 1P
52A35 Helly-type theorems
Hansen, Wolfhard 1P
52A40 Inequalities and extremum problems
Butler, G. J. 1P
52A45 Packing and covering [See also 05B40, 10E30, 50B30.]
Schmidt, Wolfgang M. 1P
52A50 Hilbert geometry and other distance geometries
Petty, C. M. 1P
52A55 Spherical convexity [See also 50C20.]
53—XX DIFFERENTIAL GEOMETRY {For differential topology, see 57Dxx. For foundational questions of differentiable manifolds, see 58Axx.}
53-00  Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
53-01  Elementary exposition (college level)
53-02  Advanced exposition (research surveys, etc.)
53-03  Historical
53-04  Explicit machine computation and programs (not the theory of computation or programming)

53Axx  Classical differential geometry
53A05  Curves and surfaces in euclidean space
  Gottlieb, David  1P
  Breuer, Shlomo  1P
  Chen, Bang-yen  2P
  Chen, Bang-yen  4S

53A10  Minimal surfaces
  Reilly, Robert C.  1S
  Geveci, Tunc  1P
  Ruh, Ernst Alfred  1P
  Chen, Bang-yen  4P

53A15  Affine differential geometry
53A20  Projective differential geometry
53A25  Differential line geometry

53A30  Conformal differential geometry
  Kenelly, John W., Jr.  2P

53A35  Noneuclidean differential geometry
  Fulton, Curtis M.  1P
  Fillmore, Jay P.  1P

53A40  Other special differential geometries
53A45  Vector and tensor analysis
53A50  Spinor analysis
53A55  Differential invariants (local theory), geometric objects
53A99  None of the above, but in this section

53Bxx  Local differential geometry
53B05  Affine connections
53B10  Projective connections
53B15  Other connections
53B20  Local Riemannian geometry
  Blair, David E.  1P

Rosenthal, Aaron  1P
Glasner, Moses  1S
Chow, Kwang-nan  1P
Karcher, Hermann  1P
Sen, Rabindra Nath  1P
Ruh, Ernst Alfred  1S

53B25  Submanifolds
  Lancaster, G. M.  1P
  Chen, Bang-yen  4S

53B30  Lorentz metrics, indefinite metrics
53B35  Hermitian and Kählerian structures [See also 32Cxx.]
53B40  Finsler spaces and generalizations (areal metrics)
53B99  None of the above, but in this section

53Cxx  Global differential geometry
  [For related bundle theory, see 55Fxx, 57Dxx.]
53C05  Connections:
53C15  Almost complex, contact, symplectic, almost product structures, etc.
  Closs, Mike P.  1P
53C20  Riemannian manifolds, including pinching [See also 58B20.]
  Rosenthal, Aaron  1P
  Tsagas, Grigorios  1P
  Byers, William P.  1P
  Wallach, Nolan R.  2P
  Warner, Frank W.  1P
  Weinstein, Alan D.  1P
  Glasner, Moses  1S
  Chow, Kwang-nan  1S
  Karcher, Hermann  1S
  Chen, Bang-yen  3S
  Ruh, Ernst Alfred  1S

53C25  Special Riemannian manifolds (Einstein, Sasakian, etc.)
53C30  Homogeneous manifolds [See also 57F15.]
  Closs, Mike P.  1P
  Weinstein, Alan D.  1S
53C35  Symmetric spaces [See also 57F15.]
  Conlon, Lawrence  1S
  Tirao, Juan A.  1P

53C40  Submanifolds, isometric imbeddings [See also 57D40.]
  Reilly, Robert C.  1P
  Chen, Bang-yen  2P
  Chen, Bang-yen  3P
  Ruh, Ernst Alfred  1P
  Banchoff, Thomas F.  1P
<table>
<thead>
<tr>
<th>Subject</th>
<th>Classification</th>
<th>Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global surface theory (convex surfaces à la A. D. Aleksandrov)</td>
<td>53C45</td>
<td>Chen, Bang-yen</td>
</tr>
<tr>
<td>Lorentz manifolds, manifolds with indefinite metrics</td>
<td>53C50</td>
<td>Banchoff, Thomas F.</td>
</tr>
<tr>
<td>Hermitian and Kählerian structures [See also 32Cxx.]</td>
<td>53C55</td>
<td>MacLachlan, C.</td>
</tr>
<tr>
<td>Finsler spaces and generalizations (areal metrics) [See also 58B20.]</td>
<td>53C60</td>
<td>Chen, Bang-yen</td>
</tr>
<tr>
<td>Integral geometry, differential forms, currents, etc.</td>
<td>53C65</td>
<td>Banchoff, Thomas F.</td>
</tr>
<tr>
<td>Direct methods (G-spaces of Busemann, etc.)</td>
<td>53C70</td>
<td>Wilbur, W. John</td>
</tr>
<tr>
<td>Geometric orders, order geometry</td>
<td>53C75</td>
<td>Stecker, G. E.</td>
</tr>
<tr>
<td>None of the above, but in this section</td>
<td>53C99</td>
<td>Anderson, Bruce A.</td>
</tr>
<tr>
<td>Difficult to classify at the second level (must also be assigned at least one other classification number in this section)</td>
<td>54—00</td>
<td>Comfort, W. W.</td>
</tr>
<tr>
<td>Elementary exposition (collegiate level)</td>
<td>54—01</td>
<td>Young, W. L.</td>
</tr>
<tr>
<td>Advanced exposition (research surveys, etc.)</td>
<td>54—02</td>
<td>Berney, E. S.</td>
</tr>
<tr>
<td>Historical</td>
<td>54—03</td>
<td>Herrlich, Horst</td>
</tr>
<tr>
<td>Explicit machine computation and programs (not the theory of computation or programming)</td>
<td>54—04</td>
<td>Kost, Frank</td>
</tr>
<tr>
<td>Syntopogeneous structures</td>
<td>54A15</td>
<td>Steiner, A. K.</td>
</tr>
<tr>
<td>Convergence (general theory) and limits</td>
<td>54A20</td>
<td>Zenor, Philip</td>
</tr>
<tr>
<td>Cardinality properties (discrete subsets, weight, etc.)</td>
<td>54A25</td>
<td>Kozlowski, George</td>
</tr>
<tr>
<td>Basic constructions</td>
<td>54Bxx</td>
<td></td>
</tr>
<tr>
<td>Subspaces</td>
<td>54B05</td>
<td></td>
</tr>
<tr>
<td>Product spaces</td>
<td>54B10</td>
<td></td>
</tr>
<tr>
<td>Quotient spaces, decompositions</td>
<td>54B15</td>
<td></td>
</tr>
</tbody>
</table>
SUBJECT INDEX FOR VOLUMES 21-30

54B17 Adjunction spaces and similar constructions
Borges, Carlos J. R. 2P

54B20 Hyperspaces
Keesling, James Edgar 1P
Smithson, Raymond E. 2S
Henderson, George W. 2P
Rogers, James Ted, Jr. 2S

54B25 Sums, inverse limits
Rogers, J. W., Jr. 2S
Tollefson, Jeffrey L. 3P
Rogers, James Ted, Jr. 1P
Rogers, James Ted, Jr. 2S
Rogers, James Ted, Jr. 3P

54B99 None of the above, but in this section
Zame, Alan 1S
Cobb, John 1P
Zenor, Philip 3P

54Cxx Maps and general types of spaces defined by maps

54C05 Continuous maps
Cain, George L., Jr. 1S
Lambert, H. W. 1S
Rushing, T. B. 1P
Bedford, Eric 1P
Edwards, J. R. 1S
Janock, Ludvik 2P
Hager, Anthony W. 2S
McCarty, G. S., Jr. 1P
Geroch, Robert P. 1P
Kronheimer, E. H. 1P
Wyler, Oswald 1S
Bellamy, David P. 2P

54C10 Special maps: open, closed, perfect, almost open, light, etc.
Atalla, Robert E. 1P
Bustoz, Joaquin 1P
Kozlowski, George 1P
Hyman, D. M. 1S
Long, Paul E. 1P
Willard, Stephen 1S
Janock, Ludvik 1P
Wicke, Howard H. 1P
Yobe, J. M. 1S
Noble, Norman 1P
Glaser, Leslie C. 1P
Stoltenberg, Ronald A. 1S
Cain, George L., Jr. 1S
Schgal, V. M. 1P
McGehee, Earl E., Jr. 1P
Long, Paul E. 2P
Whyburn, Gordon Thomas 1S
Bredon, Glen E. 2P
Rogers, J. W., Jr. 2P

54C15 Retraction
Atalla, Robert E. 1P
Bustoz, Joaquin 1P
Hager, Anthony W. 2S
Bellamy, David P. 2S
Ellis, Robert L. 1S

54C20 Extension
Transue, William R. R. 1P
Bennett, Ralph 1P
Wong, Raymond Y. T. 2P
Mattson, Don A. 1S
Ellis, Robert L. 1P

54C25 Imbedding
Lister, F. M. 1S
Wayment, S. G. 1P
Summerhill, Ralph R. 1P
Edwards, J. R. 1P
Chew, Kung-peu 1S
Henderson, George W. 1P
Creede, Geoffrey D. 1P
Kost, Frank 1S

54C30 Real-valued functions [See also 26—XX.]
Noble, Norman 1S
Smithson, Raymond E. 2P
Geroch, Robert P. 1P
McCarty, G. S., Jr. 1P
Kronheimer, E. H. 1P
Peek, Darwin E. 1P

54C35 Function spaces [See also 58D15.]

54C40 C(X); algebraic techniques (ideals, etc.) [See also 46J10.]
Jensen, G. A. 1P
Hager, Anthony W. 1P
Foguel, Shaul Reuven 1P
Hochster, M. 3P
Wilson, R. G. 1P
De Marco, Giuseppe 1S
Orsatti, Adalberto 1S
De Marco, Giuseppe 2S

54C45 C-and C*-imbedding
Mattson, Don A. 1S
54C50 Zero sets, Baire sets and functions [See also 26A21.]
   Willard, Stephen IS
   Erdős, Paul IP
   Stone, A. H. IP
   Kost, Frank IS
   Peck, Darwin E. IP

54C55 Absolute neighborhood extensor, absolute extensor, absolute neighborhood retract (ANR), absolute retract spaces (general properties)
   Bing, R. H. IP
   Jaworowski, Jan W. IP

54C60 Set-valued maps
   Wicke, Howard H. IS
   Williams, Richard K. IS
   Smithsonian, Raymond E. 1P
   Williams, Richard K. 2P
   Gray, William J. 2P
   Smithsonian, Raymond E. 3P
   George, John H. 2P
   Sehgal, V. M. 2P
   Smithsonian, Raymond E. 4P
   Wyler, Oswald IS

54C65 Selections
   Nadler, Sam B., Jr. 1P
   Ward, L. E., Jr. 1P
   Smithsonian, Raymond E. 3S

54C99 None of the above, but in this section

54Dxx Fairly general properties
54D05 Connected and locally connected spaces (general aspects)
   Kozlowski, George IS
   Unger, Gerald S. IP
   Long, Paul E. IS
   Fraser, Robert B., Jr. IS
   Bacon, Philip IP
   McGehee, Earl E., Jr. IS
   Long, Paul E. 2S
   Wong, Yim-ming IP
   Hagan, Melvin R. IS
   Miller, Gary Glenn 1P
   Breuer, Shlomo 2S
   Joe, John 2S
   Crawford, Albert L. IS
   Hunt, John 1P
   Garcia Máñez, Adalberto 1P
   Collins, P. J. 1P
   Williams, G. Kenneth 2S
   Hagan, Melvin R. 2P

54D10 Separation axioms, $T_0$ — $T_3$
   Stecker, G. E. IS
   Loeb, Peter Adolf IS
   Richardson, G. D. IP
   Wong, Yim-ming IP
   Miller, Gary Glenn IS
   Breuer, Shlomo 2S
   Hunt, John 1P
   Garcia Máñez, Adalberto IP
   Wyler, Oswald 1P

54D15 Higher separation axioms (completely regular, normal, perfectly or collectionwise normal, etc.)
   Landau, Martin 1P
   Steen, Lynn A. IS
   Keesling, James Edgar IS
   Fletcher, Peter IP
   McCoy, R. A. 2P
   Slover, Rebecca Ellen IP
   Wicke, Howard H. 2P
   Worrell, John M., Jr. IP
   French, James A. 1P
   Wong, Yim-ming 1P
   Berney, E. S. IS
   Bennett, Harold R. 3P
   Aull, C. E. 1P
   Zenor, Philip 4P

54D20 Covering properties: Lindelöf, (m,n)-compact, paracompact, pointwise paracompact, etc.
   Ornstein, Donald S. 1P
   Wicke, Howard H. IS
   Burke, Dennis K. IP
   Lutzer, David J. 2S
   Bennett, Harold R. IS
   Gulden, Samuel L. 1P
   Weston, J. H. IS
   Fleischman, W. M. 1P
   Zenor, Philip 2P
   Keesling, James Edgar IS
   Maharam, Dorothy IP
   Kemperman, J. H. B. 1P
   Fletcher, Peter IP
   Slover, Rebecca Ellen IP
   Vidossich, Giovanni 3P
   Worrell, John M., Jr. IS
   Wicke, Howard H. 2S
   Hodel, Richard E. IP
   Comfort, W. W. IS
   Wong, Yim-ming IP
   Berney, E. S. IP
   Kuhlman, David E. IP
   Vidossich, Giovanni 4P
   Proklo, Zdeněk 1P
   Tamano, Hisahiro 1P
   Vaughan, J. E. 2P
   Bennett, Harold R. 3P
   O'Meara, Paul 1P
   Aull, C. E. IS
   Steiner, A. K. 2P
   Wilson, R. G. IS
   De Marco, Giuseppe IS
   Zenor, Philip 4P
   Bennett, Harold R. 4P
   Berney, E. S. 2P
   Alexander, Charles C. IS

54D25 "P-minimal" and "P-closed" spaces
   Stecker, G. E. 1P
   Liu, Chen-tung IS
   Stephenson, Robert M., Jr. 2P
   Stephenson, Robert M., Jr. 3S
   Herrlich, Horst 1P
### Subject Index for Volumes 21-30

#### 54D30 Compact spaces and generalizations

- Willard, Stephen
- Janos, Ludvik
- Franklin, Stanley P.
- Foguel, Shaul Reuven
- Stephenson, Robert M., Jr.
- Weston, J. H.
- Gulden, Samuel L.
- Fleischman, W. M.
- Richardson, G. D.
- Zenor, Phillip
- Janos, Ludvik
- Vidossich, Giovanni
- Hager, Anthony W.
- Stephenson, Robert M., Jr.
- Creede, Geoffrey D.

#### 54D35 Compactifications, etc.

- Hindman, Neil
- Stecker, G. E.
- Zame, Alan
- Liu, Chen-tung
- Loeb, Peter Adolf
- Cain, George L., Jr.
- Biles, Charles M.
- Richardson, G. D.
- Wong, Raymond Y. T.
- Steiner, Eugene F.
- Steiner, A. K.
- Comfort, W. W.
- Atalla, Robert E.
- Pullman, David E.
- Vidossich, Giovanni
- Hansell, Roger W.
- Hager, Anthony W.
- Stephenson, Robert M., Jr.
- Okuyama, Akihiro
- Bennett, Harold R.
- Creede, Geoffrey D.
- Kost, Frank
- Keeling, James Edgar

#### 54D40 Remains

- Hindman, Neil
- Steiner, Eugene F.
- Steiner, A. K.
- Okuyama, Akihiro

#### 54D45 Local compactness, $\sigma$-compactness

- McGhee, Earl E., Jr.
- Long, Paul E.
- Steiner, A. K.
- Steiner, Eugene F.
- Worrell, John M., Jr.
- Wicke, Howard H.
- Wong, Yim-ming
- Keeling, James Edgar

#### 54D50 k-spaces

- Bagley, Robert W.
- Weddington, D. D.
- Sieradski, Allan J.
- Whyburn, Gordon Thomas

#### 54D55 Sequential spaces

- Franklin, Stanley P.

### 54D60 Realcompactness and realcompactification

- Liu, Chen-tung
- Zenor, Phillip
- Wilson, R. G.
- De Marco, Giuseppe

### 54D99 None of the above, but in this section

### 54Exx Spaces with richer structures

#### 54E05 Proximity structures and generalizations

- Mattson, Don A.

#### 54E10 p-maps

- Mattson, Don A.

#### 54E15 Uniform structures and generalizations

- Janos, Ludvik
- Fraser, Robert B., Jr.
- Vidossich, Giovanni
- Richardon, G. D.
- Vidossich, Giovanni
- Worrell, John M., Jr.
- Wicke, Howard H.
- Vidossich, Giovanni
- Richardon, G. D.
- Steiner, A. K.
- De Marco, Giuseppe
- Wilson, R. G.

### 54E20 Stratifiable spaces, cosmic spaces, etc.

- Stoltenberg, Ronald A.
- Kullman, David E.
- Tamano, Hiashiro
- Vaughan, J. E.

### 54E25 Semimetric spaces

- Miller, Gary Glenn
- Bereny, E. S.

### 54E30 Moore spaces

- Kullman, David E.
- Crawford, Albert L.
- Jobe, John
- Creede, Geoffrey D.
- Aull, C. E.
- Bereny, E. S.
- Bennett, Harold R.
- Alexander, Charles C.

### 54E35 Metric spaces, metrizability

- Hyman, D. M.
- Willard, Stephen
- Ornstein, Donald S.
- Engelking, Ryszard
- Wong, Raymond Y. T.
- Fraser, Robert B., Jr.
- Lutzer, David J.
<table>
<thead>
<tr>
<th>Name</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nichols, J. C.</td>
<td>1P</td>
</tr>
<tr>
<td>Cutler, William H.</td>
<td>1S</td>
</tr>
<tr>
<td>Piech, M. Ann</td>
<td>1S</td>
</tr>
<tr>
<td>Gelbaum, Bernard R.</td>
<td>2S</td>
</tr>
<tr>
<td>Oxtoby, John C.</td>
<td>1S</td>
</tr>
<tr>
<td>Borges, Carlos J. R.</td>
<td>2P</td>
</tr>
<tr>
<td>Prosser, Reese T.</td>
<td>1P</td>
</tr>
<tr>
<td>Edwards, J. R.</td>
<td>1P</td>
</tr>
<tr>
<td>Kullman, David E.</td>
<td>1S</td>
</tr>
<tr>
<td>Smithson, Raymond E.</td>
<td>2S</td>
</tr>
<tr>
<td>Crawford, Albert L.</td>
<td>1S</td>
</tr>
<tr>
<td>Jobe, John</td>
<td>2S</td>
</tr>
<tr>
<td>Hansell, Roger W.</td>
<td>1S</td>
</tr>
<tr>
<td>Isbell, John R.</td>
<td>1P</td>
</tr>
<tr>
<td>Tamano, Hisahiro</td>
<td>1P</td>
</tr>
<tr>
<td>Vaughan, J. E.</td>
<td>2P</td>
</tr>
<tr>
<td>Janoł, Ludwik</td>
<td>3P</td>
</tr>
<tr>
<td>Bennett, Harold R.</td>
<td>3P</td>
</tr>
<tr>
<td>Sehgal, V. M.</td>
<td>2S</td>
</tr>
<tr>
<td>George, John H.</td>
<td>2S</td>
</tr>
<tr>
<td>Smithson, Raymond E.</td>
<td>4S</td>
</tr>
<tr>
<td>O'Meara, Paul</td>
<td>1S</td>
</tr>
<tr>
<td>Aull, C. E.</td>
<td>1P</td>
</tr>
<tr>
<td>Fournier, Gilles</td>
<td>1S</td>
</tr>
<tr>
<td>Peek, Darwin E.</td>
<td>1S</td>
</tr>
<tr>
<td>Alexander, Charles C.</td>
<td>1P</td>
</tr>
<tr>
<td>Ellis, Robert L.</td>
<td>1P</td>
</tr>
<tr>
<td><strong>54E40</strong> Isometries, contractions, expansions</td>
<td></td>
</tr>
<tr>
<td>Janoł, Ludwik</td>
<td>1P</td>
</tr>
<tr>
<td>Williams, Richard K.</td>
<td>1P</td>
</tr>
<tr>
<td>Sehgal, V. M.</td>
<td>1P</td>
</tr>
<tr>
<td>Williams, Richard K.</td>
<td>2P</td>
</tr>
<tr>
<td>Isbell, John R.</td>
<td>1P</td>
</tr>
<tr>
<td>Fournier, Gilles</td>
<td>1P</td>
</tr>
<tr>
<td><strong>54E45</strong> Compact (locally compact) metric spaces</td>
<td></td>
</tr>
<tr>
<td>Janoł, Ludwik</td>
<td>1S</td>
</tr>
<tr>
<td>Zame, Alan</td>
<td>1P</td>
</tr>
<tr>
<td>Hagopian, Charles L.</td>
<td>1S</td>
</tr>
<tr>
<td>Prosser, Reese T.</td>
<td>1P</td>
</tr>
<tr>
<td>Collins, P. J.</td>
<td>1S</td>
</tr>
<tr>
<td>Janoł, Ludwik</td>
<td>3S</td>
</tr>
<tr>
<td>Smithson, Raymond E.</td>
<td>4S</td>
</tr>
<tr>
<td>George, John H.</td>
<td>2S</td>
</tr>
<tr>
<td>Sehgal, V. M.</td>
<td>2S</td>
</tr>
<tr>
<td><strong>54E50</strong> Complete metric spaces</td>
<td></td>
</tr>
<tr>
<td>Bustoz, Joaquin</td>
<td>1P</td>
</tr>
<tr>
<td>Atalla, Robert E.</td>
<td>1P</td>
</tr>
<tr>
<td>Sehgal, V. M.</td>
<td>1P</td>
</tr>
<tr>
<td>Bookhout, Glenn A.</td>
<td>1S</td>
</tr>
<tr>
<td>Edwards, J. R.</td>
<td>1P</td>
</tr>
<tr>
<td>Peek, Darwin E.</td>
<td>1S</td>
</tr>
<tr>
<td><strong>54E55</strong> Bitopologies</td>
<td></td>
</tr>
<tr>
<td><strong>54E60</strong> CW-complexes, triangulable spaces</td>
<td></td>
</tr>
<tr>
<td>Borges, Carlos J. R.</td>
<td>2S</td>
</tr>
<tr>
<td><strong>54E99</strong> None of the above, but in this section</td>
<td></td>
</tr>
<tr>
<td>Bacon, Philip</td>
<td>1P</td>
</tr>
<tr>
<td><strong>54Fxx</strong> Special properties</td>
<td></td>
</tr>
<tr>
<td><strong>54F05</strong> Ordered topological spaces,</td>
<td>partially ordered spaces [See also 06A45.]</td>
</tr>
<tr>
<td>Edmondson, Don E.</td>
<td>1P</td>
</tr>
<tr>
<td>Lutzer, David J.</td>
<td>1P</td>
</tr>
<tr>
<td>Choe, Tae Ho</td>
<td>1P</td>
</tr>
<tr>
<td>Lutzer, David J.</td>
<td>2P</td>
</tr>
<tr>
<td>Bennett, Harold R.</td>
<td>1P</td>
</tr>
<tr>
<td>Weston, J. H.</td>
<td>1P</td>
</tr>
<tr>
<td>Gulden, Samuel L.</td>
<td>1P</td>
</tr>
<tr>
<td>Fleishman, W. M.</td>
<td>1P</td>
</tr>
<tr>
<td>Steen, Lynn A.</td>
<td>1P</td>
</tr>
<tr>
<td>Biles, Charles M.</td>
<td>1S</td>
</tr>
<tr>
<td>Madell, Robert L.</td>
<td>1P</td>
</tr>
<tr>
<td>madell, Robert L.</td>
<td>1S</td>
</tr>
<tr>
<td>Breuer, Shidmo</td>
<td>2P</td>
</tr>
<tr>
<td>Smithson, Raymond E.</td>
<td>3P</td>
</tr>
<tr>
<td>Bennett, Harold R.</td>
<td>3P</td>
</tr>
<tr>
<td><strong>54F15</strong> Continua and generalizations</td>
<td></td>
</tr>
<tr>
<td>Stephenson, Robert M., Jr.</td>
<td>3P</td>
</tr>
<tr>
<td>Glaser, Leslie C.</td>
<td>1S</td>
</tr>
<tr>
<td>Hagopian, Charles L.</td>
<td>1P</td>
</tr>
<tr>
<td>Wayment, S. G.</td>
<td>1P</td>
</tr>
<tr>
<td>Trotter, William T., Jr.</td>
<td>1P</td>
</tr>
<tr>
<td>Sumnerhill, Ralph R.</td>
<td>1S</td>
</tr>
<tr>
<td>Davis, Harvey S.</td>
<td>1P</td>
</tr>
<tr>
<td><strong>54F20</strong> Special types of continua</td>
<td></td>
</tr>
<tr>
<td>Transue, William R. R.</td>
<td>1P</td>
</tr>
<tr>
<td>Bennett, Ralph</td>
<td>1P</td>
</tr>
<tr>
<td>Yohe, J. M.</td>
<td>1P</td>
</tr>
<tr>
<td>Hagopian, Charles L.</td>
<td>2P</td>
</tr>
<tr>
<td>Trotter, William T., Jr.</td>
<td>1S</td>
</tr>
<tr>
<td>Pittman, C. R.</td>
<td>1S</td>
</tr>
<tr>
<td>Sumnerhill, Ralph R.</td>
<td>1P</td>
</tr>
<tr>
<td>Crawford, Albert L.</td>
<td>1P</td>
</tr>
<tr>
<td>Jobe, John</td>
<td>2P</td>
</tr>
<tr>
<td>Henderson, George W.</td>
<td>1P</td>
</tr>
<tr>
<td>Wilder, B. E.</td>
<td>1P</td>
</tr>
<tr>
<td>Rogers, James Ted, Jr.</td>
<td>2P</td>
</tr>
<tr>
<td>Fitzpatrick, Ben, Jr.</td>
<td>1P</td>
</tr>
<tr>
<td>Hinderchisen, J. W.</td>
<td>1P</td>
</tr>
<tr>
<td>Hagopian, Charles L.</td>
<td>2P</td>
</tr>
<tr>
<td>Bellamy, David P.</td>
<td>2P</td>
</tr>
<tr>
<td>Hagan, Melvin R.</td>
<td>2S</td>
</tr>
<tr>
<td><strong>54F25</strong> Peano spaces and generalizations</td>
<td></td>
</tr>
<tr>
<td>Dickman, R. F., Jr.</td>
<td>1S</td>
</tr>
<tr>
<td>Hagopian, Charles L.</td>
<td>2S</td>
</tr>
<tr>
<td>Chewing, W. C.</td>
<td>1S</td>
</tr>
<tr>
<td><strong>54F30</strong> Cyclic elements</td>
<td></td>
</tr>
<tr>
<td><strong>54F35</strong> Higher dimensional local connectedness [See also 55Bxx, 55Cxx.]</td>
<td></td>
</tr>
<tr>
<td>Eaton, William T.</td>
<td>1S</td>
</tr>
<tr>
<td><strong>54F40</strong> Compact (locally compact) absolute neighborhood retracts</td>
<td></td>
</tr>
<tr>
<td>Brown, Robert F.</td>
<td>1S</td>
</tr>
<tr>
<td><strong>54F45</strong> Dimension theory [See also 55C10.]</td>
<td></td>
</tr>
<tr>
<td>Landau, Martin</td>
<td>1P</td>
</tr>
<tr>
<td>Yohe, J. M.</td>
<td>1P</td>
</tr>
<tr>
<td>Cobb, John</td>
<td>1S</td>
</tr>
<tr>
<td>Choe, Tae Ho</td>
<td>1P</td>
</tr>
<tr>
<td>Nichols, J. C.</td>
<td>1P</td>
</tr>
<tr>
<td>54F50</td>
<td>Spaces of dimension $\leq 1$; curves, dendrites [See also 26A03.]</td>
</tr>
<tr>
<td>-------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Bookhout, Glenn A.</td>
<td>1P</td>
</tr>
<tr>
<td>McCoy, R. A.</td>
<td>2P</td>
</tr>
<tr>
<td>Fletcher, Peter</td>
<td>1P</td>
</tr>
<tr>
<td>Slover, Rebecca Ellen</td>
<td>1P</td>
</tr>
<tr>
<td>French, James A.</td>
<td>1P</td>
</tr>
<tr>
<td>Prosser, Reene T.</td>
<td>1P</td>
</tr>
<tr>
<td>Canfell, M. J.</td>
<td>1P</td>
</tr>
<tr>
<td>Keesling, James Edgar</td>
<td>2P</td>
</tr>
<tr>
<td>Keesling, James Edgar</td>
<td>4P</td>
</tr>
<tr>
<td>Smithson, Raymond E.</td>
<td>IS</td>
</tr>
<tr>
<td>Young, W. L.</td>
<td>IS</td>
</tr>
<tr>
<td>Nadler, Sam B., Jr.</td>
<td>IS</td>
</tr>
<tr>
<td>Ward, L. E., Jr.</td>
<td>IS</td>
</tr>
<tr>
<td>Summerhill, Ralph R.</td>
<td>IS</td>
</tr>
<tr>
<td>Gray, William J.</td>
<td>2S</td>
</tr>
<tr>
<td>Henderson, George W.</td>
<td>IS</td>
</tr>
<tr>
<td>Ellis, Robert L.</td>
<td>IS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>54F55</th>
<th>Unicoherence, multicoherence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transue, William R. R.</td>
<td>IS</td>
</tr>
<tr>
<td>Bennett, Ralph</td>
<td>IS</td>
</tr>
<tr>
<td>Hagan, Melvin R.</td>
<td>IS</td>
</tr>
<tr>
<td>Chewning, W. C.</td>
<td>IS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>54F60</th>
<th>Maps into $S_n$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dugundji, John</td>
<td>IS</td>
</tr>
<tr>
<td>Curtis, Morton L.</td>
<td>IS</td>
</tr>
<tr>
<td>Summerhill, Ralph R.</td>
<td>IS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>54F65</th>
<th>Topological characterizations of particular spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dickman, R. F., Jr.</td>
<td>IS</td>
</tr>
<tr>
<td>Breuer, Shlomo</td>
<td>2P</td>
</tr>
<tr>
<td>Bennett, Harold R.</td>
<td>3S</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>54F99</th>
<th>None of the above, but in this section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharp, Henry S.</td>
<td>IS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>54Gxx</th>
<th>Peculiar spaces</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>54G05</th>
<th>Extremally disconnected spaces, $F$-spaces, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biles, Charles M.</td>
<td>IS</td>
</tr>
<tr>
<td>Hochster, M.</td>
<td>3P</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>54G10</th>
<th>$P$-spaces</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>54G15</th>
<th>Pathological spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miller, Gary Glenn</td>
<td>1P</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>54G20</th>
<th>Counterexamples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burke, Dennis K.</td>
<td>IS</td>
</tr>
<tr>
<td>Borges, Carlos J. R.</td>
<td>1P</td>
</tr>
<tr>
<td>Bookhout, Glenn A.</td>
<td>1P</td>
</tr>
<tr>
<td>Berney, E. S.</td>
<td>1P</td>
</tr>
<tr>
<td>Herrlich, Horst</td>
<td>1P</td>
</tr>
<tr>
<td>Rogers, James Ted, Jr.</td>
<td>3S</td>
</tr>
<tr>
<td>Steiner, A. K.</td>
<td>2P</td>
</tr>
<tr>
<td>Chewning, W. C.</td>
<td>1P</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>54G99</th>
<th>None of the above, but in this section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borges, Carlos J. R.</td>
<td>1P</td>
</tr>
</tbody>
</table>

**54Hxx** Connections with other structures, applications

**54H05** Descriptive set theory (topological aspects of Borel, analytic, projective, etc. sets) [See also 04A15, 26A21, 28A05.]

- Willmott, R. C. | 1P |
- Comfort, W. W. | 1P |
- Darst, Richard B. | 3P |
- Darst, Richard B. | 3S |
- Sharp, Henry S. | IS |
- Mansfield, Richard | 1P |
- Darst, Richard B. | 4P |
- Hannell, Roger W. | 1P |
- Frolik, Zdenek | 1P |
- Darst, Richard B. | 5P |

**54H10** Topological representations of algebraic systems [See also 22—XX.]

- Heinicke, A. G. | IS |
- Wilcox, Howard J. | IS |

**54H15** Transformation groups and semigroups [See also 20Mxx, 22—XX, 57Exx.]

- West, James E. | 1P |
- Roberson, Fred A. | 1P |
- Gray, William J. | 1P |
- Eisenberg, Murray | 1P |
- Reddy, William L. | 1P |
- Coven, Ethan M. | 2P |
- Petersen, K. E. | 1P |
- Hanson, T. H. Mcl. | 1P |
- Jones, Gary D. | IS |
- Janod, Ludvik | 2P |
- Kaul, S. K. | IS |
- Tollefson, Jeffrey L. | 3P |
- Rogers, James Ted, Jr. | 1P |
- Wong, Raymond Y. T. | 3S |
- Janod, Ludvik | 3P |
- Wilder, B. E. | 1S |

**54H20** Topological dynamics [See also 28A65, 34C35, 58Fxx.]

- Roberson, Fred A. | IS |
- Gray, William J. | IS |
- Coven, Ethan M. | IS |
- Eisenberg, Murray | IS |
- Reddy, William L. | IS |
- Coven, Ethan M. | IS |
- Petersen, K. E. | 1S |
- O'Brien, Thomas | IS |
- Markley, Nelson G. | 1P |
- Jones, Gary D. | 1P |
- Williams, Richard K. | 2S |
- Kaul, S. K. | 1P |

**54H25** Fixed-point and coincidence theorems [See also 47H10, 55C20.]

- Janod, Ludvik | IS |
- West, James E. | 1P |
- Brown, Robert F. | IS |
- Roberson, Fred A. | IS |
- Gray, William J. | IS |
- Smithson, Raymond E. | 1P |
Sehgal, V. M. 1P
Young, W. L. 1P
Brown, Robert F. 3P
Yeh, R. Z. 1S
Eaves, B. Curtis 1S
Smithson, Raymond E. 2P
Gray, William J. 2P
Jaworowski, Jan W. 1P
Smithson, Raymond E. 3P
George, John H. 2P
Sehgal, V. M. 2P
Smithson, Raymond E. 4P
Franks, R. L. 1P
Marzec, R. P. 1P
Chen, Kuo-tsai 1P
Feustel, C. D. 1S
Holsztynski, W. 1S

55A15 Graphs and map coloring [For other graph theory, see 05Cxx.]
Mars, Morris L. 1S
Rosen, Ronald H. 1P
Sher, R. B. 1S

55A20 Two-dimensional complexes
Tondra, Richard J. 2P

55A25 Knots and links [For the high-dimensional case, see 57C45.]
Murasugi, Kunio 1P
Jerrard, R. P. 1P
Hamstrom, Mary-Elizabeth 1P
Goodrick, Richard E. 1P
Heil, Wolfgang 1P
Heil, Wolfgang 2P
Murasugi, Kunio 2P
Sumners, D. W. 1P

55A30 Wild knots and surfaces, etc.
Burgess, C. E. 1S
Cannon, J. W. 1S
Loveland, L. D. 1S
Loveland, L. D. 2P
McPherson, James M. 1P
Sher, R. B. 2S

55A35 Dehn's Lemma, sphere theorem, loop theorem, asphericity
Husch, Lawrence S. 1S
Eaton, William T. 1S

55A40 Characterizations of E^3 and S^3 (Poincaré conjecture)
Tindell, Ralph S. 2P
Loveland, L. D. 2P
Lacher, R. C. 1P
Costich, O. L. 1S
Galewski, D. E. 1S
Doyle, Patrick H. 1S

55A49 None of the above, but in this section
Tondra, Richard J. 2P
Feustel, C. D. 1P
Gross, Jonathan L. 2P
Lacher, R. C. 1P
Tondra, Richard J. 3P
Wood, John W. 1P

55Bxx Homology and cohomology theories

55B05 Čech types
Bacon, Philip 1P
Brasher, Russell G. 1P

55B10 Singular theory

55B15 K-theory [For algebraic K-theory,
<table>
<thead>
<tr>
<th>Volume</th>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>55B20</td>
<td>Generalized (extraordinary) homology and cohomology theories, spectra</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Sieradski, Allan J.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Boardman, John</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Meyer, Jean-Pierre</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Landweber, Peter S.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Krueger, Warren M.</td>
<td>1S</td>
</tr>
<tr>
<td>55B25</td>
<td>Homology with local coefficients, equivariant cohomology</td>
<td>2P</td>
</tr>
<tr>
<td></td>
<td>Brasher, Russell G.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Siegel, Jerrold</td>
<td>1P</td>
</tr>
<tr>
<td>55B30</td>
<td>Sheaf cohomology</td>
<td>2S</td>
</tr>
<tr>
<td></td>
<td>Stoll, Wilhelm</td>
<td></td>
</tr>
<tr>
<td>55B35</td>
<td>Other homology theories</td>
<td></td>
</tr>
<tr>
<td>55B40</td>
<td>Axioms for homology theory and uniqueness theorems</td>
<td></td>
</tr>
<tr>
<td>55B45</td>
<td>Products and intersections</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Lam, Kee Yuen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chen, Kuo-tsai</td>
<td>1P</td>
</tr>
<tr>
<td>55B99</td>
<td>None of the above, but in this section</td>
<td></td>
</tr>
<tr>
<td>55Cxx</td>
<td>Classical topics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[For the topology of euclidean spaces and manifolds, see 57A05, 57A10, 57A15.]</td>
<td></td>
</tr>
<tr>
<td>55C05</td>
<td>Duality</td>
<td></td>
</tr>
<tr>
<td>55C10</td>
<td>Dimension theory</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[See also 54F45.]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jerrard, R. P.</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Hamstrom, Mary-Elizabeth</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Choe, Tae Ho</td>
<td>1S</td>
</tr>
<tr>
<td>55C15</td>
<td>Absolute neighborhood retracts</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[See also 54C55.]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jaworowski, Jan W.</td>
<td>1P</td>
</tr>
<tr>
<td>55C20</td>
<td>Fixed points and coincidences</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[See also 54H25.]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brown, Robert F.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Brown, Robert F.</td>
<td>3P</td>
</tr>
<tr>
<td></td>
<td>Eaves, B. Curtis</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Jaworowski, Jan W.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Huneke, John Philip</td>
<td>2P</td>
</tr>
<tr>
<td>55C25</td>
<td>Degree</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Holsztynski, W.</td>
<td>1S</td>
</tr>
<tr>
<td>55C30</td>
<td>Lusternik-Schnirelman category of a space</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mielke, M. V.</td>
<td>1P</td>
</tr>
<tr>
<td>55C35</td>
<td>Finite groups of transformations (Smith theory)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thomas, C. B.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Ku, Hsiu-tung</td>
<td>2P</td>
</tr>
<tr>
<td></td>
<td>Kwun, Kyung Whan</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Bredon, Glen E.</td>
<td>2S</td>
</tr>
<tr>
<td></td>
<td>Bredon, Glen E.</td>
<td>3P</td>
</tr>
<tr>
<td>55C99</td>
<td>None of the above, but in this section</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hamstrom, Mary-Elizabeth</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Jerrard, R. P.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Samelson, Hans</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Brasher, Russell G.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Brasher, Russell G.</td>
<td>2P</td>
</tr>
<tr>
<td></td>
<td>Kwun, Kyung Whan</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Bredon, Glen E.</td>
<td>2P</td>
</tr>
<tr>
<td></td>
<td>Bredon, Glen E.</td>
<td>4P</td>
</tr>
<tr>
<td>55Dxx</td>
<td>Homotopy theory</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[For simple homotopy type, see 57C10.]</td>
<td></td>
</tr>
<tr>
<td>55D05</td>
<td>Homotopy extension properties, cofibrations</td>
<td></td>
</tr>
<tr>
<td>55D10</td>
<td>Homotopy equivalences</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rees, Elmer</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Hall, Michael H.</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Sieradski, Allan J.</td>
<td>2P</td>
</tr>
<tr>
<td>55D15</td>
<td>Classification of homotopy type</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feustel, C. D.</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Meyer, Jean-Pierre</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Sieradski, Allan J.</td>
<td>2P</td>
</tr>
<tr>
<td></td>
<td>James, Ioan M.</td>
<td>1P</td>
</tr>
<tr>
<td>55D20</td>
<td>Eilenberg-MacLane spaces</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Meyer, Jean-Pierre</td>
<td>1P</td>
</tr>
<tr>
<td>55D25</td>
<td>Spanier-Whitehead duality</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Boardman, John</td>
<td>1P</td>
</tr>
<tr>
<td>55D30</td>
<td>Eckmann-Hilton duality</td>
<td></td>
</tr>
<tr>
<td>55D35</td>
<td>Loop spaces</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hubbuck, John</td>
<td>1P</td>
</tr>
<tr>
<td>55D40</td>
<td>Suspensions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Haslam, Harold B.</td>
<td>1P</td>
</tr>
<tr>
<td>55D45</td>
<td>H-spaces and duals</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bacon, Philip</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Brown, Robert F.</td>
<td>2P</td>
</tr>
<tr>
<td></td>
<td>Arkowitz, Martin</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Brown, Robert F.</td>
<td>3S</td>
</tr>
<tr>
<td></td>
<td>Haslam, Harold B.</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Meyer, Jean-Pierre</td>
<td>1S</td>
</tr>
<tr>
<td></td>
<td>Sieradski, Allan J.</td>
<td>2S</td>
</tr>
<tr>
<td></td>
<td>Haslam, Harold B.</td>
<td>2P</td>
</tr>
<tr>
<td></td>
<td>Hubbuck, John</td>
<td>1P</td>
</tr>
<tr>
<td></td>
<td>Haslam, H. B.</td>
<td>1P</td>
</tr>
</tbody>
</table>
55D50 Category and cocategory, etc.
55D99 None of the above, but in this section

Curtis, Douglas W. 1S
Rushing, T. B. 1P
Rees, Elmer 1P
Boardman, John 1P
Kahn, Donald W. 1P

55Exx Homotopy groups

55E05 Homotopy groups, general; sets of homotopy classes
Boardman, John 1S
Meyer, Jean-Pierre 1P
Haslam, Harold B. 2P

55E10 Stable homotopy groups
Segal, David M. 1P
Kahn, Donald W. 1P

55E15 Whitehead products and generalizations
Haslam, Harold B. 1S
James, Ioan M. 1S

55E20 Homotopy groups of wedges, joins, and simple spaces
Edelson, Allan L. 1P

55E25 Hopf invariants

55E30 Homotopy groups of triads, n-ads

55E35 Operations in homotopy groups

55E40 Homotopy groups of spheres

55E45 Stable homotopy of spheres
Kahn, Donald W. 1P
Krueger, Warren M. 1P

55E50 The J-morphism

55E55 Cohomotopy groups

55E99 None of the above, but in this section
Edelson, Allan L. 1P

55Fxx Fiber spaces and bundles
[See also 18F15.]

55F05 Fiber spaces
Unger, Gerald S. 1P
Wright, Perrin 1S

55F10 Fiber bundles
Gelbaum, Bernard R. 1P
James, Ioan M. 1P

55F15 Classification
Siegel, Jerrold 1P

55F20 Spectral sequences and homology of fiber spaces [See also 55Hxx.]
James, Ioan M. 1S

55F25 Sphere bundles and vector space bundles
Mahowald, Mark E. 1P
Gitter, Samuel 1P
Milgram, R. James 1P
Bredon, Glen E. 2S
Riddell, R. C. 1P
Smith, Larry 1P
Glover, H. H. 1S
Becker, James C. 1S
Edelson, Allan L. 1P
Stredulinski, Allan J. 2P
Wood, John W. 1P

55F35 Classifying spaces of groups and H-spaces
Siegel, Jerrold 1P

55F40 Homology of classifying spaces, characteristic classes
Gitter, Samuel 1P
Mahowald, Mark E. 1P
Milgram, R. James 1P
Clough, Robert R. 1P
Smith, Larry 1S
Landweber, Peter S. 1P
Hubbuck, John 1P

55F45 Homology and homotopy of BO and BU; Bott periodicity

55F50 Stable classes of vector space bundles, K-theory [For algebraic K-theory, see 18F25.]
Smith, Larry 1P
Edelson, Allan L. 1P

55F55 Fiberings with singularities
Tollifson, Jeffrey L. 1P
Antonelli, Peter L. 1P

55F60 Microbundles and block bundles

55F65 Generalizations of fiber spaces and bundles

55F99 None of the above, but in this section
James, Ioan M. 1P

55Gxx Operations and obstructions

55G05 Primary cohomology operations
Krueger, Warren M. 1P

55G10 Steenrod algebra
Mahowald, Mark E. 1P
Gitter, Samuel 1P
Milgram, R. James 1P
Clough, Robert R. 1P
Krueger, Warren M. 1P
James, Ioan M. 1P
Hubbuck, John 1P
## SUBJECT INDEX FOR VOLUMES 21-30

### 55G15 Symmetric products, cyclic products
- Mitchell, George E. 1P
- Meyer, Jean-Pierre 1P

### 55G20 Secondary and higher cohomology operations
- Mahowald, Mark E. 1P
- Gitler, Samuel 1P
- Milgram, R. James 1P
- Kraines, David 1P
- Krueger, Warren M. 1P
- James, Ioan M. 1S

### 55G25 K-theory operations and generalized cohomology operations
- Mitchell, George E. 1P
- Meyer, Jean-Pierre 1P

### 55G30 Massey products
- Kraines, David 1P

### 55G35 Obstruction theory
- Steenrod, Norman E. 1P

### 55G40 Sectioning fiber spaces and bundles
- Iwata, Köichi 1P
- Becker, James C. 1S
- Glover, H. H. 1S
- James, Ioan M. 1P

### 55G45 Postnikov systems, k-invariants
- Mahowald, Mark E. 1S
- Gitler, Samuel 1S
- Milgram, R. James 1S
- Kraines, David 1P
- Clough, Robert R. 1P
- Arkowitz, Martin 1P
- Haslam, Harold B. 1P
- Meyer, Jean-Pierre 1S
- Siegel, Jerrold 1P

### 55G99 None of the above, but in this section

### 55Hxx Spectral sequences

#### 55H05 General
- Siegel, Jerrold 1S

#### 55H10 Serre spectral sequences
- Siegel, Jerrold 1S

#### 55H15 Adams spectral sequences
- Segal, David M. 1P
- Segal, M. G. 1P

#### 55H20 Eilenberg-Moore spectral sequences
- Iwata, Köichi 1P
- Meyer, Jean-Pierre 1P
- Landweber, Peter S. 1P

### 55H25 Generalized cohomology
- Iwata, Köichi 1P
- Meyer, Jean-Pierre 1P
- Landweber, Peter S. 1P

### 55Jxx Applied homological algebra
- [See also 18Gxx.]

#### 55J05 Abstract complexes
- Segal, David M. 1P

#### 55J10 Semisimplicial complexes
- Segal, David M. 1P

#### 55J15 Chain complexes
- Segal, David M. 1P

#### 55J20 Universal coefficient theorems, Bockstein operator
- Segal, David M. 1P

#### 55J25 Homology of a product, Künneth formula
- Meyer, Jean-Pierre 1P

### 55J30 Duality
- Meyer, Jean-Pierre 1P

### 55J99 None of the above, but in this section

### 57—XX MANIFOLDS AND CELL COMPLEXES

#### 57—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
- Samelson, Hans 1P

#### 57—01 Elementary exposition (collegiate level)
- Samelson, Hans 1P

#### 57—02 Advanced exposition (research surveys, etc.)

#### 57—03 Historical

#### 57—04 Explicit machine computation and programs (not the theory of computation or programming)

### 57Axx Topological manifolds

#### 57A05 Topology of $E_2$, 2-manifolds
- Dickman, R. F., Jr. 1P
- Transue, William R. R. 1S
- Bennett, Ralph 1S
- Birman, Joan S. 1P
- Bacon, Philip 1P
- Brown, Edward M. 1P
- Tondra, Richard J. 1P
- Eaton, William T. 1S
- O'Brien, Thomas 1S
- Markley, Nelson G. 1P
- Waymire, S. G. 1S
- Pittman, C. R. 1P
- Holstzyński, W. 1P
- Tondra, Richard J. 1P
- Wood, John W. 1P
- Rogers, James Ted, Jr. 2S
- Hagopian, Charles L. 2P

#### 57A10 Topology of $E_3$, 3-manifolds [See
### Subject Index for Volumes 21-30

**57A15** Topology of $\mathbb{E}_n^r$, $n$-manifolds (3 $< n < \infty$)

- Transue, William R. R.  
  - Bennett, Ralph  
  - Brown, Robert F.  
  - Bryant, John L.  
  - Cobb, John  
  - Choe, Tae Ho  
  - Glaser, Leslie C.  
  - Gillman, David S.  
  - O'Brien, Thomas  
  - Wayment, S. G.  
  - Hanson, T. H. McH.  
  - Rushing, T. B.  
  - She, R. B.  
  - Kaul, S. K.  
  - Lacher, R. C.  
  - Husch, Lawrence S.  
  - Tollefson, Jeffrey L.  
  - Rogers, James Ted, Jr.  
  - Jaworowski, Jan W.  
  - Wood, John W.  
  - Cantrell, James C.  
  - Price, Thomas  
  - Rushing, T. B.  
  - Rogers, James Ted, Jr.  
  - Sher, R. B.  

- **57A17** Topology of topological vector spaces
  - Curtis, Douglas W.  
  - Wong, Raymond Y. T.  
  - Isbell, John R.  

- **57A20** Topology of infinite-dimensional manifolds [See also 58Bxx.]
  - Cutler, William H.  
  - Wong, Raymond Y. T.  

- **57A30** Engulfing
  - Bryant, John L.  

- **57A35** Imbeddings and immersions
  - Transue, William R. R.  
  - Bennett, Ralph  
  - McMillan, D. R., Jr.  
  - Bryant, John L.  
  - Rushing, T. B.  
  - Loveland, L. D.  
  - Connelly, Robert  
  - Lacher, R. C.  
  - Holsztynski, W.  
  - Wood, John W.  
  - Wright, Perrin  

- **57A40** Neighborhoods of submanifolds

- **57A45** Flatness
  - Rushing, T. B.  
  - Gauld, David  
  - Cantrell, James C.  
  - Price, Thomas  
  - Rushing, T. B.  
  - Sher, R. B.  

- **57A50** $S^{n-1} \subset \mathbb{E}^n$, Schoenflies problem
  - Loveland, L. D.  
  - Loveland, L. D.  
  - Gauld, David  
  - Wright, Perrin  

- **57A55** Microbundles

- **57A60** Cellularity
  - Sher, R. B.  
  - Lacher, R. C.  
  - Sher, R. B.  

- **57A65** Algebraic topology of manifolds
  - Brown, Robert F.  

- **57A70** Cobordism
  - Rushing, T. B.  

- **57A99** None of the above, but in this section
  - Uchiyama, Saburô  
  - Huneke, John Philip  
  - Wright, Perrin  

- **57Bxx** Generalized manifolds [See also 18F15.]

- **57B05** Local properties
  - Koszulowski, George  

- **57B10** Poincaré duality spaces

- **57B99** None of the above, but in this section

- **57Cxx** PL-topology

- **57C05** The general topology of
complexes
  Cohen, Marshall M. 1P
  Rees, Elmer 1P
  Sher, R. B. 2P
57C10 Simple homotopy type, Whitehead torsion, Reidemeister-Franz torsion, etc.
57C15 Triangulating manifolds
  Tindell, Ralph S. 2P
57C20 Cobordism
  Conrad, Bruce 1S
57C25 Comparison of PL-structures: classification, Hauptvermutung
  Tindell, Ralph S. 1S
  Conrad, Bruce 1P
57C30 Engulfing
57C35 Imbeddings and immersions
  Husch, Lawrence S. 2P
  Putz, H. 1P
  Feustel, C. D. 1P
  Rees, Elmer 1P
  Connelly, Robert 1S
  Banchoff, Thomas F. 1S
57C40 Regular neighborhoods
57C45 Knots and links (in high dimensions) [For the low-dimensional case, see 55A25.]
  Husch, Lawrence S. 2S
57C50 Microbundles and block bundles [See also 55F60.]
  Putz, H. 1P
57C55 Approximations
  Sher, R. B. 2P
57C99 None of the above, but in this section
  Tindell, Ralph S. 1P
  Husch, Lawrence S. 2P
  Brown, Robert F. 2P
  Downing, J. Scott 1P
  Cohen, Marshall M. 1P
  Rushing, T. B. 2S
  Feustel, C. D. 1P
57Dxx Differential topology {For foundational questions of
differentiable manifolds, see 58Axx; for infinite dimensional manifolds, see 58Bxx.}
57D05 Triangulating
57D10 Smoothing
  Conrad, Bruce 1P
57D12 Smooth approximations
  Rogers, James Ted, Jr. 2S
57D15 Specialized structures on manifolds (spin manifolds, frame manifolds, etc.)
57D20 Characteristic classes
  Mielke, M. V. 1P
  Ku, Hsu-tung 2P
  Ku, Hsu-tung 4P
  Smith, Larry 1P
  Mitchell, George E. 1S
  Conrad, Bruce 1P
  Segal, David M. 2P
57D25 Vector fields, frame fields, etc.
  Tsagas, Grigorios 1P
  Iwata, Köichi 1P
  Bredon, Glen E. 4P
57D30 Foliations
57D35 Differentiable mappings
57D40 Imbeddings and immersions
  Samelson, Hans 1P
  Agoston, Max K. 1P
  Glover, H. H. 1P
  Becker, James C. 1P
  Banchoff, Thomas F. 1S
  Halpern, Benjamin R. 3P
57D45 Singularities of differentiable mappings
57D50 Diffeomorphisms
  Robertson, Jack M. 1P
57D55 Differentiable structures
57D60 Homotopy spheres, Poincaré conjecture
  Ku, Mei-chin 1P
  Ku, Hsu-tung 1P
  Ku, Hsu-tung 3P
  Rosen, Ronald H. 1P
  Agoston, Max K. 1P
  Ku, Hsu-tung 4P
  Conrad, Bruce 1P
  Brendler, Allan 1P
  Schultz, Reinhard E. 1P
57D65 Surgery and handlebodies
  Mielke, M. V. 1P
  Downing, J. Scott 1P
57D70 Critical points and critical submanifolds
57D75 O- and SO-cobordism
  Mielke, M. V. 1P
  Mitchell, George E. 1P
57D80 h- and s-cobordism
  Husch, Lawrence S. 2P
57D85 Equivariant cobordism
### 57D90 Other types of cobordism
- Thomas, C. B. 1P
- Ku, Hsu-tung 4P
- Landweber, Peter S. 1P
- Brender, Allan 1P
- Segal, David M. 2P

### 57D95 Realizing cycles by submanifolds

### 57D99 None of the above, but in this section
- Samelson, Hans 1P
- Glover, H. H. 1P
- Becker, James C. 1P

### 57Exx Topological transformation groups (See also 20E40, 22—XX, 54H15, 58D05.)

#### 57E05 Topological properties of groups of homeomorphisms
- Robertson, Jack M. 1P
- Keesling, James Edgar 3P
- Wright, Perrin 1P

#### 57E10 Compact groups of homeomorphisms
- Tollefson, Jefferey L. 2P
- Conrad, Bruce 1S
- Franklin, Lawrence M. 1P
- Keesling, James Edgar 3P

#### 57E15 Compact Lie groups of differentiable transformations
- Ku, Mei-chin 1P
- Ku, Hsu-tung 1P
- Ku, Hsu-tung 2P
- Ku, Hsu-tung 3P
- Bredon, Glen E. 1P
- Bredon, Glen E. 3P
- Ku, Hsu-tung 4P
- Conrad, Bruce 1S
- Bredon, Glen E. 4P
- Schultz, Reinhard E. 1P

#### 57E20 Noncompact Lie groups of transformations

#### 57E25 Groups acting on specific manifolds
- Bredon, Glen E. 1P
- Robertson, Jack M. 1P
- O'Brien, Thomas 1S
- Bredon, Glen E. 3P
- Ku, Hsu-tung 4P
- Jones, Gary D. 1S
- Conrad, Bruce 1P
- Schultz, Reinhard E. 1P

#### 57E30 Discontinuous groups of transformations
- Tollefson, Jefferey L. 2P
- Huch, Lawrence S. 3P
- Mumford, David 1S

#### 57E99 None of the above, but in this section
- Hanson, T. H. McH. 1P
- Conrad, Bruce 1P

### 57Fxx Homology and homotopy of topological groups and related structures

#### 57F05 Hopf algebras [See also 16A24.]
- May, J. Peter 1S
- Hubbuck, John 1S

#### 57F10 Homology of Lie groups

#### 57F15 Homology of homogeneous spaces of Lie groups

#### 57F20 Homotopy groups of topological groups and homogeneous spaces

#### 57F25 Homology of H-spaces

#### 57F30 Bar and cobar constructions

#### 57F35 Applications of Eilenberg-Moore spectral sequences [See also 55F20, 55H20.]

#### 57F99 None of the above, but in this section
- Rees, Elmer 1S

### 58—XX GLOBAL ANALYSIS, ANALYSIS ON MANIFOLDS

#### 58—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)

#### 58—01 Elementary exposition (collegiate level)

#### 58—02 Advanced exposition (research surveys, etc.)

#### 58—03 Historical

#### 58—04 Explicit machine computation and programs (not the theory of computation or programming)
<table>
<thead>
<tr>
<th>58Axx</th>
<th>General theory of differentiable manifolds</th>
</tr>
</thead>
<tbody>
<tr>
<td>58A05</td>
<td>Differentiable manifolds, foundations</td>
</tr>
<tr>
<td>Jonker, L.</td>
<td>1P</td>
</tr>
<tr>
<td>58A10</td>
<td>Differential forms</td>
</tr>
<tr>
<td>Warner, Frank W.</td>
<td>1S</td>
</tr>
<tr>
<td>Wallach, Nolan R.</td>
<td>2S</td>
</tr>
<tr>
<td>Jonker, L.</td>
<td>1P</td>
</tr>
<tr>
<td>58A15</td>
<td>Exterior differential systems (Cartan theory) [For variational problems, see 49F05.]</td>
</tr>
<tr>
<td>58A20</td>
<td>Jets</td>
</tr>
<tr>
<td>58A25</td>
<td>Currents</td>
</tr>
<tr>
<td>58A30</td>
<td>Vector distributions (sub-bundles of the tangent bundles)</td>
</tr>
<tr>
<td>Bredon, Glen E.</td>
<td>4P</td>
</tr>
<tr>
<td>58A99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>Riddell, R. C.</td>
<td>1P</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>58Bxx</th>
<th>Infinite-dimensional manifolds [See also 57A20.]</th>
</tr>
</thead>
<tbody>
<tr>
<td>58B05</td>
<td>Homotopy and topological questions</td>
</tr>
<tr>
<td>Cutler, William H.</td>
<td>1P</td>
</tr>
<tr>
<td>Anderson, R. D.</td>
<td>1P</td>
</tr>
<tr>
<td>Curtis, Douglas W.</td>
<td>2P</td>
</tr>
<tr>
<td>58B10</td>
<td>Differentiable and holomorphic questions</td>
</tr>
<tr>
<td>Riddell, R. C.</td>
<td>1S</td>
</tr>
<tr>
<td>Goodman, Victor</td>
<td>1S</td>
</tr>
<tr>
<td>58B15</td>
<td>Fredholm structures</td>
</tr>
<tr>
<td>58B20</td>
<td>Riemannian, Finsler, and other geometric structures</td>
</tr>
<tr>
<td>Cutler, William H.</td>
<td>1P</td>
</tr>
<tr>
<td>58B99</td>
<td>None of the above, but in this section</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>58Cxx</th>
<th>Calculus on manifolds</th>
</tr>
</thead>
<tbody>
<tr>
<td>58C05</td>
<td>Real-valued functions</td>
</tr>
<tr>
<td>58C10</td>
<td>Holomorphic maps</td>
</tr>
<tr>
<td>Greenfield, Stephen J.</td>
<td>1P</td>
</tr>
<tr>
<td>58C15</td>
<td>Implicit function theorems</td>
</tr>
<tr>
<td>58C20</td>
<td>Differentiation theory (Gâteaux, Fréchet, etc.)</td>
</tr>
<tr>
<td>Goodman, Victor</td>
<td>1S</td>
</tr>
<tr>
<td>58C25</td>
<td>Differentiable maps and singularities</td>
</tr>
</tbody>
</table>

| 58C99 | None of the above, but in this section |

<table>
<thead>
<tr>
<th>58Dxx</th>
<th>Spaces and manifolds of mappings</th>
</tr>
</thead>
<tbody>
<tr>
<td>58D05</td>
<td>Groups of diffeomorphisms and homeomorphisms as manifolds [See also 22Exx, 57E05.]</td>
</tr>
<tr>
<td>58D10</td>
<td>Spaces of imbeddings and immersions</td>
</tr>
<tr>
<td>58D15</td>
<td>Manifolds of mappings [See also 54C35.]</td>
</tr>
<tr>
<td>Riddell, R. C.</td>
<td>1P</td>
</tr>
<tr>
<td>58D99</td>
<td>None of the above, but in this section</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>58E05</th>
<th>Abstract theory (Morse theory, Ljusternik-Schnirelman theory, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kalmbach, Gudrun</td>
<td>1P</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>58E10</th>
<th>Application to the theory of geodesics</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>58E15</th>
<th>Application to extremal problems in several variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>58E99</td>
<td>None of the above, but in this section</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>58Fxx</th>
<th>Differentiable dynamical systems [For abstract and symbolical topological dynamics, see 28A65, 34C35, 54H20.]</th>
</tr>
</thead>
<tbody>
<tr>
<td>58F05</td>
<td>Hamiltonian and other special systems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>58F10</th>
<th>Stability theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Williams, Robert F.</td>
<td>1P</td>
</tr>
<tr>
<td>Shub, Michael</td>
<td>1P</td>
</tr>
<tr>
<td>Hájek, Otmar</td>
<td>1S</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>58F15</th>
<th>Hyperbolic structures (expanding maps, Anosov systems, etc.)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>58F20</th>
<th>Periodic points and zeta functions</th>
</tr>
</thead>
</table>

| 58F99 | None of the above, but in this section               |

| 58Gxx | Differential operators on manifolds  |
58G05 Elliptic complexes [See also 35N15.]
58G10 Index theorems and fixed point theorems
58G15 Pseudodifferential operators on manifolds
   Petersen, Bent E. 1P
58G99 None of the above, but in this section
58H05 Pseudogroups
   (infinite-dimensional Lie groups) and deformations of structures [See also 22E65.]
60—XX PROBABILITY
   THEORY AND STOCHASTIC PROCESSES [For additional applications, see 10Kxx, 42A36, 62—XX, 90—XX, 92—XX, 93—XX, 94—XX.]
60—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
60—01 Elementary exposition (collegiate level)
60—02 Advanced exposition (research surveys, etc.)
60—03 Historical
60—04 Explicit machine computation and programs (not the theory of computation or programming)
60A05 Axioms, foundations
   Brunk, Hugh D. 1P
   Joffe, A. D. 1P
60Bxx Probability theory on algebraic and topological structures
60B05 Probability measures on topological spaces
   Loynes, R. M. 1S
   Jain, N. C. 1P
   Tserpes, Nicholas 1S
   Mukherjea, Arunava 1S
60B10 Convergence of probability measures, invariance theorems [See also 28A65.]
   Loynes, R. M. 1P
   Huff, B. W. 1S
60B15 Probability measures on groups, Fourier transforms, factorization
   Tata, Mahanob N. 1S
   Staudte, Robert G., Jr. 1S
   Tserpes, Nicholas 1P
   Mukherjea, Arunava 1P
   Joffe, A. D. 1S
60B99 None of the above, but in this section
60C05 Combinatorial probability
   Strait, Peggy Tang 1S
   O'Neil, Patrick Eugene 2S
60D05 Geometric probability
60E05 Distributions, characteristic functions
   Andersen, G. R. 1S
   Severo, Norman C. 1S
   Slivka, John 1S
   Tata, Mahanob N. 1P
   Staudte, Robert G., Jr. 1P
   Huff, B. W. 1P
   Das, Minaketan 1S
   Brown, B. M. 1S
   Athreya, Krishna Balasundaram 1P
60Fxx Limit theorems
60F05 Central limit and other weak theorems
   Severo, Norman C. 1S
   Slivka, John 1S
   Loynes, R. M. 1S
60F10 Large deviations
   Pinsky, Mark A. 1P
   Andersen, G. R. 1P
   Severo, Norman C. 1P
   Slivka, John 1P
60F15 Strong theorems [See also 28A65.]
   Heyde, C. C. 1P
   Strait, Peggy Tang 1P
   Severo, Norman C. 1P
   Slivka, John 1P
   Jain, N. C. 1P
   Stackelberg, Olaf P. 1P
   Brown, B. M. 1P
   Athreya, Krishna Balasundaram 1S
60F20 Zero-one laws
   Severo, Norman C. 1S
   Slivka, John 1S
   Jamison, Benton 2P
   Orey, Steven 1P
   Jain, N. C. 2P
60F99 None of the above, but in this section
   Das, Minaketan 1S
60Gxx Stochastic processes

60G05 Foundations of stochastic processes
   Johnson, Dudley Paul 1P

60G10 Stationary processes
   Cambanis, Stamatis 1P

60G15 Gaussian processes
   Weissner, Edward W. 1P
   Leadbetter, M. R. 1P
   Strait, Peggy Tang 1S
   Jamison, Benton 2P
   Orey, Steven 1P
   Jain, N. C. 1P
   Kuelbs, J. D. 1P
   Cambanis, Stamatis 1P
   Jain, N. C. 2P

60G17 Sample path properties
   Greenwood, Priscilla E. 1P
   Weissner, Edward W. 1P
   Leadbetter, M. R. 1P
   Orey, Steven 1S
   Jamison, Benton 2S
   Jain, N. C. 1S
   Kuelbs, J. D. 1P
   Cambanis, Stamatis 1P

60G20 Generalized stochastic processes
   Jain, N. C. 1P
   Jain, N. C. 2P

60G25 Prediction theory [See also 62M10.]
   Salehi, Habib 2P
   Scheinberg, Stephen 1S

60G30 Continuity and singularity of induced measures
   Jamison, Benton 2P
   Orey, Steven 1P
   Jain, N. C. 2P

60G35 Applications (signal detection, filtering, etc.) [See also 94A05.]

60G40 Stopping times

60G45 Martingale theory
   Uhl, J. J., Jr. 1P
   Loynes, R. M. 1P
   Hebert, D. J., Jr. 1P
   Uhl, J. J., Jr. 3S
   Brown, B. M. 1P

60G50 Sums of independent random variables
   Pinsky, Mark A. 1S
   Heyde, C. C. 1P
   Andersen, G. R. 1P
   Loynes, R. M. 1S
   Brown, B. M. 1S
   Joffe, A. D. 1P

60G99 None of the above, but in this section

60Hxx Stochastic analysis

60H05 Stochastic integrals
   Strait, Peggy Tang 2P
   Rosencrans, S. I. 1P

60H10 Stochastic ordinary differential equations [See also 34F05.]

60H15 Stochastic partial differential equations

60H20 Stochastic integral equations

60H99 None of the above, but in this section

60Jxx Markov processes

60J05 Markov processes with discrete parameter
   Dubuc, Serge 1P

60J10 Markov chains
   Ornstein, Donald S. 2P
   Yeh, R. Z. 1P
   Huff, B. W. 1S

60J15 Random walk

60J20 Applications of discrete Markov processes (social mobility, learning theory, industrial processes, etc.)

60J25 Markov processes with continuous parameter
   Sentilles, F. Dennis 1P

60J30 Processes with independent increments
   Strait, Peggy Tang 1S

60J35 Transition functions, generators and resolvents [See also 47D05.]
   Johnson, Dudley Paul 1P

60J40 Hunt processes

60J45 Probabilistic potential theory [See also 31—XX.]
   Dubuc, Serge 1S
   Hebert, D. J., Jr. 1P

60J50 Boundary theory

60J55 Local time and additive functionals

60J60 Diffusion processes [See also 28A65.]

60J65 Brownian motion
   Greenwood, Priscilla E. 1P
   Strait, Peggy Tang 1P
   Strait, Peggy Tang 2P
   Loynes, R. M. 1P
### 1971] SUBJECT INDEX FOR VOLUMES 21-30 785

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>60J70</td>
<td>Applications of diffusion theory (population genetics, absorption problems, etc.)</td>
</tr>
<tr>
<td>60J75</td>
<td>Jump processes</td>
</tr>
<tr>
<td>60J80</td>
<td>Branching processes (Galton-Watson, birth-and-death, etc.)</td>
</tr>
<tr>
<td>60J85</td>
<td>Applications of branching processes [See also 90Bxx.]</td>
</tr>
<tr>
<td>60J99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>60K05</td>
<td>Renewal theory</td>
</tr>
<tr>
<td>60K10</td>
<td>Applications (reliability, demand theory, etc.)</td>
</tr>
<tr>
<td>60K15</td>
<td>Markov renewal processes, semi-Markov processes</td>
</tr>
<tr>
<td>60K20</td>
<td>Applications of Markov renewal processes (reliability, queueing networks, etc.)</td>
</tr>
<tr>
<td>60K25</td>
<td>Queueing theory</td>
</tr>
<tr>
<td>60K30</td>
<td>Applications (congestion, allocation, storage, traffic, etc.) [See also 60J80.]</td>
</tr>
<tr>
<td>60K35</td>
<td>Interacting random processes, statistical mechanics type models</td>
</tr>
<tr>
<td>60K99</td>
<td>None of the above, but in this section</td>
</tr>
</tbody>
</table>

---

### 62—XX STATISTICS

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>62—00</td>
<td>Difficult to classify at the second level (must also be assigned at least one other classification number in this section)</td>
</tr>
<tr>
<td>62—01</td>
<td>Elementary exposition (college level)</td>
</tr>
<tr>
<td>62—02</td>
<td>Advanced exposition (research surveys, etc.)</td>
</tr>
<tr>
<td>62—03</td>
<td>Historical</td>
</tr>
<tr>
<td>62—04</td>
<td>Explicit machine computation and programs (not the theory of computation or programming)</td>
</tr>
</tbody>
</table>

---

### 62Axx Foundations

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>62A05</td>
<td>Invariance and group considerations</td>
</tr>
<tr>
<td>62A10</td>
<td>The likelihood approach</td>
</tr>
<tr>
<td>62A15</td>
<td>The Bayesian approach</td>
</tr>
<tr>
<td>62A99</td>
<td>None of the above, but in this section</td>
</tr>
</tbody>
</table>

---

### 62Bxx Sufficiency

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>62B05</td>
<td>Sufficient statistics and fields</td>
</tr>
<tr>
<td>62B10</td>
<td>Statistical information theory</td>
</tr>
<tr>
<td>62B15</td>
<td>Comparison of experiments</td>
</tr>
<tr>
<td>62B20</td>
<td>Measure-theoretic results, etc.</td>
</tr>
<tr>
<td>62B99</td>
<td>None of the above, but in this section</td>
</tr>
</tbody>
</table>

---

### 62Cxx Decision theory [For game theory, see 90Dxx.]

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>62C05</td>
<td>General considerations</td>
</tr>
<tr>
<td>62C07</td>
<td>Complete class results</td>
</tr>
<tr>
<td>62C10</td>
<td>Bayesian problems; characterization of Bayes procedures</td>
</tr>
<tr>
<td>62C15</td>
<td>Admissibility</td>
</tr>
<tr>
<td>62C25</td>
<td>Compound decision problems</td>
</tr>
<tr>
<td>62C99</td>
<td>None of the above, but in this section</td>
</tr>
</tbody>
</table>

---

### 62D05 Sampling theory, sample surveys

### 62Exx Distribution theory

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>62E10</td>
<td>Characterization and structure theory</td>
</tr>
<tr>
<td>62E15</td>
<td>Distribution of statistics</td>
</tr>
<tr>
<td>62E20</td>
<td>Asymptotic theory</td>
</tr>
<tr>
<td>62E25</td>
<td>Monte Carlo studies</td>
</tr>
<tr>
<td>62E99</td>
<td>None of the above, but in this section</td>
</tr>
</tbody>
</table>

---

### 62Fxx Parametric inference

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>62F05</td>
<td>Hypothesis testing</td>
</tr>
<tr>
<td>62F07</td>
<td>Ranking and selection</td>
</tr>
<tr>
<td>62F10</td>
<td>Estimation</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>62F15</td>
<td>Bayesian inference</td>
</tr>
<tr>
<td>62F20</td>
<td>Asymptotic efficiency</td>
</tr>
<tr>
<td>62F25</td>
<td>Tolerance and confidence regions</td>
</tr>
<tr>
<td>62F99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>62Gxx</td>
<td>Nonparametric inference</td>
</tr>
<tr>
<td>62G05</td>
<td>Estimation</td>
</tr>
<tr>
<td>62G10</td>
<td>Hypothesis testing</td>
</tr>
<tr>
<td>62G15</td>
<td>Tolerance and confidence regions</td>
</tr>
<tr>
<td>62G20</td>
<td>Asymptotic efficiency</td>
</tr>
<tr>
<td>62G25</td>
<td>Quick and easy methods</td>
</tr>
<tr>
<td>62G30</td>
<td>Order statistics</td>
</tr>
<tr>
<td>62G35</td>
<td>Robustness</td>
</tr>
<tr>
<td>62G99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>62Hxx</td>
<td>Multivariate analysis</td>
</tr>
<tr>
<td>62H05</td>
<td>Characterization and structure theory</td>
</tr>
<tr>
<td>62H10</td>
<td>Distribution of statistics</td>
</tr>
<tr>
<td>62H15</td>
<td>Hypothesis testing</td>
</tr>
<tr>
<td>62H20</td>
<td>Correlation analysis, canonical correlation</td>
</tr>
<tr>
<td>62H25</td>
<td>Factor analysis and principal components</td>
</tr>
<tr>
<td>62H30</td>
<td>Classification and discrimination</td>
</tr>
<tr>
<td>62H99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>62Jxx</td>
<td>Linear inference</td>
</tr>
<tr>
<td>62J05</td>
<td>Regression analysis</td>
</tr>
<tr>
<td>62J10</td>
<td>Analysis of variance and covariance</td>
</tr>
<tr>
<td>62J15</td>
<td>Paired and multiple comparisons</td>
</tr>
<tr>
<td>62J99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>62Kxx</td>
<td>Experimental design [See also 05Bxx.]</td>
</tr>
<tr>
<td>62K05</td>
<td>Optimal designs</td>
</tr>
<tr>
<td>62K10</td>
<td>Block designs</td>
</tr>
<tr>
<td>62K15</td>
<td>Factorial designs</td>
</tr>
<tr>
<td>62K99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>62Lxx</td>
<td>Sequential methods</td>
</tr>
<tr>
<td>62L05</td>
<td>Sequential design</td>
</tr>
<tr>
<td>62L10</td>
<td>Sequential analysis</td>
</tr>
<tr>
<td>62L12</td>
<td>Sequential estimation</td>
</tr>
<tr>
<td>62L15</td>
<td>Optimal stopping [See also 60G40.]</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>62L20</td>
<td>Stochastic approximation</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>62M20</td>
<td>Prediction [See also 60G25.]</td>
</tr>
<tr>
<td>62M99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>62Nxx</td>
<td>Engineering statistics</td>
</tr>
<tr>
<td>62N05</td>
<td>Reliability and life testing</td>
</tr>
<tr>
<td>62N10</td>
<td>Quality control [See also 90Bxx.]</td>
</tr>
<tr>
<td>62N15</td>
<td>Stochastic differential and difference equations [See also 34F05, 60H10, 93Exx.]</td>
</tr>
<tr>
<td>62N99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>62Pxx</td>
<td>Applications [See also 82—XX, 90—XX, 92—XX.]</td>
</tr>
<tr>
<td>62P05</td>
<td>Actuarial mathematics</td>
</tr>
<tr>
<td>62P10</td>
<td>Biometrics</td>
</tr>
<tr>
<td>62P15</td>
<td>Psychometrics</td>
</tr>
<tr>
<td>62P20</td>
<td>Econometrics</td>
</tr>
<tr>
<td>62P25</td>
<td>Sociometrics</td>
</tr>
<tr>
<td>62P99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>62Q05</td>
<td>Statistical tables</td>
</tr>
<tr>
<td>65—XX</td>
<td>NUMERICAL ANALYSIS</td>
</tr>
<tr>
<td></td>
<td>ANALYSIS</td>
</tr>
<tr>
<td></td>
<td>65—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)</td>
</tr>
</tbody>
</table>
65—01 Elementary exposition (collegiate level)
65—02 Advanced exposition (research surveys, etc.)
65—03 Historical

65A05 Tables

65Bxx Acceleration of convergence
65B05 Extrapolation to the limit, deferred corrections
65B10 Summation of series
65B15 Euler-MacLaurin formula
65B20 Poisson formula, etc.
65B99 None of the above, but in this section

65Cxx Numerical simulation [See also 68A55.]
65C05 Monte Carlo methods
65C10 Random number generation
65C99 None of the above, but in this section

65Dxx Numerical approximation [Primarily algorithms; for theory, see 41—XX.]
65D05 Interpolation
65D10 Smoothing, curve fitting
65D15 Algorithms for functional approximation
65D20 Computation of special functions, construction of tables
65D25 Numerical differentiation
65D30 Numerical integration, quadrature, cubature, etc.

Yeh, J. 1P
65D99 None of the above, but in this section

65E05 Numerical methods in complex analysis (potential theory, etc.) [For numerical methods in conformal mapping, see 30A28.]

65Fxx Numerical linear algebra
65F05 Direct methods for linear systems and matrix inversion
65F10 Iterative methods for linear systems [See also 65N20.]

Block, Henry David 1P
Levin, Simon A. 1P
65F15 Eigenvalues, eigenvectors
65F20 Overdetermined systems, pseudoinverses
65F25 Orthogonalization
65F30 Other matrix algorithms
65F35 Matrix norms, conditioning, scaling [See also 15A12, 15A60.]
65F99 None of the above, but in this section

65G05 Roundoff error

65Hxx Nonlinear algebraic or transcendental equations
65H05 Single equations
65H10 Systems of equations
65J05 Numerical analysis in abstract spaces

65K05 Mathematical programming and optimization techniques
[Computational aspects; for algorithms and theory, see 49Exx and 90Cxx.]

Block, Henry David 1S
Levin, Simon A. 1S

65Lxx Ordinary differential equations
65L05 Initial value problems
65L10 Boundary value problems
65L15 Eigenvalue problems
65L99 None of the above, but in this section

65Mxx Partial differential equations, initial value problems
65M05 Derivation of finite difference approximations
65M10 Stability and convergence of difference methods
65M15 Error bounds
65M20 Method of lines
65M25 Method of characteristics
65M30 Improperly posed problems
65M99 None of the above, but in this section

65Nxx Partial differential equations, boundary value problems
65N05 Derivation of finite difference approximations
65N10 Convergence of difference methods
65N15 Error bounds
65N20 Solution of difference equations [See also 65F10.]
65N25 Eigenvalue problems
65N30 Rayleigh-Ritz and Galerkin methods
65N35 Collocation and related methods
65N99 None of the above, but in this section

65P05 Partial differential equations, miscellaneous problems
65Q05 Difference and functional equations, recurrence relations
   Marzec, R. P. IS
   Franks, R. L. IS

65R05 Integral and integro-differential equations
65S05 Graphical methods
65T05 Harmonic analysis and synthesis

68—XX COMPUTER SCIENCE [For papers involving machine computations and programs in a specific mathematical area, see section —04 in that area]
68—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
68—01 Elementary exposition (collegiate level)
68—02 Advanced exposition (research surveys, etc.)
68—03 Historical
68A05 Programming theory
68A10 Algorithms [See also 02E10.]
68A15 Symbolic computation
68A20 Computational complexity and efficiency
68A25 Automata theory [See also 02F10, 18B20, 94A30, 94A35.]
   Bednarek, Alexander R. IS
   Cooper, G. IP
   Amoroso, S. IP
68A30 Linguistics, formal languages
68A35 Adaptive systems
68A40 Theorem proving
68A45 Artificial intelligence, pattern recognition
68A50 Information retrieval
68A55 Simulation [See also 65Cxx.]

70—XX MECHANICS OF PARTICLES AND SYSTEMS [For relativistic mechanics, see 83A05 and 83C10; for statistical mechanics, see 82 —XX.]
70—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
70—01 Elementary exposition (collegiate level)
70—02 Advanced exposition (research surveys, etc.)
70—03 Historical
70—04 Explicit machine computation and programs (not the theory of computation or programming)
70A05 Axiomatics
70Bxx Kinematics
70B05 Kinematics of a particle
70B10 Kinematics of a rigid body
70B15 Mechanisms and linkages
70B99 None of the above, but in this section
70Cxx Statics
70C05 Forces, fields
Subject Index for Volumes 21-30

70C10 Potential energy
70C99 None of the above, but in this section

70Dxx Dynamics of a particle [See also 70Hxx.]
70D05 Newtonian dynamics
70D10 Lagrangian dynamics
70D99 None of the above, but in this section

70Exx Dynamics of a rigid body
70E05 Motion of the gyroscope
70E10 Motion of projectiles and rockets
70E15 Motion of a general rigid body
70E20 Perturbation methods for Euler's equations
70E25 Poincaré method
70E99 None of the above, but in this section

70Fxx Dynamics of a system of particles
70F05 Two-body problem
70F15 Celestial mechanics
70F20 Holonomic systems
70F25 Nonholonomic systems
70F30 Impulsive motion
70F35 Collisions
70F99 None of the above, but in this section

70Gxx General representations of dynamical systems
70G05 Riemannian geometry, tensorial methods [See also 53A45, 53A50, 53B20.]
70G10 Generalized coordinates
70G15 Space of events
70G20 Impulse-energy space
70G25 Configuration space
70G30 State space
70G35 Phase space
70G99 None of the above, but in this section

70Hxx Hamiltonian mechanics
70H05 Hamilton's equations
70H10 Liouville's theorem
70H15 Canonical transformations
70H20 Hamilton-Jacobi equations
70H25 Variational methods
70H99 None of the above, but in this section

70Jxx Linear vibration theory
70J05 Finite degree of freedom systems
70J10 Normal modes of vibrations
70J15 Conservative systems
70J20 Nonconservative systems
70J25 Stability of oscillatory motions
70J99 None of the above, but in this section

70Kxx Nonlinear oscillations
70K05 Phase plane analysis
70K10 Limit cycles
70K15 Lyapunov theorems
70K20 Stability
70K99 None of the above, but in this section

70L05 Random vibrations [See also 93Exx.]

70Mxx Orbital mechanics
70M05 Satellite problems
70M10 Orbital stability
70M99 None of the above, but in this section

70N05 Exterior ballistics
70P05 Variable mass, rockets

73—XX Mechanics of Solids
73—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
73—01 Elementary exposition (collegiate level)
73—02 Advanced exposition (research
surveys, etc.)
73—03 Historical
73—04 Explicit machine computation and programs (not the theory of computation or programming)

73A05 Axiomatics

73Bxx Continuum mechanics [For fluids, see 76Axx.]
73B05 Constitutive equations
73B10 Isotropic functionals
73B15 Rotational groups [See also 22Exx.]
73B20 Simple materials
73B25 Multipolar stress theory
73B30 Thermodynamics of solids [For gases and fluids, see 80—XX.]
73B99 None of the above, but in this section

73Cxx Linear elasticity [For the biharmonic equation, see 31B30; for acoustics, see 76Q05.]
73C05 Stress functions
73C10 Saint-Venant's principle
73C15 Uniqueness theorems
73C20 Strain energy methods
73C25 Thermal stress problems
73C30 Anisotropic bodies
73C35 Mixed boundary value problems [See also 45F05.]
73C99 None of the above, but in this section

73Dxx Wave propagation in solids
73D05 Impact and explosion problems [See also 76L05.]
73D10 Integral transforms
73D15 Dilatational and shear waves
73D20 Surface waves
73D25 Wave diffraction and dispersion
73D99 None of the above, but in this section

73Exx Plasticity
73E05 Yield criteria and flow rules
73E10 Method of successive approximations
73E15 Slip-line theory
73E20 Limit analysis
73E25 Creep
73E99 None of the above, but in this section

73Fxx Viscoelasticity
73F05 Creep and relaxation functionals
73F10 Correspondence principle
73F15 Time-dependent boundary value problems
73F20 Aging of materials
73F25 Environmental-dependent materials
73F99 None of the above, but in this section

73Gxx Finite deformations
73G05 Finite elasticity
73G10 Strain energy functions
73G15 Finite viscoelasticity
73G20 Metal forming problems
73G99 None of the above, but in this section

73Hxx Elastic stability
73H05 Buckling
73H10 Dynamic stability
73H99 None of the above, but in this section

73Jxx Aeroelasticity
73J05 Interaction of aerodynamics and elasticity
73J10 Vibrations, flutter
73J15 Divergence
73J99 None of the above, but in this section

73Kxx Structural mechanics
73K05 Beams, columns
73K10 Plates
73K15 Membranes, shells
73K20 Composite structures
73K25 Finite element methods
73K99 None of the above, but in this section

73Lxx Theory of shells
73L05 Noneuclidean geometry, tensorial methods [See also 53A45.]
73L10 Anisotropic shells
73L15 Shell dynamics
73L99 None of the above, but in this section

73Mxx Fractural mechanics
73M05 Brittle fracture, cracks
73M10 Fatigue
73M15 Ductile fracture
73M20 Material instability
73M99 None of the above, but in this section

73Nxx Geophysical solid mechanics
[See also 86—XX.]
73N05 Global dynamics
73N10 Earthquake problems
73N99 None of the above, but in this section

73Pxx Biomechanics of solids
73P05 Mathematical models of biological materials
73P10 Mechanics response
73P99 None of the above, but in this section

73Q05 Soil mechanics
73R05 Electromagnetic elasticity
73Sxx Micromechanics of solids
73S05 Dislocation theory
73S99 Other micromechanics

76—XX FLUID MECHANICS
[For general continuum mechanics, see 73Bxx. ]

76—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
76—01 Elementary exposition (collegiate level)

76—02 Advanced exposition (research surveys, etc.)
76—03 Historical
76—04 Explicit machine computation and programs (not the theory of computation or programming)

76Axx Constitutive equations [See also 35L65.]
76A05 Non-Newtonian fluids
76A10 Viscoelastic fluids
76A99 None of the above, but in this section

76Bxx Incompressible, inviscid fluids, potential theory
76B05 Airfoil theory
76B10 Jets and cavities, free-streamline theory, water-entry problems, hydrofoil theory
76B15 Water waves, gravity waves; dispersion and diffraction, nonlinear interaction
76B20 Ship waves
76B25 Solitary and cnoidal waves
76B99 None of the above, but in this section

76Cxx Incompressible inviscid fluids, vorticity flows
76C05 Vorticity flows
76C10 Internal waves
76C15 Atmospheric waves
76C20 Rossby waves
76C99 None of the above, but in this section

76Dxx Incompressible viscous fluids
76D05 Navier-Stokes equations [See also 35Q10.]
76D10 Boundary-layer theory
76D15 Boundary-layer separation and reattachment
76D20 Higher-order effects in boundary layers
76D25 Wakes and jets
76D30 Singular perturbation problems
76D99 None of the above, but in this section
76Exx Hydrodynamic stability
76E05 Stability of parallel flows
76E15 Inertial instability
76E20 Convective instability
76E25 Instability of geophysical and astrophysical flows
76E30 Magnetohydrodynamic and electrohydrodynamic instabilities
76E99 None of the above, but in this section

76F05 Turbulence [See also 60Gxx, 60Jxx.]

76Gxx Subsonic flows
76G05 Hodograph methods
76G10 Kármán-Tsien approximation
76G15 Iterative methods
76G20 Free-streamline theory
76G99 None of the above, but in this section

76H05 Transonic flows, limit lines

76Jxx Supersonic flows
76J05 Hodograph methods
76J10 Method of characteristics
76J99 None of the above, but in this section

76K05 Hypersonic flows

76L05 Shock waves and blast waves [See also 73D05.]

76M05 Nonhomentropic flows of compressible fluids

76N05 Boundary-layer theory of compressible fluids

76P05 Rarefied gas flows, Boltzmann equation [See also 82A05.]

76Q05 Hydrodynamic sound, acoustics

76Rxx Diffusion and convection [See also 60J60.]
76R05 Forced convection
76R10 Free convection
76R99 None of the above, but in this section

76S05 Flows in porous media

76T05 Two-phase and multiphase flows

76U05 Rotating fluids

76V05 Stratified fluids

76W05 Magnetohydrodynamics and electrohydrodynamics

76X05 Ionized gas flow in electromagnetic fields

76Y05 Quantum hydrodynamics and relativistic hydrodynamics [See also 83C55, 85A30.]

76Zxx Biological fluid mechanics

78—XX OPTICS, ELECTROMAGNETIC THEORY

78—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
78—01 Elementary exposition (collegiate level)
78—02 Advanced exposition (research surveys, etc.)
78—03 Historical
78—04 Explicit machine computation and programs (not the theory of computation or programming)

78A05 Geometric optics
78A10 Physical optics
78A15 Electron optics
1971]  SUBJECT INDEX FOR VOLUMES 21-30  793

78A20  Space charge waves
78A25  Electromagnetic theory
78A30  Electro- and magnetostatics
78A35  Motion of charged particles
78A40  Waves and radiation
78A45  Diffraction, scattering [For WKB methods, see also 34E20.]
78A50  Antennas, wave-guides
78A55  Technical applications
78A57  Mathematically heuristic optics and electromagnetic theory (must also be assigned at least one other classification number in this section)

80—XX CLASSICAL THERMODYNAMICS, HEAT TRANSFER  [For thermodynamics of solids, see 73B30.]

80—00  Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
80—01  Elementary exposition (collegiate level)
80—02  Advanced exposition (research surveys, etc.)
80—03  Historical
80—04  Explicit machine computation and programs (not the theory of computation or programming)
80A05  Foundations
80A10  Classical thermodynamics
80A15  Thermodynamics of mixtures
80A20  Heat and mass transfer
80A25  Combustion, interior ballistics
80A30  Chemical kinetics
80A35  Mathematically heuristic classical thermodynamics (must also be assigned at least one other classification number in this section)

81—XX QUANTUM MECHANICS

81—00  Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
81—01  Elementary exposition (collegiate level)
81—02  Advanced exposition (research surveys, etc.)
81—03  Historical
81—04  Explicit machine computation and programs (not the theory of computation or programming)
81A06  Relativistic theory
81A09  Selfadjoint operator theory in quantum mechanics, essential selfadjointness of the Hamiltonian
81A10  Perturbation theory
81A12  Logical foundations of quantum mechanics

Morash, Ronald P.

81A15  Feynman integrals and graphs, applications of algebraic topology and algebraic geometry to these problems
81A17  Axiomatic quantum field theory; operator algebras
81A18  Constructive quantum field theory; models of quantum fields
81A19  Renormalization theory
81A20  Commutation relations

Prosser, Reese T.

81A24  Bethe-Salpeter equation
81A27  Current algebra
81A30  Broken symmetries
81A33  Covariant wave equations
81A36  Strong interaction
81A39  Electromagnetic interaction
81A42  Weak interaction
81A45  Potential scattering theory [For WKB methods, see also 34E20.]
81A48  S-matrix theory and other scattering theory
81A51  Dispersion theory
81A54  Applications of group theory to elementary particles
81A57  Other elementary particle theory
81A60  Applications of group theory to nuclear physics
81A63  Other nuclear physics
81A66  Applications of group theory to atomic physics
81A69  Other atomic physics
<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>81A72</td>
<td>Applications of group theory to molecular physics</td>
</tr>
<tr>
<td>81A75</td>
<td>Other molecular physics</td>
</tr>
<tr>
<td>81A78</td>
<td>General group representation motivated by physics but not covered by 81A54, 81A60, 81A66, 81A72, representations of concrete classical groups such as SL(n,C), U(p,q), etc.</td>
</tr>
<tr>
<td>81A81</td>
<td>Quantum mechanics of many-body systems</td>
</tr>
<tr>
<td>81A84</td>
<td>Superconductivity and superfluidity</td>
</tr>
<tr>
<td>81A87</td>
<td>Mathematically heuristic quantum mechanics (must also be assigned at least one other classification number in this section)</td>
</tr>
<tr>
<td>82—XX</td>
<td>STATISTICAL PHYSICS, STRUCTURE OF MATTER</td>
</tr>
<tr>
<td>82—00</td>
<td>Difficult to classify at the second level (must also be assigned at least one other classification number in this section)</td>
</tr>
<tr>
<td>82—01</td>
<td>Elementary exposition (collegiate level)</td>
</tr>
<tr>
<td>82—02</td>
<td>Advanced exposition (research surveys, etc.)</td>
</tr>
<tr>
<td>82—03</td>
<td>Historical</td>
</tr>
<tr>
<td>82—04</td>
<td>Explicit machine computation and programs (not the theory of computation or programming)</td>
</tr>
<tr>
<td>82A05</td>
<td>Mathematical general statistical mechanics</td>
</tr>
<tr>
<td>82A15</td>
<td>Mathematical quantum statistical mechanics</td>
</tr>
<tr>
<td>82A25</td>
<td>Phase transitions</td>
</tr>
<tr>
<td>82A30</td>
<td>Statistical thermodynamics [See also 80—XX.]</td>
</tr>
<tr>
<td>82A35</td>
<td>Irreversible thermodynamics</td>
</tr>
<tr>
<td>82A40</td>
<td>Kinetic theory of gases</td>
</tr>
<tr>
<td>82A45</td>
<td>Plasma</td>
</tr>
<tr>
<td>82A50</td>
<td>Liquids</td>
</tr>
<tr>
<td>82A55</td>
<td>Solids</td>
</tr>
<tr>
<td>82A60</td>
<td>Crystals</td>
</tr>
<tr>
<td>82A65</td>
<td>Metals</td>
</tr>
<tr>
<td>82A70</td>
<td>Transport processes [See also 83D05.]</td>
</tr>
<tr>
<td>85A25</td>
<td>Nuclear reactor theory</td>
</tr>
<tr>
<td>82A75</td>
<td>Nuclear reactor theory</td>
</tr>
<tr>
<td>82A77</td>
<td>Mathematically heuristic statistical physics (must also be assigned at least one other classification number in this section)</td>
</tr>
<tr>
<td>83—XX</td>
<td>RELATIVITY</td>
</tr>
<tr>
<td>83—00</td>
<td>Difficult to classify at the second level (must also be assigned at least one other classification number in this section)</td>
</tr>
<tr>
<td>83—01</td>
<td>Elementary exposition (collegiate level)</td>
</tr>
<tr>
<td>83—02</td>
<td>Advanced exposition (research surveys, etc.)</td>
</tr>
<tr>
<td>83—03</td>
<td>Historical</td>
</tr>
<tr>
<td>83—04</td>
<td>Explicit machine computation and programs (not the theory of computation or programming)</td>
</tr>
<tr>
<td>83A05</td>
<td>Special relativity</td>
</tr>
<tr>
<td>83B05</td>
<td>Observational and experimental questions</td>
</tr>
<tr>
<td>83Cxx</td>
<td>General relativity</td>
</tr>
<tr>
<td>83C05</td>
<td>Einstein's equation</td>
</tr>
<tr>
<td>83C10</td>
<td>Equations of motion</td>
</tr>
<tr>
<td>83C15</td>
<td>Closed form solutions</td>
</tr>
<tr>
<td>83C20</td>
<td>Classes of solutions</td>
</tr>
<tr>
<td>83C25</td>
<td>Approximation procedures, weak fields</td>
</tr>
<tr>
<td>83C30</td>
<td>Asymptotic procedures (radiation, news functions, etc.)</td>
</tr>
<tr>
<td>83C35</td>
<td>Gravitational waves</td>
</tr>
<tr>
<td>83C40</td>
<td>Groups of motions, invariance groups, observation laws, etc.</td>
</tr>
<tr>
<td>83C45</td>
<td>Quantization of the gravitational field</td>
</tr>
<tr>
<td>83C50</td>
<td>Electromagnetic fields</td>
</tr>
<tr>
<td>83C55</td>
<td>Hydrodynamics [See also 76Y05.]</td>
</tr>
<tr>
<td>83C99</td>
<td>None of the above, but in this section</td>
</tr>
<tr>
<td>83D05</td>
<td>Relativistic gravitational theories other than Einstein's</td>
</tr>
<tr>
<td>83Exx</td>
<td>Unified field theories</td>
</tr>
<tr>
<td>83E05</td>
<td>Geometrodynamics</td>
</tr>
</tbody>
</table>
83E10 Asymmetric field theories
83E15 Five- and higher-dimensional theories
83E99 None of the above, but in this section

83F05 Cosmology

85—XX ASTRONOMY AND ASTROPHYSICS {For celestial mechanics, see 70F15. }
85—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
85—01 Elementary exposition (collegiate level)
85—02 Advanced exposition (research surveys, etc.)
85—03 Historical
85—04 Explicit machine computation and programs (not the theory of computation or programming)
85A05 Galactic and stellar dynamics
85A10 Astronomatics
85A15 Stellar structure
85A20 Stellar atmospheres
85A25 Radiative transfer
85A30 Hydrodynamic and hydromagnetic problems [See also 76Y05.]
85A35 Statistical astronomy
85A40 Cosmology [For relativistic cosmology, see 83F05.]
85A45 Radio astronomy

86—XX GEOPHYSICS {See also 73Nxx, 76U05, 76V05. }
86—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
86—01 Elementary exposition (collegiate level)
86—02 Advanced exposition (research surveys, etc.)
86—03 Historical
86—04 Explicit machine computation and programs (not the theory of computation or programming)
86A05 Hydrology, hydrography, oceanography
86A10 Meteorology
86A15 Seismology
86A20 Potentials, prospecting
86A25 Geo-electricity and geomagnetism
86A30 Geodesy, mapping problems
86A35 Atmospheric physics

90—XX ECONOMICS, OPERATIONS RESEARCH, PROGRAMMING, GAMES
90—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
90—01 Elementary exposition (collegiate level)
90—02 Advanced exposition (research surveys, etc.)
90—03 Historical
90—04 Explicit machine computation and programs (not the theory of computation or programming)

90Axx Mathematical economics
{For econometrics, see 62P20.}
90A05 Decision theory [See also 62Cxx.]
90A10 Utility theory
90A15 Economic models
90A20 Economic time series analysis [See also 62M10.]
90A99 None of the above, but in this section

90Bxx Operations research and management science
90B05 Logistics, inventory, storage
90B10 Flows in networks, deterministic
90B15 Flows in networks, probabilistic
90B20 Highway traffic
90B25 Reliability and maintenance [See also 60K20, 62N05.]
90B30 Production theory
808
SUBJECT INDEX FOR VOLUMES 21-30 [Dec.

90B35 Scheduling theory
90B40 Search theory
90B99 None of the above, but in this section

90Cxx Mathematical programming
[For dynamic programming, see 49Cxx; for papers emphasizing calculus of variations or involving abstract spaces, see 49Dxx.]
90C05 Linear programming
90C10 Integer programming
90C15 Stochastic programming
90C20 Quadratic programming
90C25 Convex programming
90C30 Nonlinear programming
90C35 Network programming, programming in networks
90C40 Markov programming
90C45 Markov renewal programming
90C50 Applications of mathematical programming
90C99 None of the above, but in this section

90Dxx Game theory
90D05 2-person zero-sum games
90D10 n-person games, noncooperative
90D12 n-person games, cooperative, solution concepts
Parthasarathy, T.
90D13 Games for a continuum of players
90D15 Multistage games, stochastic [See also 93E05.]
90D20 Multistage games, recursive
90D25 Differential games
90D30 Utility theory [See also 90A10.]
90D35 Decision theory [See also 62Cxx, 90A05.]
90D40 Game theory models [See also 65Cxx, 68A55.]
90D45 Applications of game theory
90D99 None of the above, but in this section

92—XX BIOLOGY AND

BEHAVIORAL SCIENCES
92—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
92—01 Elementary exposition (collegiate level)
92—02 Advanced exposition (research surveys, etc.)
92—03 Historical
92—04 Explicit machine computation and programs (not the theory of computation or programming)
92A05 Biology [See also 73Pxx, 76Zxx.]
92A10 Genetics
92A15 Population dynamics, epidemiology
92A20 Sociology
92A25 Psychology

93—XX SYSTEMS, CONTROL
[For optimal control (nonstochastic), see 49—XX.]
93—00 Difficult to classify at the second level (must also be assigned at least one other classification number in this section)
93—01 Elementary exposition (collegiate level)
93—02 Advanced exposition (research surveys, etc.)
93—03 Historical
93—04 Explicit machine computation and programs (not the theory of computation or programming)

93Axx General
93A05 Axiomatic system theory
93A10 General systems
93A15 Large scale systems (approximation techniques)
93A99 None of the above, but in this section

93Bxx Controllability, observability, and system structure
93B05 Controllability, observability, definitions and criteria
93B10 Canonical structure
93B15 Realizability of systems from input-output data
93B20 Minimal systems representations
93B25 Algebraic theory of time-invariant systems
93B30 System identification
93B35 Sensitivity
93B99 None of the above, but in this section

93Cxx Control systems, guided systems
93C05 Linear
93C10 Nonlinear
93C15 Systems governed by ordinary differential equations
93C20 Systems governed by partial differential equations
93C22 Systems governed by integral equations
93C25 Systems in abstract spaces
93C30 Systems governed by functional relations other than differential or integral equations
93C40 Adaptive
  Block, Henry David
  Levin, Simon A.
93C45 Time-invariant
93C50 Time-dependent
93C55 Discrete-time
93C60 Continuous-time
93C99 None of the above, but in this section

93Dxx Stability
93D05 Lyapunov stability
93D10 Popov-type stability of feedback systems
93D15 Stabilization of systems by feedback
93D99 None of the above, but in this section

93Exx Stochastic systems and control
93E05 Stochastic games, stochastic differential games
62A10 The likelihood approach

93E10 Estimation problems (filtering, prediction, data smoothing, system identification)
93E15 Stochastic stability
93E20 Optimal stochastic control (continuous parameter)
93E25 Computational methods
93E99 None of the above, but in this section

94—XX INFORMATION AND COMMUNICATION, CIRCUITS, AUTOMATA
  For papers in pattern recognition, linguistics and formal languages, see 68A30, 68A45.
94—00 Difficult to classify at the second level (must also be assigned at least one other classification number in
  this section)
94—01 Elementary exposition (collegiate level)
94—02 Advanced exposition (research surveys, etc.)
94—03 Historical
94—04 Explicit machine computation and programs (not the theory of computation or programming)
94A05 Communication theory [See also 60J30.]
94A10 Coding theory
94A15 Information theory [See also 62B10.]
94A20 Circuits, networks; applications of graph theory and Boolean algebra
  Rosenfeld, M.
94A25 Sequential machines
94A30 Automata, general [See also 02F10, 18B20, 68A25.]
  Sipser, Rani
  Bednarek, Alexander R.
  Levin, Simon A.
  Block, Henry David
94A35 Probabilistic automata
  Santos, Eugene S.
62F10 Estimation