Proceedings of the American Mathematical Society

This journal is devoted entirely to research in pure and applied mathematics. The following statement was adopted by order of the Council of the American Mathematical Society on January 22, 1975.

Statement of Editorial Policy

To be published in the Proceedings, a paper must be correct, new, nontrivial and significant. Further, it must be well written and of interest to a substantial number of mathematicians. Piecemeal results, such as an inconclusive step toward an unproved major theorem or a minor variation on a known result, are in general not acceptable for publication. Proceedings Editors shall solicit, and encourage publication of, worthy papers of length not exceeding 11 typed pages.

Blind Refereeing: Author's Responsibility

In January, 1975, the Council of the Society selected the Proceedings for a two-year experiment with “blind refereeing”. Policy now in effect is that an author submitting a paper to the Proceedings shall send two manuscripts: one containing all pertinent personal data and the other not containing the author’s name or institutional affiliation. This second copy will be refereed, and the Editor shall not reveal the name or institution of the author to the referee. It is not the responsibility of the Editor to suppress evidence internal to the paper, including the bibliography, from which the referee might determine the author’s identity.

Authors are cautioned that the Editor may not initiate the refereeing process until two copies of the manuscript have been received from the author.

PUBLICATION CHARGES: The research journals of the American Mathematical Society carry a page charge of $40.00 per page to help defray the cost of publication. This amount is charged to the institution or to a contract supporting the research reported in the published paper. The publication charge policy of the United States Federal Council for Science and Technology (FCST) is reported on page 112 of the February, 1975 issue of the NOTICES of the American Mathematical Society. In no case is the author personally responsible for paying the page charge, nor is acceptance of the author’s paper for publication dependent upon payment of the page charge.

SUBSCRIPTION INFORMATION: Subscription prices for Volumes 62—67 (1977) are list $132.00, member $66.00. Subscription prices for Volumes 68—72 (1978) are list $135.00, member $67.50. Back number prices per volume for Volumes 1—53 (1950—1975) are list $30.00, member $22.50; for Volumes 54—61 (1976), list $34.00, member $25.50.

BACKLOG: None. Papers currently being received by the editors will be published in 9—11 months.

MICROFILM EDITIONS: Back volumes of PROCEEDINGS are also available on 16 mm microfilm, either negative or positive, and may be mounted on spools or in Eastman or 3M cartridges. Volumes 1—61 (1950—1976) are mounted on 12 spools and cost $620.00 for spools or $662.00 for cartridges. Only current subscribers are eligible to purchase back volumes on microfilm.

THE PROCEEDINGS OF THE AMERICAN MATHEMATICAL SOCIETY is published monthly. Subscriptions and orders for publications of the American Mathematical Society should be addressed to the American Mathematical Society, P. O. Box 1571, Annex Station, Providence, R. I. 02901. All orders must be accompanied by payment. Other correspondence should be addressed to P. O. Box 6248, Providence, R. I. 02940.

Second class postage paid at Providence, Rhode Island, and additional mailing offices.

U. S. Postal Service Publication No. 445600.
Copyright © American Mathematical Society 1978,
Printed in the United States of America
AUTHOR INDEX

1977
Volumes 62–67

Throughout this Index, bold numerals are used to denote the volume number; lightface numerals denote the pages.

*Starred items are "Shorter Notes".

Abi-Khuzam, Faruk F. An Abelian theorem for a class of subharmonic functions, 67, 253.
Abramovich, Shoshana. A note on comparison theorems, 65, 262.
Acker, Andrew. Isoperimetric inequalities involving heat flow under linear radiation conditions, 64, 265.

———. An isoperimetric inequality involving conformal mapping, 65, 230.
Adams, William W. and Davison, J. L. A remarkable class of continued fractions, 65, 194.
Adimoolam, C. A note on good reduction of simple abelian varieties, 64, 196.
Akyildiz, Ersan. A vector field with one zero on G/P, 67, 32.
Alexander, Ralph. Two notes on metric geometry, 64, 317.
Alexander, S. Locally convex hypersurfaces of negatively curved spaces, 64, 321.
Allegretto, W. Nonoscillation criteria for elliptic equations in conical domains, 63, 245.
Alonso, J. Groups of order pqm with elementary Abelian Sylow q-subgroups, 65, 16.
Al-Salam, Waleed A. and Ismail, Mourad E. H. Reproducing kernels for q-Jacobi polynomials, 67, 105.
Amma, K. Nirmala Kumari, A note on two congruences on a groupoid, 65, 204.
*Anantharaman, R. The range of a vector measure has the Banach-Saks property, 66, 183.
Appelgate, H. and Onishi, H. Coincident pairs of continuous sections in profinite groups, 63, 217.
Arnold, James E., Jr. A solution of a problem of Steenrod for cyclic groups of prime order, 62, 177.
Ball, Joseph A. Rota's theorem for general functional Hilbert spaces, 64, 55.
*Ball, J. M. Strongly continuous semigroups, weak solutions, and the variation of constants formula, 63, 370.
Ballard, John W. Groups with an Abelian Sylow subgroup, 67, 206.
Barth, Theodore J. Some counterexamples concerning intrinsic distances, 66, 49.
Basener, Richard F. Peak points, barriers, and pseudoconvex boundary points, 65, 89.
Baston, V. J. and Bostock, F. A. An incidence theorem for a class of continuous real functions, 64, 295.
Bechtell, Homer. Inseparable finite solvable groups. II, 64, 25.
Beauvergarden, Raymond A. Left and right invariance in an integral domain, 67, 201.

———. *Generators for G bordism*, 67, 335.


Bell, Wayne C. *On the normability of the intersection of L̂₀ spaces*, 66, 299.

Belna, Charles L. and Muckenhoupt, Benjamin. *The derivative of the atomic function is not in E²/₂*, 63, 129.


Benzinger, Harold E. *A canonical form for a class of ordinary differential operators*, 63, 281.

Berlinghoff, W. P. and Reid, J. D. *Quasi-pure projective and injective torsion groups*, 65, 189.


Bishop, Richard L. *Decomposition of cut loci*, 65, 133.


Block, Louis. *Mappings of the interval with finitely many periodic points have zero entropy*, 67, 357.


Bostock, F. A. See Baston, V. J.


Božek, Marek. *Set of uniqueness on noncommutative locally compact groups*, 64, 93.

Bragg, Louis R. *Some abstract Cauchy problems in exceptional cases*, 65, 105.

Breen, Marilyn. *Sets which can be extended to m-convex sets*, 62, 124.

Broughan, Kevin. *Four metric conditions characterizing Čech dimension zero*, 64, 176.

Broverman, S. *N-compactness and weak homogeneity*, 62, 173.

Brown, Jack B. *A measure theoretic variant of Blumberg’s theorem*, 66, 266.


Bruckner, A. M. *Differentiability a.e. and approximate differentiability a.e.,* 66, 294.


Buchner, Michael A. *Simplicial structure of the real analytic cut locus*, 64, 118.


———. *Inequalities between intrinsic metrics*, 67, 50.

Burgess, C. E. *Spheres in E³ which are homogeneous over a 0-dimensional set*, 63, 171.

Burns, John T. *Curvature forms for Lorentz 2-manifolds*, 63, 134.

Burns, R. G., Chau, T. C. and Solitar, D. *On the intersection of free factors of a free group*, 64, 43.


Butz, Jeffrey R. *Unitary parts of contractive Hankel matrices*, 66, 91.

———. *Unitary parts of generalized Toeplitz operators*, 66, 95.

Caffarelli, Luis A. and Riviere, Nestor M. *The smoothness of the elastic-plastic free boundary of a twisted bar*, 63, 56.

INDEX TO VOLUMES 62–67

365

Callahan, Francis P. Deformations of a two-generator purely inseparable field of exponent 1, 62, 189.


Campbell, Stephen L. and Gellar, Ralph. On asymptotic properties of several classes of operators, 66, 79.


Cardoso, Fernando and Hounie, Jorge. Global solvability of an abstract complex, 65, 117.


Carpenter, Ronn L. Accessible points in the spectrum of a Fréchet algebra, 63, 101.

Carroll, F. W. See Bonar, D. D.

Casazza, P. G., Lin, Bor-Luh and Lohman, R. H. On James’ quasi-reflexive Banach space, 67, 265.

Certain, Melinda W. and Kurtz, Thomas G. Landau-Kolmogorov inequalities for semigroups and groups, 63, 226.

Cesari, L. and Kannan, R. An abstract existence theorem at resonance, 63, 221.

Chandler, J. D., Jr. A generalization of a theorem of S. N. Bernstein, 63, 95.


Chattopadhyay, K. C. and Vasudeva, H. L. A characterization of Riesz proximities, 64, 163.

Chau, T. C. See Burns, R. G.


Cheng, Martin Fan. On continuity of fixed points of collectively condensing maps, 63, 74.


Chichra, Pran Nath. New subclasses of the class of close-to-convex functions, 62, 37.

Choi, Un Haing. A curvilinear extension of Iversen-Tsuji’s theorem for simply connected domains, 64, 47.

*Chung, Lung Ock. A simple proof about positive harmonic functions on $\mathbb{R}^n$, 65, 187.

Churchill, R. C., Franke, John and Selgrade, James. A geometric criterion for hyperbolicity of flows, 62, 137.

Clarke, Frank H. Multiple integrals of Lipschitz functions in the calculus of variations, 64, 260.

Cliff, Gerald H. and Sehgal, Sudanshan K. On the trace of an idempotent in a group ring, 62, 11.

Cochran, James A. An extension of an operator inequality for s-numbers, 65, 44.

Cohn, P. M. A construction of simple principal right ideal domains, 66, 217.


Cook, T. A. See Béaver, O. R.

Coppersmith, Don. A family of Lie algebras not extendible to a family of Lie groups, 66, 365.

Costa, David G. Equipartition of energy for a class of second order equations, 64, 65.

Cuntz, J. See Behncke, H.


Dai, Taen-Yu and DeMarr, Ralph. Isotone functions on partially ordered linear algebras with a multiplicative diagonal map, 65, 11.

Dale, Louis. The k-closure of monic and monic free ideals in a polynomial semiring, 64, 219.

Davenport, John W. *The strict dual of B*-algebras*, 65, 309.

Davies, Roy O. See Bruckner, A. M.

Davis, Harvey S. *Relationships between continuum neighborhoods in inverse limit spaces and separations in inverse limit sequences*, 64, 149.

Davison, J. L. *A series and its associated continued fraction*, 63, 29.

Dayal, S. *A converse of Taylor’s theorem for functions on Banach spaces*, 65, 265.

Dearden, Bruce. See McKennon, Kelly.


Deddens, J. A. See Bunce, J. W.

DeMarr, Ralph. See Dai, Taen-Yu.

Demko, Stephen. *A superposition theorem for bounded continuous functions*, 66, 75.

De Temple, Duane W. and Jenkins, James A. *A Loewner approach to a coefficient inequality for bounded univalent functions*, 65, 125.

Diananda, P. H. and Subbarao, M. V. *On the Schnirelmann density of the k-free integers*, 62, 7.

Dickman, R. F., Jr. See Vinson, T. O., Jr.

* Dobbs, David E. and Papick, Ira J. *Flat or open implies going down*, 65, 370.

Dombrowski, J. *Positive perturbations of unbounded operators*, 64, 287.

Dors, A. George. *A Fréchet algebra example*, 64, 62.

van Douwen, Eric K. *An unbaireable stratifiable space*, 67, 324.

van Douwen, Eric K., Tali, Franklin D. and Weiss, William A. R. *Nonmetrizable hereditarily Lindelöf spaces with point-countable bases from CH*, 64, 139.

Dubins, Lester E. *Measurable, tail disintegrations of the Haar integral are purely finitely additive*, 62, 34.


Dym, Harry and Shapiro, Isidor. *Conditions for restricted translation operators to belong to Sp*, 63, 251.

Earnest, A. G. *Spinor genera of unimodular Z-lattices in quadratic fields*, 64, 189.

Edelstein, M., Keener, L. and O’Brien, R. *On points at which a set is cone-shaped*, 66, 327.


Edmonds, Allan L. *Taming free circle actions*, 62, 337.

Elaydi, Saber and Lam, Ping-Fun. *Preferred sets in topological dynamics*, 63, 334.

Eliaš, Uri. *Nonoscillation and eventual disconjugacy*, 66, 269.


Entrerínger, R. C. and Slater, Peter J. *A note on k-critically n-connected graphs*, 66, 372.


Erdős, Paul. See Bonar, D. D.

Ewell, John A. *Recurrences for the sum of divisors*, 64, 214.

Faith, Carl. *Injective cogenerator rings and a theorem of Tachikawa II*, 62, 15.


Fauntleroy, A. On Weitzenböck's theorem in positive characteristic, 64, 209.

Feintuch, Avraham. On algebras generated by invertible operators, 63, 66.

Ferguson, Pamela. On $\pi'$-closure of $\pi$-homogeneous groups, 66, 9.

Ferry, Steve. Approximate fibrations with nonfinite fibers, 64, 335.

Fields, K. L. A curiosity concerning the degrees of the characters of a finite group, 62, 25.

Finkelstein, Larry. Finite groups with a standard component whose centralizer has cyclic Sylow 2-subgroups, 62, 237.

Fintushel, Ronald and Pao, Peter Sie. Identification of certain 4-manifolds with group actions, 67, 344.

Fitzpatrick, S. P. Continuity of nonlinear monotone operators, 62, 111.


Fleissner, William G. The character of $\omega_1$ in first countable spaces, 62, 149.

Fong, Che-Kao. On commutants of reductive algebras, 63, 111.  
———. On analyticity of local resolvents and existence of spectral subspaces, 65, 99.


Frunke, John. See Churchill, R. C.

Froehlich, John M. Holonomy invariant cochains for foliations, 62, 161.

Gabor, I. J. P. Sums of independent random variables and the Burkholder transforms, 66, 123.

Garsia, A. M. and Joni, S. A. A new expression for umbral operators and power series inversion, 64, 179.

Gebur, Mary E. The Markoff spectrum and minima of indefinite binary quadratic forms, 63, 17.

Gell, Ralph. See Campbell, Stephen L.

Gerber, Joseph L. The sum of the reciprocals of a set of integers with no arithmetic progression of $k$ terms, 62, 211.

Ghatage, P. Growth conditions and similarity orbits, 65, 127.


Ginsburg, John. A topological version of $\omega$, 65, 142.

Ginsburg, John and Woods, R. Grant. A cardinal inequality for topological spaces involving closed discrete sets, 64, 357.

Goffman, C. See Bruckner, A. M.

Goldschmidt, David M. Abstract reflections and Coxeter groups, 67, 209.

Goldstein, Jerome A. On the absence of necessary conditions for linear evolution operators, 64, 77.


Goodman, A. W. The domain covered by a typically-real function, 64, 233.  
———. The domain of univalence of certain families of rational functions, 66, 85.

Goodykoontz, Jack T., Jr. More on connectedness im kleinen and local connectedness in $C(X)$, 65, 357.  
———. $C(X)$ is not necessarily a retract of $2^X$, 67, 177.
Govaerts, W. *The class of compact* spaces is productive and closed hereditary, 66, 167.

Govil, N. K. *An inequality for functions of exponential type not vanishing in a half-plane*, 65, 225.


Goto, Shiro. *A problem on Noetherian local rings of characteristic* $p$, 64, 199.

Grätzer, George and Kelly, David. *When is the free product of lattices complete?*, 66, 6.

Gray, L. J. *Operators commuting with a compact quasiaffinity*, 63, 263.


Green, Mark L. *The hyperbolicity of the complement of $2n + 1$ hyperplanes in general position in* $P_n$, and related results, 66, 109.

Green, Sherry M. *Generators and relations for the special linear group over a division ring*, 62, 229.


Grimm, L. J. See Fitzpatrick, W. J.


Groner, Robert. *Decomposable tensors as a quadratic variety*, 64, 227.


Haagerup, Uffe. *An example of a weight with type III centralizer*, 62, 278.

*Hackler, Donald. *Compact groups of real power need not be metrizable*, 63, 187.

Haggarty, R. J. *On the heights of group characters*, 63, 213.

Hager, Anthony W. *Uniformities induced by cozero and Baire sets*, 63, 153.

Hagopian, Charles L. *Addendum to "A fixed point theorem for hyperspaces of λ connected continua"*, 62, 374.

Hahn, Marjorie G. *A note on the central limit theorem for square-integrable processes*, 64, 31.

Hannah, John and O’Meara, K. C. *Maximal quotient rings of prime group algebras*, 65, 1.

Hanson, F., Steele, J. M. and Stenger, F. *Distinct sums over subsets*, 66, 179.


Harper, L. H. *An $n$ log $n$ lower bound on synchronous combinatorial complexity*, 64, 300.

Harte, Robin. See Buoni, John J.

Hartfiel, D. J. *On measures of column indecomposability*, 63, 189.


Hartmann, Frederick W. *Linear homeomorphisms of some classical families of univalent functions*, 63, 265.

Hasanis, Thomas. See Koufogiorgos, Themis.


Kato, Akio. A note on pseudocompact spaces and $k_R$-spaces, 63, 175.
Keener, L. See Edelstein, M.
Keisler, H. Jerome. The monotone class theorem in infinitary logic, 64, 129.
Keisler, Michael. A type of nearest point set in a complete l-group, 67, 189.
Kelley, Walter G. Second order systems with nonlinear boundary conditions, 62, 287.
Kelly, David. See Gratzer, George.
Kelly, E. P., Jr. See Treese, G. W.
Khurana, Surjit Singh. Convergent sequences of $\tau$-smooth measures, 63, 137.
———. A note on a paper of J. D. Stein, Jr., 67, 74.
Kim, Ki Hang and Roush, Fred W. Linear representations of semigroups of Boolean matrices, 63, 203.
*Kim, Ki Hang, Roush, Fred W. and Shönfeld, Wolfgang. On the residual finiteness of free semigroups and composition of Boolean matrices, 63, 188.
Kim, Paik Kee. Orientation-reversing periodic PL maps of lens spaces, 64, 351.
Kim, W. J. Monotone and oscillatory solutions of $y^{(n)} + py = 0$, 62, 77.
Klembeck, Paul F. A complete Kähler metric of positive curvature on $C^n$, 64, 313.
Knight, Ronald A. A characterization of certain compact flows, 64, 52.
Knill, Ronald J. The Lefschetz fixed point theorem for compact groups, 66, 148.
Knus, M.-A. and Ojanguren, M. Modules and quadratic forms over polynomial algebras, 66, 223.
Kobayashi, Yuji. Conditions for commutative semigroups to have nontrivial homomorphisms into nonnegative (positive) reals, 65, 199.
Kondo, Shoichi. A property of finite p-groups, 67, 35.
Koubek, Václav. See Trnkova, Věra.
Koufogiorgos, Themis and Hasanis, Thomas. A characteristic property of the sphere, 67, 303.
Kreith, Kurt. Comparison theorems for a class of selfadjoint fourth order differential equations, 67, 67.
Kriete, Thomas and Trent, Tavan. Growth near the boundary in $H^2(\mu)$ spaces, 62, 83.
Kuan, Shen-Yue. Some invariant properties on summability domains, 64, 248.
Kurtz, Thomas G. See Certain, Melinda W.
Kutzko, P. C. Mackey's theorem for nonunitary representations, 64, 173.
Labute, John P. The lower central series of the group $(x, y:x^p = 1)$, 66, 197.
Lair, Alan V. A unique continuation theorem involving a degenerate parabolic operator, 66, 41.
370 INDEX TO VOLUMES 62–67

Hennefeld, Julien. Asymptotic nonbases which are not subsets of maximal asymptotic non-bases, 62, 23.

Hensley, Douglas. Simple continued fractions and special relativity, 67, 219.

Herdman, Terry L. Behavior of maximally defined solutions of a nonlinear Volterra equation, 67, 297.

Herrero, Domingo A. Indecomposable compact perturbations of the bilateral shift, 62, 254.
———. Quasisimilarity does not preserve the hyperlattice, 65, 80.


Herrmann, Robert A. Erratum to “The Q-topology, Whyburn type filters and the cluster set map”, 65, 375.


Hochstadt, Harry. On a Hill’s equation with double eigenvalues, 65, 373.

Holmes, J. P. Continuous homomorphisms are differentiable, 65, 277.

Hoover, T. B. Derivations, homomorphisms, and operator ideals, 62, 293.


Hoppe, Fred M. Convex solutions of a Schröder equation in several variables, 64, 326.

Hounie, Jorge. See Cardoso, Fernando.

Hsiung, Chuan-Chih and Mugridge, Larry R. Conformal invariants of submanifolds, 62, 316.

Huckabay, Gary M. Properties of standard maps, 64, 169.

Huggins, Frank N. Bounded slope variation and generalized convexity, 65, 65.

Hu, Tadashi. The normed space numerical index of C*-algebras, 63, 289.

Husch, L. S. Diffeomorphisms of 3-manifolds which are homotopy equivalent to $S^1$, 63, 327.

Isaac, Richard. Generalized Hewitt-Savage theorems for strictly stationary processes, 63, 313.

Isaacs, I. M. Linear groups as stabilizers of sets, 62, 28.
———. See Benkart, G. M.

Ishihara, Toru. The index of a holomorphic mapping and the index theorem, 66, 169.


Jackson, David A. Schur multipliers of some finite nilpotent groups, 66, 1.

Jamison, Robert E. Contractions of convex sets, 62, 129.


Jenkins, James A. See De Temple, Duane W.

Johnson, Kenneth D. Remarks on a theorem of Koranyi and Malliavin on the Siegel upper half plane of rank two, 67, 351.

Joni, S. A. See Garsia, A. M.


Kalka, M. See Duchamp, T.


Katchalski, Meir. A Helly type theorem on the sphere, 66, 119.
Lal, S. N. and Ram, Siya. The absolute summability of Fourier series of a function of Wiener's class by Nörlund means, 67, 87.

Lam, Ping-Fun. See Elaydi, Saber.

Lambert, Howard. Longitude surgery on genus 1 knots, 63, 359.


Lau, Anthony To-Ming. Extension of invariant linear functionals: A sequel to Fan's paper, 63, 259.

Lawrence, John. A countable self-injective ring is quasi-Frobenius, 65, 217.


Legg, David and Ward, Joe. Essentially Hermitian operators on $l_1$ are compact perturbations of Hermitians, 67, 224.

Lehn, Jürgen, Remark on measurable graph theorems, 63, 46.

Leitzel, James R. C. Congruence function fields of genus $g$ and class number $g + 1$, 64, 20.

Lestmann, Phillip. Simple going down in PI rings, 63, 41.


Levy, Ronnie. Compactification by the topologist's sine curve, 63, 324.

Lewin, J. See Bedoya, H.

Lewis, Ted. On the duality between smoothability and dentability, 63, 239.

Liang, Chao-Chu. An algebraic classification of some links of codimension two, 67, 147.

Libgober, A. A geometrical procedure for killing the middle dimensional homology groups of algebraic hypersurfaces, 63, 198.

Lichtman, A. On subgroups of the multiplicative group of skew fields, 63, 15.

Lim, Teck-Cheong. Fixed point theorems for mappings of nonexpansive type, 66, 69.

*Lima, Åsvald. A note on the extension of compact operators, 64, 374.

Lin, Bor-Luh. See Casazza, P. G.


Linton, Ronald and Megibben, Charles. Extensions of totally projective groups, 64, 35.

Lipitaks, J. S. On a problem of Bruckner and Ceder concerning the sum of Darboux functions, 62, 57.

Lipshitz, Leonard, Undecidable existential problems for addition and divisibility in algebraic number rings. II, 64, 122.

Little, Robert D. Minimal immersions of low dimensional manifolds, 66, 347.

Livingston, Albert E. Weakly starlike meromorphic univalent functions. II, 62, 47.

Lohman, R. H. See Casazza, P. G.

Looney, Carl G. Operator minimax theorems in Banach lattices, 65, 303.

McArthur, Charles W. See May, Roger W.

McCann, Roger. Lower bounds for the zeros of Bessel functions, 64, 101.

McConnell, J. C. Representations of solvable Lie algebras. IV: An elementary proof of the $(U/P)^\ell$-structure theorem, 64, 8.

McCoy, Peter A. Extremal properties of real axially symmetric harmonic functions in $E^3$, 67, 248.

McKennon, Kelly and Dearden, Bruce. Functional equations for polynomials, 63, 23.

Maclachlan, C. Note on the Hurwitz-Nielsen realisation problem, 64, 87.

MacRae, R. E. On rational points on conics, 67, 38.
Maddox, I. J. *Matrix maps of bounded sequences in a Banach space*, 63, 82.

Mah, P. and Naimpally, S. A. *Open and uniformly open relations*, 66, 159.

Mai-Guo. See Kranz, Przemysław.

Maiti, M. See Pal, T. K.

Makkai, M. and Mycielski, J. *An $L_{\omega_1\omega}$ complete and consistent theory without models*, 62, 131.

Makkai, M. See Harnik, V.

Malone, J. J. *More on groups in which each element commutes with its endomorphic images*, 65, 209.

Mann, Avinoam. *Addendum to “The intersection of Sylow subgroups”*, 62, 188.


Marcus, Moshe and Mizel, Victor J. *Measurability of partial derivatives*, 63, 236.

Marin, A. See Fathi, A.


Martin, Robert. See Boyer, Robert.

Martinez, Jorge. *Is the lattice of torsion classes algebraic?*, 63, 9.

Marty, R. H. *Sequential continuity in dyadic spaces*, 66, 363.

Maruster, St. *Quasi-nonexpansivity and two classical methods for solving nonlinear equations*, 62, 119.


Megibben, Charles. See Linton, Ronald.

Mendes, P. *On Anosov diffeomorphisms on the plane*, 63, 231.

Michael, E. *o-locally finite maps*, 65, 159.


Milman, P. *On the nonexistence of a projection from functions of x to functions of $x^n$*, 63, 87.


Mizel, Victor J. See Marcus, Moshe.


Moore, Calvin C. and Repka, Joe. *A reciprocity theorem for tensor products of group representations*, 64, 361.

Moore, Robert L. *Hyperinvariant subspaces of reductive operators*, 63, 91.

———. *Operators in the commutant of a reductive algebra*, 66, 99


Muckenhoup, Benjamin. See Belna, Charles L.

Mugridge, Larry R. See Hsiung, Chuan-Chih.

Muldowney, James S. *A disconjugacy criterion for linear scalar differential operators*, 65, 93.
Murasugi, Kunio. On a group that cannot be the group of a 2-knot, 64, 154.
Murphy, Brian B. On the inverses of M-matrices, 62, 196.
Mycielski, J. See Makkai, M.
Myjak, J. See De Blasi, F. S.
Nadler, Sam B., Jr. A characterization of locally connected continua by hyperspace retrac-
tions, 67, 167.
Naimpally, S. A. See Mah, P.
Narcowich, Francis J. On the extreme points of the interval between two operators, 67, 84.
Nel, L. D. See Herrlich, H.
Neugebauer, C. J. The LP modulus of continuity and Fourier series of Lipschitz functions,
64, 71.
Neville, Charles W. A short proof of an inequality of Carleson's, 65, 131.
Newman, Leon Stagg, Jr. Applications of group actions on finite complexes to Hilbert cube
manifolds, 62, 183.
Nickolas, Peter. Reflexivity of topological groups, 65, 137.
Niimura, Mikio. On curvilinear cluster sets on open Riemann surfaces, 62, 117.
———. Cluster sets on open Riemann surfaces, 66, 46.
Noakes, J. L. Power maps and principal bundles, 64, 346.
Nobile, Augusto. A note on flat algebras, 64, 206.
Oberle, Richard A. Generalizations of the Vitali-Hahn-Saks theorem on vector measures, 67,
227.
O'Brien, R. See Edelstein, M.
Oikawa, Kôtarô. See Jenkins, James A.
Oninguren, M. See Knus, M.-A.
Okazawa, N. See Yamamoto, A.
Olson, Roy C. A countably compact k'-space need not be countably bi-k, 62, 144.
O'Meara, K. C. See Hannah, John.
O'Neill, John D. An uncountable Noetherian ring with free additive group, 66, 205.
Onishi, H. See Appelgate, H.
Onose, Hiroshi. See Kusano, Takasi.
Øyma, Knut. Extremal interpolatory functions in $H^p$, 64, 272.
Pakula, Lewis and Sine, Robert. On a theorem of Furstenberg and the structure of topolog-
ically ergodic measures, 65, 52.
Pal, T. K. and Maiti, M. Extensions of fixed point theorems of Rhoades and Ćirić, 64, 283.
Pao, C. V. Nonexistence of global solutions and bifurcation analysis for a boundary-value
problem of parabolic type, 65, 245.
Pao, Peter Sie. See Fintushel, Ronald.
Papastavridis, Stavros. Killing characteristic classes by surgery, 63, 353.
Papick, Ira J. See Dobbs, David E.
Parker, G. Edgar. A class of one-parameter nonlinear semigroups with differentiable approxi-
mating semigroups, 66, 33.
Parsons, Lee. An example of a space which is countably compact whose square is countably
paracompact but not countably compact, 65, 351.
INDEX TO VOLUMES 62–67

Paur, Sandra O. An estimate of the density at the boundary of an integral current modulo \( v \), 62, 319.

Penney, Richard C. Canonical objects in Kirillov theory on nilpotent Lie groups, 66, 175.

Penot, J. P. A remark on the direct method of the calculus of variations, 67, 135.

Peters, Justin. On automorphisms of l. c. groups, 65, 347.


Pisanelli, Domingos. An example of an infinite Lie group, 62, 156.

Plastiras, Joan. \( C^* \)-algebras isomorphic after tensoring, 66, 276.

———. See Hopenwasser, Alan.

Pokrass, David and Rodabaugh, David. Solvable assosymmetric rings are nilpotent, 64, 30.

Power, Stephen. \( H^m(R) + AP \) is closed, 65, 73.

———. Hankel operators with discontinuous symbol, 65, 77.

Prosser, Reese T. Poisson brackets and commutator brackets. I, 62, 305.

———. Poisson brackets and commutator brackets. II, 62, 310.


Quinn, J. and Wong, Raymond, Y. T. Union of convex Hilbert cubes, 65, 171.

Rabinovitch, J. See Maurer, Stephen B.

Rabinowitz, Stanley. The solution of \( y^2 \pm 2y = x^3 \), 62, 1.

Radjali, Mehdi. On majorization and normality of operators, 62, 105.

Radjabipour, Mehdi. On majorization and normality of operators, 62, 105.

Rajput, Balram S. On the support of certain symmetric stable probability measures on TVS, 63, 306.

———. On the support of symmetric infinitely divisible and stable probability measures on LCTVS, 66, 331.

Ram, Babu. Convergence of certain cosine sums in the metric space \( L \), 66, 258.

Ram, Siya. See Lal, S. N.

Rana, Inder K. On a characterization of locally compact groups of second category, assuming the continuum hypothesis, 64, 97.


Rao, B. V. See Rao, M. Bhaskara.


Rauch, Jeffrey. Discontinuous semilinear differential equations and multiple valued maps, 64, 277.

Ray, William O. See Kirk, W. A.

Reid, J. D. See Berlinghoff, W. P.

Reiner, Irving. Erratum to "Integral representations of cyclic groups of order \( p^2 \)"., 63, 374.

Repka, Joe. See Moore, Calvin C.

Retta, Teklehaian. See Comfort, W. W.

Rhoades, B. E. See Ghosh, B. K.
INDEX TO VOLUMES 62–67

Rice, Michael D. A note on uniform paracompactness, 62, 359.
Richmond, L. B. and Subbarao, M. V. On certain weighted partitions and finite semisimple rings, 64, 13.
Rival, Ivan. See Jónsson, Bjarni.
Riviere, Nestor M. See Caffarelli, Luis A.
Roach, F. A. Boundedness of value regions and convergence of continued fractions, 62, 299.
Roark, Charles Winfred. Separable criteria for G-diagrams over commutative rings, 63, 1.
Robinson, Herbert A. An alternative to the Plücker relations, 66, 237.
Rodabaugh, David. See Pokrass, David.
Rödl, V. On the chromatic number of subgraphs of a given graph, 64, 370.
Roitman, Moshe. A note on Quillen’s paper “Projective modules over polynomial rings”, 64, 231.
Rosen, Jay. The Ising model limit of $q^4$ lattice fields, 66, 114.
Rosenberg, Jonathan. A quick proof of Harish-Chandra’s Plancherel theorem for spherical functions on a semisimple Lie group, 63, 143.
Rosinger, Elemer E. Duality and alternative in multiobjective optimization, 64, 307.
Roush, Fred W. See Kim, Ki Hang.
Rynster, David C. Aspherical generators of unoriented cobordism, 66, 44.
Rundell, William and Stecher, Michael. Remarks concerning the supports of solutions of pseudoparabolic equations, 63, 77.
Sarkhel, D. N. The pointwise characterization of derivatives of integrals, 63, 125.
Saltman, David J. Splittings of cyclic p-algebras, 62, 223.
Sato, Ryotaro. An individual ergodic theorem, 65, 235.
Schiff, J. L. Ideal boundaries of a Riemann surface for the equation $\Delta u = Pu$, 66, 57.
Schmerl, James H. $\kappa_0$-categoricity of partially ordered sets of width 2, 63, 299.
Schnare, Paul S. Erratum to “The topological complementation theorem à la Zorn”, 65, 188.
Schneider, H. and Wells, R. A note on the concordance homotopy group of real projective space, 62, 367.
Schober, Glenn. Coefficients of inverses of meromorphic univalent functions, 67, 111.
Schoen, Rolf. Fibrations over a CW-complex, 62, 165.
Schröder, G. See Ratschek, H.
Sehgal, Sudarshan K. See Cliff, Gerald H.
*Sehgal, V. M. A simple proof of a theorem of Ky Fan, 63, 368.
Selgrade, James. See Churchill, R. C.
Sgro, Joseph. Maximal logics, 63, 291.
Shapiro, Isidor. See Dym, Harry.
Sher, R. B. The union of two Hilbert cubes meeting in a Hilbert cube need not be a Hilbert cube, 63, 150.
Shönfeld, Wolfgang. See Kim, Ki Hang.
Siegel, Jerrold. A new proof of Caristi's fixed point theorem, 66, 54.
Sine, Robert. See Pakula, Lewis.
Sjerve, Denis. The Thom space periodicity of classifying spaces, 65, 165.
Slater, Peter J. See Entinger, R. C.
Small, Charles. Sums of powers in large finite fields, 65, 35.
Smilansky, U. See Levit, S.
Smith, John Howard. General trinomials having symmetric Galois group, 63, 208.
Smithson, R. E. Connected and connectivity multifunctions, 64, 146.
Solitar, D. See Burns, R. G.
Solomon, J. L. A note on attractors for compact sets, 65, 293.
Stanek, Jean Chan. Characterizations of strictly monotone sets, 64, 112.
Stanton, Robert O. Relative S-invariants, 65, 221.
Starbird, Michael. A complex which cannot be pushed around in $E^3$, 63, 363.
———. Linear isotopies in $E^3$, 65, 342.
Stecher, Michael. See Rundell, William.
Steele, J. M. See Hanson, F.
Stein, Elliott. On the orbit types in a circle action, 66, 143.
Stenger, F. See Hanson, F.
———. Two notes on nilpotency and standard algebras, 62, 206.
Stong, R. E. Spin manifolds are decomposable, 62, 363.
Stout, Lawrence Neff. Independence theories and generalized zero-one laws, 66, 153.
Strelitz, Sh. A remark on meromorphic solutions of differential equations, 65, 255.
Subbarao, M. V. See Diananda, P. H.
———. See Richmond, L. B.
Sucheston, L. See Edgar, G. A.
Szafraniec, F. H. Dilations on involution semigroups, 66, 30.
Szymański, Andrzej. On the existence of $\omega$-points, 66, 128.
Tall, Franklin D. See van Douwen, Eric K.
Tan, Kok-Keong and Wong, Chi-Song. On some topological problems arising from maps of contractive type, 62, 167.
Tarafdar, E. On nonlinear variational inequalities, 67, 95.
Terada, Toshiji. New topological extension properties, 67, 162.
Terry, Wesley E. F-spaces universal with respect to linear codimension, 63, 59.
Thayer, F. Javier. Almost periodic operators of inner automorphism groups, 63, 119.
Thompson, Travis. Semicontinuous and irresolute images of $S$-closed spaces, 66, 359.
Thorup, Anders. See Foxby, Hans-Bjørn.
Togawa, Yoshio. Generic Morse-Smale diffeomorphisms have only trivial symmetries, 65, 145.

Trent, Tavan. See Kriete, Thomas.


Trutt, D. See Ghosh, B. K.

Tsui, Sze-Kai. A note on generators of semigroups, 66, 305.


Turner, Stuart. On Hilbert class fields in characteristic \( p > 0 \) and their \( L \)-functions, 64, 39.

Utz, W. R. A second order differential equation of T. Otsuki, 64, 238.

Vasudeva, H. L. See Chattopadhyay, K.C.

Vidav, Ivan. The norm of the sum of two projections, 65, 297.

Viehweg, Eckart. Rational singularities of higher dimensional schemes, 63, 6.

Vincent, T. O., Jr. and Dickman, R. F., Jr. Inverse limits and absolutes of \( H \)-closed spaces, 66, 351.

Visetti, Y. M. See Fathi, A.


Wang, E. T. H. See Abbott, H. L.

Ward, Joe. See Legg, David.

Waterhouse, William C. Class groups of rings of invariants, 67, 23.


Weber, Robert James. Attainable sets of quasiconcave markets, 64, 104.

Weese, Martin. The decidability of the theory of Boolean markets with the quantifier "there exist infinitely many", 64, 135.


Weinstein, Gerald. On a conjecture of Graham concerning greatest common divisors, 63, 33.

Weis, L. On perturbations of Fredholm operators in \( L_\alpha(\mu) \)-spaces, 67, 287.

Weiss, Richard. The automorphism group of \( 2F_4(2)' \), 66, 208.

Weiss, William A. R. See van Douwen, Eric K.

Wells, R. See Schneider, H.

*Weston, J. D. A characterization of metric completeness, 64, 186.


Wickstead, Tony. See Buoni, John J.

*Williams, J. P. The numerical range and the essential numerical range, 66, 185.

Williams, Kenneth S. On Scholz's reciprocity law, 64, 45.


Winkelnkemper, H. E. See Stong, R. E.

Winter, David L. See Hayden, John L.


Wong, B. On the automorphism group of compact measure hyperbolic manifolds and complex analytic bundles with compact measure hyperbolic fibres, 62, 54.

———. On the holomorphic curvature of some intrinsic metrics, 65, 57.

Wong, Chi-Song. See Tan, Kok-Keong.

Wong, Raymond. Y. T. See Quinn, J.

Wood, James A. A necessary and sufficient condition that a function on the maximal ideal space of a Banach algebra be a multiplier, 66, 38.

Woods, R. Grant. See Ginsburg, John.

*Wright, David G. Sticky arcs in $E^n$ ($n > 4$), 66, 181.

Wu, Pei Yuan. On contractions satisfying $\text{Alg} T = \{T\}$, 67, 260.

Wu, T. C. A stability theorem on quasi-reflexive operators, 65, 252.


Yang, Paul C. Kähler metrics on fibered manifolds, 63, 131.

Young, Robert M. A best possible extension of the Hausdorff-Young theorem, 65, 97.


Zerling, David. Dense subgroups of Lie groups, 62, 349.

Preparation and Submission of Manuscript

1. Articles for insertion should be typewritten, double spaced, and no more than 11 pages (8½" x 11") long. 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. Authors must keep a complete copy of their manuscript, and editors will acknowledge receipt.

2. 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. The abstract should be at least one complete sentence, and at most 150 words. Included with the footnotes to the 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.

3. Very short notes not to exceed 1 printed page 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.

Reprints and Address Changes

Any inquiries concerning a paper which has been accepted for publication, including information regarding reprints or changes of address for mailing proof, should be sent directly to the Editorial Department, American Mathematical Society, P.O. Box 6248, Providence, Rhode Island 02940.

Galley Proof

When a paper with more than one author has been accepted for publication, only one set of galley proof will be sent. Joint authors should, therefore, indicate which of them should receive galley proof in the event that the manuscript is accepted for publication.
Submission of Manuscript

Send papers directly to one of the editors listed under the subject field of the paper. The numbers in parentheses are the first two digits of major classifications from the AMS (MOS) Subject Classification Scheme (1970) and describe the fields being handled by the editor.

LOGIC AND FOUNDATIONS (02 04)
Paul C. Eklof, Department of Mathematics, University of California, Irvine, California 92717

COMBINATORICS AND DISCRETE MATHEMATICS (05 15)
Thomas H. Pytlowski, Department of Mathematics, University of North Carolina, Chapel Hill, North Carolina 27514

COMMUTATIVE ALGEBRA (06 12 13 14 15 18)
David Eisenbud, Department of Mathematics, Brandeis University, Waltham, Massachusetts 02154

GENERAL ALGEBRA (16 17 18 08)
Robert L. Wilson, Department of Mathematics, Rutgers University, New Brunswick, New Jersey 08903

GROUP THEORY (20)
Norman Blackburn, Department of Mathematics, The University, Manchester M13 9PL, England

ALGEBRAIC AND DIFFERENTIAL TOPOLOGY (55 57 58)
Reinhard E. Schultz, Department of Mathematics, Purdue University, West Lafayette, Indiana 47907

REAL VARIABLES (26 28 40)
J. Jerry Uhl, Jr., Department of Mathematics, University of Illinois, Urbana, Illinois 61801

COMPLEX VARIABLES AND ANALYTIC NUMBER THEORY (10 30 32)
W. E. Kirwan, Department of Mathematics, University of Maryland, College Park, Maryland 20742
Lawrence A. Zalcman, Department of Mathematics, University of Maryland, College Park, Maryland 20742

DIFFERENTIAL EQUATIONS (33 34 35 39 49)
Richard K. Miller, Department of Mathematics, Iowa State University, Ames, Iowa 50010

GENERAL ANALYSIS (41 42 43 44 45)
Richard R. Goldberg, Department of Mathematics, Vanderbilt University, Nashville, Tennessee 37235

FUNCTIONAL ANALYSIS AND OPERATOR THEORY (46 47)
Chandler Davis, Department of Mathematics, University of California at Berkeley, Berkeley, California 94720
Ronald G. Douglas, Department of Mathematics, State University of New York at Stony Brook, Stony Brook, New York 11790
Robert R. Phelps, Department of Mathematics, University College London, Gower Street, London WC1E 6BT, England

GEOMETRY (22 50 52 53)
Joseph A. Wolf, Department of Mathematics, University of California at Berkeley, Berkeley, California 94720

GENERAL TOPOLOGY (54)
David J. Lutzer, Department of Mathematics, Texas Tech University, Lubbock, Texas 79409
Thomas A. Chapman, Department of Mathematics, University of Kentucky, Lexington, Kentucky 40506

PROBABILITY AND OTHER FIELDS (31 60–99 inclusive)
Naresh Jain, School of Mathematics, 127 Vincent Hall, University of Minnesota, Minneapolis, Minnesota 55455

All other communications should be addressed to the Managing Editor, Barbara L. Osofsky, at the above address. See the back inside cover of the Bulletin of the American Mathematical Society for those Editors eligible to submit research announcements to the Bulletin.
CONTENTS—Continued from back cover

G. TOPOLOGY

An unbaireable stratifiable space. By ERIC K. van DOUWEN .......................... 324
New proofs of Chapman's CE mapping theorem and West’s mapping cylinder
   theorem. By A. FATHI, A. MARIN AND Y. M. VISETTI ............................. 327
Generators for $G$ bordism. By R. PAUL BEEM ........................................... 335
Identification of certain 4-manifolds with group actions. By RONALD FINTUSHEL
   AND PETER SIE PAO ................................................................. 344
Remarks on a theorem of Koranyi and Malliavin on the Siegel upper half plane of
   rank two. By KENNETH D. JOHNSON .................................................. 351
Mappings of the interval with finitely many periodic points have zero entropy. By
   LOUIS BLOCK .................................................................................. 357
Erratum and supplement to “Cohomology of associative triple systems”. By RENATE
   CARLSSON ..................................................................................... 361
Erratum to “On quotients of moving average processes with infinite mean”. By
   MAREK KANTER ............................................................................. 362
Index to Volumes 62—67 .............................................................................. 363
CONTENTS
Vol. 67, No. 2 DECEMBER 1977 Whole No. 222

A. ALGEBRA AND NUMBER THEORY
A type of nearest point set in a complete $l$-group. By MICHAEL KEISLER .................. 189
Affine complete ortholattices. By DIETMAR SCHWEIGERT ........................................... 198
Left and right invariance in an integral domain. By RAYMOND A. BEAUREGARD .............. 201
Groups with an Abelian Sylow subgroup. By JOHN W. BALLARD ................................. 206
Abstract reflections and Coxeter groups. By DAVID M. GOLDSCHMIDT ......................... 209
A normal form theorem for lattices completely generated by a subset. By GEORGE GRÄTZER AND DAVID KELLY .......................................................... 215
Simple continued fractions and special relativity. By DOUGLAS HENSLEY ..................... 219
Deltas of Hochschild dimension one. By CHARLES CHING-AN CHENG .......................... 221

B. ANALYSIS
Essentially Hermitian operators on $l_1$ are compact perturbations of Hermitians. By DAVID LEGG AND JOE WARD .......................................................... 224
Generalizations of the Vitali-Hahn-Saks theorem on vector measures. By RICHARD A. OBERLE ............................................................... 227
Nearest normal approximation for certain operators. By JOHN PHILLIPS ...................... 236
A boundary value problem for $H^p(D)$. By ROTRAUT GOUBAU CAHILL ........................ 241
Extremal properties of real axially symmetric harmonic functions in $E^3$. By PETER A. McCOY ............................................................... 248
An Abelian theorem for a class of subharmonic functions. By FARUK F. ABI-KHUZAM ........ 253
On contractions satisfying $\text{Alg } T = \{T\}$. By PEI YUAN WU ......................... 260
On James’ quasi-reflexive Banach space. By P. G. CASAZZA, BOR-LUH LIN AND R. H. LOHMAN ................................................................. 265
A continuation result for differential equations. By T. A. BURTON ........................... 272
Which functions preserve Cauchy laws? By GÉRARD LETAC ......................................... 277
On perturbations of Fredholm operators in $L_p(\mu)$-spaces. By L. WEIS .................... 287
Remarks on subsequences, subseries and rearrangements. By M. BHASKARA RAO, K. P. S. BHASKARA RAO AND B. V. RAO ................................. 293
Behavior of maximally defined solutions of a nonlinear Volterra equation. By TERRY L. HERDMAN ................................................................. 297

D. GEOMETRY
A characteristic property of the sphere. By THEMIS KOUGOGIORGOS AND THOMAS HASANIS .................. 303
Closed curves of constant torsion. II. By JOEL L. WEINER ..................................... 306

E. LOGIC AND FOUNDATIONS
A tree argument in infinitary model theory. By V. HARNIK AND M. MAKKAI .............. 309

F. STATISTICS AND PROBABILITY
Martingales in the limit and amarts. By G. A. EDGAR AND L. SUCHESTON .................. 315
Convergence of probability measures on separable Banach spaces. By L. Š. GRINBLAT ................................................................. 321

Continued on inside back cover