PROCEEDINGS OF THE AMERICAN MATHEMATICAL SOCIETY

CONTENTS

Vol. 131, No. 12 Whole No. 534 December 2003

A. ALGEBRA, NUMBER THEORY, AND COMBINATORICS

Hirofumi Tsumura, On alternating analogues of Tornheim’s double series .......... 3633
Ming-Guang Leu and Guan-Wei Li, The Diophantine equation $2x^2 + 1 = 3^n$ ........................................ 3643
Alexander D. Arvanitakis, A proof of the Generalized Banach Contraction Conjecture ........................................... 3647
Fernando Szechtmann, n-inner automorphisms of finite groups ....................... 3657
S. Bazzoni, Cotilting modules are pure-injective ....................................... 3665
M. Mahdavi-Hezavehi and J.-P. Tignol, Cyclicity conditions for division algebras of prime degree ........................................ 3673
Alexander Borisov, On a question of Craven and a theorem of Belyi .......... 3677
N. Mohan Kumar, Chris Peterson, and A. Prabhakar Rao, Degenerating families of rank two bundles ............................... 3681
D. D. Anderson and Muhammad Zafrullah, A property of weakly Krull domains ........................................ 3689

B. ANALYSIS

M. Fabian and V. Zizler, A “nonlinear” proof of Pitt’s compactness theorem ........................................ 3693
Volker Mayer and Mariusz Urba´nski, Finer geometric rigidity of limit sets of conformal IFS ........................................ 3695
Yong Ouyang, An application of Bochner’s technique to the deformations of the complex structure of $\mathbb{C}P^n$ ........................................ 3703
Mourad E. Ismail and Ahmed I. Zayed, A $q$-analogue of the Whittaker-Shannon-Kotel’nikov sampling theorem ........................................ 3711
Teemu Pennanen, Julian P. Revalski, and Michel Théra, Graph-distance convergence and uniform local boundedness of monotone mappings .......... 3721
Christopher Hoffman, The scenery factor of the $[T, T^{-1}]$ transformation is not loosely Bernoulli ........................................ 3731
M. I. Gil’, Inner bounds for the spectrum of quasinormal operators ................ 3737
N. Bejjah Rhouma, Principal eigenvalues for indefinite weight problems in all of $\mathbb{R}^d$ ........................................ 3747
Heinz H. Bauschke and Patrick L. Combettes, Construction of best Bregman approximations in reflexive Banach spaces ........................................ 3757
Alvaro Bustinduy, Zeroes of complete polynomial vector fields ...................... 3767
Fotios C. Paliogiannis, On commuting operator exponentials ........................ 3777
Chiara Boiti and Luisa Zanghirati, Global analytic regularity for non-linear second order operators on the torus ............................... 3783
Vladimir Derkach and Seppo Hassi, A reproducing kernel space model for $N_k$-functions ........................................ 3795
V. Müller, Power bounded operators and supercyclic vectors ........................ 3807
Huaxin Lin, Simple $AH$-algebras of real rank zero .................................. 3813
Jani Onninen, A note on the isoperimetric inequality .................................. 3821
Jongmin Han, Asymptotic limit for condensate solutions in the Abelian Chern-Simons Higgs model II ........................................ 3827
Matej Brešar, Ajda Fošner, and Peter Šemrl, A note on invertibility preservers on Banach algebras ........................................ 3833
<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andrea Iannuzzi</td>
<td>Induced local actions on taut and Stein manifolds</td>
<td>3839</td>
</tr>
<tr>
<td>Guoxing Ji and Jun Tomiyama</td>
<td>On characterizations of commutativity of $C^*$-algebras</td>
<td>3845</td>
</tr>
<tr>
<td>B. F. Svaiter</td>
<td>Fixed points in the family of convex representations of a maximal monotone operator</td>
<td>3851</td>
</tr>
<tr>
<td>B. Djafari Rouhani and A. A. Khan</td>
<td>On the embedding of variational inequalities</td>
<td>3861</td>
</tr>
<tr>
<td>Hiroaki Aikawa</td>
<td>Positive harmonic functions of finite order in a Denjoy type domain</td>
<td>3873</td>
</tr>
<tr>
<td>Fangyan Lu</td>
<td>Isomorphisms of subalgebras of nest algebras</td>
<td>3883</td>
</tr>
<tr>
<td></td>
<td><strong>D. GEOMETRY</strong></td>
<td></td>
</tr>
<tr>
<td>Greg Kuperberg</td>
<td>A generalization of Filliman duality</td>
<td>3893</td>
</tr>
<tr>
<td></td>
<td><strong>E. LOGIC AND FOUNDATIONS</strong></td>
<td></td>
</tr>
<tr>
<td>Sergey S. Goncharov, Valentina S. Harizanov, Michael C. Laskowski, Steffen Lempp, and Charles F. D. McCoy</td>
<td>Trivial, strongly minimal theories are model complete after naming constants</td>
<td>3901</td>
</tr>
<tr>
<td>Patrick Simonetta</td>
<td>An example of a $C$-minimal group which is not abelian-by-finite</td>
<td>3913</td>
</tr>
<tr>
<td>Stevo Todorcevic</td>
<td>A proof of Nogura’s conjecture</td>
<td>3919</td>
</tr>
<tr>
<td></td>
<td><strong>G. TOPOLOGY</strong></td>
<td></td>
</tr>
<tr>
<td>Thomas E. Gonzalez</td>
<td>Exactly $k$-to-1 maps and hereditarily indecomposable tree-like continua</td>
<td>3925</td>
</tr>
<tr>
<td>Yuan-Qing Qiao and Franklin D. Tall</td>
<td>Perfectly normal non-metrizable non-Archimedean spaces are generalized Souslin lines</td>
<td>3929</td>
</tr>
<tr>
<td>Bruno Colbois</td>
<td>Une inégalité du type Payne-Polya-Weinberger pour le laplacien brut</td>
<td>3937</td>
</tr>
<tr>
<td>Makoto Ozawa and Yukihiro Tsutsumi</td>
<td>Totally knotted Seifert surfaces with accidental peripherals</td>
<td>3945</td>
</tr>
<tr>
<td>Dennis K. Burke and Roman Pol</td>
<td>On non-measurability of $\ell_\infty/c_0$ in its second dual</td>
<td>3955</td>
</tr>
</tbody>
</table>
INDEX TO VOLUME 131 (2003)

*Starred items are “Shorter Notes”.

Abért, Miklós. Symmetric presentations of Abelian groups, 17
Abkar, Ali. Application of a Riesz-type formula to weighted Bergman spaces, 155
Abramovich, Dan and Jarvis, Tyler J. Moduli of twisted spin curves, 685
Adams, David R. and Hurri-Syrjänen, Ritva. Capacity estimates, 1159
Aduén, Hugo and Castro, Alfonso. Infinitely many nonradial solutions to a superlinear Dirichlet problem, 835
Agarwal, Ravi P.; Grace, Said R.; and O’Regan, Donal. On nonoscillatory solutions of differential inclusions, 129
Ageev, Oleg N. On asymmetry of the future and the past for limit self-joinings, 2053
Ahn, Young-Ho and Lemańczyk, Mariusz. An algebraic property of joinings, 1711
Aikawa, Hiroaki. Positive harmonic functions of finite order in a Denjoy type domain, 3873
Akin, Ethan and Auslander, Joseph. Almost periodic sets and subactions in topological dynamics, 3059
Alaoui, A. El Kacimi and Parthasarathy, R. Trace splittings in $C^*$-algebras of tiling systems via colourings, 1191
Albigerio, S.; Kosmanenko, V.; Kurason, P.; and Nizhnik, L. On approximations of rank one $H_{-2}$-perturbations, 1443
Albrecht, Ulrich. Fuchs’ problem 34 for mixed Abelian groups, 1021
Alkan, Emre. Nonvanishing of Fourier coefficients of modular forms, 1673
Allday, Christopher; Hanke, Bernhard; and Puppe, Volker. Poincaré duality in $P. A. Smith$ theory, 3275
Alonso, Ana I.; Obaya, Rafael; and Ortega, Rafael. Differential equations with limit-periodic forcings, 851
Alpin, Yuri A.; Chien, Mao-Ting; and Yeh, Lina. The numerical radius and bounds for zeros of a polynomial, 725
Alves, José F.; Araújo, Vítor; and Saussol, Benoît. On the uniform hyperbolicity of some nonuniformly hyperbolic systems, 1303
Ambrozic, C.-G. and Timotin, D. A von Neumann type inequality for certain domains in $C^0$, 859
Andersen, Nils Byrial. $L^p$ versions of Hardy’s uncertainty principle on hyperbolic spaces, 2797
Anderson, D. D. and Zafrullah, Muhammad. A property of weakly Krull domains, 3689
Anisca, Razvan. Subspaces of $L_p$ with more than one complex structure, 2819
Annaby, M. H. On sampling theory associated with the resolvents of singular Sturm-Liouville problems, 1803
Arapura, Donu and Archava, Sviatoslav. Kodaira dimension of symmetric powers, 1369
Araújo, Vítor. See Alves, José F.
Archava, Sviatoslav. See Arapura, Donu
Arlinskii, Yury and Tsekanovskii, Eduard. On von Neumann’s problem in extension theory of nonnegative operators, 3143
Arvanitakis, Alexander D. A proof of the Generalized Banach Contraction Conjecture, 3647
Astengo, Francesca. An uncertainty principle on homogeneous trees, 3155
Auinger, K. and Steinberg, B. On the extension problem for partial permutations, 2693
Auslander, Joseph. See Akin, Ethan
Aval, J.-C. and Bergeron, N. Catalan paths and quasi-symmetric functions, 1053
Azizov, Tomas Ya.; Dijksma, Aad; and Gridnev, Irina V. On the boundedness of Hamiltonian operators, 563
Bagby, Richard J. and Masaedeh, Basem. Regularization of $A_p$ weights, 761
Bakonyi, Mihály. Nehari and Carathéodory-Fejér type extension results for operator-valued functions on groups, 3517
Bakuradze, M.; Jibladze, M.; and Vershinin, V. V. Characteristic classes and transfer relations in cobordism, 1935
Balogh, Zoltán T. Reflecting point-countable families, 1289
Ban, Dubravka and Jantzen, Chris. The Langlands classification for non-connected p-adic groups II: Multiplicity one, 3297
Baratella, Stefano and Ng, Siu-Ah.  A nonstandard proof of the Eberlein-Šmulian theorem, 3177
Barraa, Mohamed and Boumazgour, Mohamed.  A note on the spectrum of an upper triangular operator matrix, 3083
Barriónuevo, Jose and Lacey, Michael T.  A weak–type orthogonality principle, 1763
Bartoszynski, Tomek.  Remarks on small sets of reals, 625
Bauschke, Heinz H.  The composition of projections onto closed convex sets in Hilbert space is asymptotically regular, 141
Bauschke, Heinz H. and Combettes, Patrick L.  Construction of best Bregman approximations in reflexive Banach spaces, 3757
Bayart, Frédéric.  Similarity to an isometry of a composition operator, 1789
Bazzoni, S.  Cotilting modules are pure-injective, 3665
Beardmore, R. E.  See Laister, R.
Bednarchak, Debe.  Geometric properties coded in the long-time asymptotics for the heat equation on $\mathbb{Z}^n$, 2261
Belegradek, Igor.  Vector bundles with infinitely many souls, 2217
Benko, David; Erdélyi, Tamás; and Szabados, József.  The full Markov-Newman inequality for Müntz polynomials on positive intervals, 2385
Bennett, Jonathan M. and Vargas, Ana.  Randomised circular means of Fourier transforms of measures, 117
Benoist, Joël; Borwein, Jonathan M.; and Popovici, Nicole.  A characterization of quasiconvex vector-valued functions, 1109
Benson, David J. and Nakano, Daniel K.  The nucleus for restricted Lie algebras, 3395
Bergeron, N.  See Aval, J.-C.
*Berkovits, J.  A note on the imbedding theorem of Browder and Ton, 2963
Bermúdez, Teresa; Bonilla, Antonio; and Martínón, Antonio.  On the existence of chaotic and hypercyclic semigroups on Banach spaces, 2435
Biagiioni, H. A. and Linares, F.  Ill-posedness for the Zakharov system with generalized nonlinearity, 3113
Bichon, Julien.  Quantum automorphism groups of finite graphs, 665
Böe, Bjarte.  A norm on the holomorphic Besov space, 235
Bohman, Tom.  A limit theorem for the Shannon capacities of odd cycles I, 3559
Boiti, Chiara and Zanghirati, Luisa.  Global analytic regularity for non-linear second order operators on the torus, 3783
Bolotnikov, Vladimir.  Interpolation for multipliers on reproducing kernel Hilbert spaces, 1373
Bolt, Michael.  A local geometric characterization of the Bochner-Martinelli kernel, 1131
Bonilla, Antonio.  See Bermúdez, Teresa
Borisov, Alexander.  On a question of Craven and a theorem of Belyi, 3677
Borwein, Jonathan M.  See Benoist, Joël
Borwein, Peter B. and Zhou, Ping.  On the irrationality of a certain multivariate $q$ series, 1989
Boumazgour, Mohamed.  See Barraa, Mohamed
Boumenir, A.  The impedance tomography problem, 3553
Bouzar, Chikh and Chaill, Rachid.  Gevrey vectors of multi-quasi-elliptic systems, 1565
Braun, Rüdiger W.; Meise, Reinhold; and Taylor, B. A.  Local radial Phragmén-Lindelöf estimates for plurisubharmonic functions on analytic varieties, 2423
Brešar, Matej; Fošner, Ajda; and Semrl, Peter.  A note on invertibility preservers on Banach algebras, 3833
Brodmann, M.; Fumasoli, S.; and Tajadod, R.  Local cohomology over homogeneous rings with one-dimensional local base ring, 2977
Brungs, H. H. and Gräter, J.  Characterizing nearly simple chain domains, 1347
Buch, Anders Skovsted.  A direct proof of the quantum version of Monk's formula, 2037
Budzyńska, Monika.  An example in holomorphic fixed point theory, 2771
Buff, Xavier.  On the Bieberbach conjecture and holomorphic dynamics, 755
Bunce, Leslie J. and Peralta, Antonio M.  The alternative Danford-Pettis property in $C^*$-algebras and von Neumann preduals, 1251
Burachik, Regina Sandra and Svaiter, B. F.  Maximal monotonicity, conjugation and the duality product, 2379
Burke, Dennis K. and Pol, Roman. On non-measurability of $\ell_{\infty}/c_0$ in its second dual, 3955

Buser, Peter and Seppälä, Mika. Triangulations and homology of Riemann surfaces, 425

Bustinduy, Alvaro. Zeros of complete polynomial vector fields, 3767

Butscher, Adrian. Deformations of minimal Lagrangian submanifolds with boundary, 1953

Buzano, Ernesto and Zsiggioto, Andrea. Weyl formula for hypoelliptic operators of Schrödinger type, 265

Cabada, A. and Sanchez, L. Second order singular periodic problems in the presence of dry friction, 2137

Campana, F.; Peternell, T.; and Zhang, Qi. On the Albanese maps of compact Kähler manifolds, 549

Cao, Daomin and Peng, Shuangjie. A global compactness result for singular elliptic problems involving critical Sobolev exponent, 1857

Capiński, Maciej J. and Wójcik, Klaudiusz. Isolating segments for Carathéodory systems and existence of periodic solutions, 2443

Carswell, Brent J. Univalent mappings and invariant subspaces of the Bergman and Hardy spaces, 1233

Casares, Pilar Pisón. The short resolution of a lattice ideal, 1081

Cascales, B.; Kąkol, J.; and Saxon, S. A. Metrizability vs. Fréchet-Urysohn property, 3623

Castro, Alfonso. See Aduén, Hugo

Chailil, Rachid. See Bouzar, Chikh

Chakraborty, K. and Murty, M. Ram. On the number of real quadratic fields with class number divisible by 3, 41

Chardina, Marc and Moreno-Socías, Guillermo. Regularity of lex-segment ideals: Some closed formulas and applications, 1093

Chen, Chih-Rung. See Wang, Lih-Chung

Chen, Debao; Menegatto, Valdir A.; and Sun, Xingping. A necessary and sufficient condition for strictly positive definite functions on spheres, 2733

Chen, Lin; Yingbin, Ruan; and Zikun, Yan. p-hyponormal operators are subscalar, 2753

Chen, Xiaoman and Hou, Shengzhao. p-hyponormal operators are subscalar, 2753

Chern, Hua-Huai; Guo, Jong-Shenq; and Lo, Chu-Pin. The self-similar expanding curve for the curvature flow equation, 3191

Chevalier, Lucien. Une propriété de continuité du temps local, 933

Chiba, Keiko. Pseudonormality and starcompactness of $\sigma$-products, 319

Chidume, C. E. and Zegeye, H. Approximation methods for nonlinear operator equations, 2467

Chien, Mao-Ting. See Alpin, Yuri A.

Chinen, Naotsugu. Circle maps having an infinite $\omega$-limit set which contains a periodic orbit have positive topological entropy, 3547

Chmutov, Sergei. Diagrams of divide links, 1623

Cho, Hong Rae. Estimates on the mean growth of $H^p$ functions in convex domains of finite type, 2393

Cho, Moo-Deok and Lee, Jun Ik. $p$-hyponormality is not translation–invariant, 3109

Choe, Boo Rim; Koo, Hyungwoon; and Yi, HeungSu. Harmonic Bergman functions as radial derivatives of Bergman functions, 401

Choe, YoungJu and Kohnen, Winfried. Special values of elliptic functions at points of the divisors of Jacobi forms, 3309

Chorny, Boris. The model category of maps of spaces is not cofibrantly generated, 2255

Chui, Charles K. and Sun, Qiuyu. Tight frame oversampling and its equivalence to shift-invariance of affine frame operators, 1527

Cichoń, Kinga and Seip, Kristian. Weighted holomorphic spaces with trivial closed range multiplication operators, 201

Cohn, J. H. E. The Diophantine equation $x^p + 1 = py^z$, 13

Colbois, Bruno. Une inégalité du type Payne-Polya-Weinberger pour le laplacien brut, 3937

Coman, Dan and Poletsky, Evgeny A. Bernstein–Walsh inequalities and the exponential curve in $C^2$, 879

Combettes, Patrick L. See Bauschke, Heinz H.
Comfort, W. W. and Galindo, Jorge. *Pseudocompact topological group refinements of maximal weight*, 1311

Conca, Aldo. *Reduction numbers and initial ideals*, 1015

Coogan, Gwyneth H. and Ono, Ken. *A q-series identity and the arithmetic of Hurwitz zeta functions*, 719

Corvaja, P. and Zannier, U. *On the greatest prime factor of \((ab + 1)(ac + 1)\)*, 1705

Costoya-Ramos, M. Cristina. *Catégorie de Lusternik-Schnirelmann et genre des \(H_0\)-espaces*, 637

Coutinho, S. C. *Non-holonomic simple \(D\)-modules over complete intersections*, 83

Couwenberg, Wim. *A simple proof of the modular identity for theta functions*, 3305

Cox, David and Schenck, Hal. *Local complete intersections in \(P^2\) and Koszul syzygies*, 2007

Crachiola, Anthony and Maubach, Stefan. *The Derksen invariant vs. the Makar-Limanov invariant*, 3365

Cui, Jianlian and Hou, Jinchuan. *Linear maps preserving ideals of \(C^*\)-algebras*, 3441

Curto, Raúl and Lee, Woo Young. *Solution of the quadratically hyponormal completion problem*, 2479

Dancer, E. N. and Du, Yihong. *Some remarks on Liouville type results for quasilinear elliptic equations*, 1891

Danielli, Donatella; Garofalo, Nicola; and Nhieu, Duy-Minh. *On the best possible character of the \(L^q\) norm in some a priori estimates for non-divergence form equations in Carnot groups*, 3487

Daoui, A.; Mahzouli, H.; and Zerouali, E. H. *Sur les algèbres \(S\)-régulières et la \(S\)-décomposabilité des opérateurs de multiplication*, 3211

Darji, Udayan B. and Keleti, Tamás. *Covering \(\mathbb{R}\) with translates of a compact set*, 2593


Dawson, T. W. and Feinstein, J. F. *On the denseness of the invertible group in Banach algebras*, 2831

Deaman, Ian. *On polynomial products in nilpotent and solvable Lie groups*, 973

Del Pino, Manuel; García-Melián, Jorge; and Musso, Monica. *Local bifurcation from the second eigenvalue of the Laplacian in a square*, 3499

Donnelly, Harold. *Quantum unique ergodicity*, 2945
INDEX TO VOLUME 131 (2003)

Dontchev, A. L.  See Borwein, J. M.

Dosiš, O.; Graef, J. R.; and Jaros, J.  Forced oscillation of second order linear and half-linear difference equations, 2859

Dou, Ze-Li.  A note on a lemma of Shimura, 77

Droms, Carl.  A complex for right-angled Coxeter groups, 2305

Dryanov, D. P.; Qazi, M. A.; and Rahman, Q. I.  Certain extremal problems for polynomials, 2741

Du, Yihong.  See Dancer, E. N.

Du, Yihong and Ma, Li.  Some remarks related to De Giorgi’s conjecture, 2415

Duong, Xuan Thinh and Yan, Lixin.  Hardy spaces of spaces of homogeneous type, 3181

Dutta, S. P.  On modules of finite projective dimension over complete intersections, 113

Dykema, Ken and Rădulescu, Florin.  Rescalings of free products of $II_1$–factors, 1813

Edgar, G. A. and Miller, Chris.  Borel subrings of the reals, 1121

Edigarian, Armen and Wiegerinck, Jan.  Graphs that are not complete pluripolar, 2459

Edmunds, David E. and Opic, Bohumír.  Equivalent quasi-norms on Lorentz spaces, 745

Ehrhardt, Torsten and van der Mee, Cornelis V. M.  Canonical factorization of continuous functions on the $d$-torus, 801

Eisenbud, David; Huneke, Craig; and Ulrich, Bernd.  What is the Rees algebra of a module?, 701

Elekes, Márton and Kunen, Kenneth.  Transfinite sequences of continuous and Baire class 1 functions, 2453

Eliaš, Peter.  Covering for category and trigonometric thin sets, 3241

Elke, Paul W.  The quasilinearization method on an unbounded domain, 1481

El Soufi, Ahmad and Ilias, Saïd.  Extremal metrics for the first eigenvalue of the Laplacian in a conformal class, 1611

Enflo, Per and Høim, Terje.  Some results on extremal vectors and invariant subspaces, 379

Erdélyi, Tamás.  Extremal properties of the derivatives of the Newman polynomials, 3129

Erdős, Peter.  Covering for category and trigonometric thin sets, 3241

Feichtner, Eva Maria.  Rational versus real cohomology algebras of low-dimensional toric varieties, 1695

Feinstein, J. F.  See Dawson, T. W.

Fejzić, Hajrudin.  Infinite approximate Peano derivatives, 2527

Feldman, Nathan S.  Hypercyclicity and supercyclicity for invertible bilateral weighted shifts, 479


Fenton, P. C.  cos $\pi \lambda$ again, 1875

Feres, R. and Zeghib, A.  Leafwise holomorphic functions, 1717

Finet, Catherine; Martín, Miguel; and Payá, Rafael.  Numerical index and renorming, 871

Fisher, Michael J.  The $p$-exponent of the $K(1)_*$-local spectrum $\Phi SU(n)$, 3617

Fleissner, William G.  Normal subspaces of products of finitely many ordinals, 2279

Fong, C. K. and Sourour, A. R.  The semigroup generated by a similarity orbit or a unitary orbit of an operator, 3203

Fonseca, G.; Linares, F.; and Ponce, G.  Global existence for the critical generalized KdV equation, 1847

Fošner, Ajda.  See Brešar, Matej

See Brešar, Matej
INDEX TO VOLUME 131 (2003)

Fujita, Hiroshi and Shakhmatov, Dmitri.  A characterization of compactly generated metric groups, 953

Fukushima, Masatoshi and Ying, Jianguang.  A note on regular Dirichlet subspaces, 1607

Fumasoli, S.  See Brodmann, M.

García-Melián, Jorge.  See Del Pino, Manuel

Gardiner, Stephen J. and Hanley, Mary.  Parrell sets for harmonic functions, 773

Garofalo, Nicola.  See Danielli, Donatella

Garrison, Anne and Scott, Richard.  Small covers of the dodecahedron and the 120-cell, 963

Gasparis, I.  Strictly singular non-compact operators on hereditarily indecomposable Banach spaces, 1181

Gekhtman, Michael; Shapiro, Michael; and Vainshtein, Alek.  The number of connected components in double Bruhat cells for nonsimply-laced groups, 731

Gelaki, Shlomo and Letzter, Edward S.  An affine PI Hopf algebra not finite over a normal commutative Hopf subalgebra, 2673

Germinet, François and Klein, Abel.  Operator kernel estimates for functions of generalized Schrödinger operators, 911

Gil’, M. I.  Inner bounds for the spectrum of quasinormal operators, 3737

Gilmer, Robert.  Some finiteness conditions on the set of overrings of an integral domain, 2337

Göbel, Rüdiger and May, Warren.  Cancellation of direct sums of countable abelian p-groups, 2705

Golinskii, Leonid.  Mass points of measures on the unit circle and reflection coefficients, 1771

Goncharov, Sergey S.; Harizanov, Valentina S.; Laskowski, Michael C.; Lempp, Steffen; and Mc Coy, Charles F. D.  Trivial, strongly minimal theories are model complete after naming constants, 3901

Gong, Weibang and Wang, Libin.  Mbekhta’s subspaces and a spectral theory of compact operators, 587

Gonzalez, Thomas E.  Exactly k-to-1 maps and hereditarily indecomposable tree-like continua, 3925

Goto, Shiro; Hayasaka, Futoshi; and Iai, Shin-ichiro.  The a-invariant and Gorensteinness of graded rings associated to filtrations of ideals in regular local rings, 87

Grace, Said R.  See Agarwal, Ravi P.

Graef, J. R.  See Došlý, O.

Graef, John R.; Qian, Chuanx; and Yang, Bo.  Multiple symmetric positive solutions of a class of boundary value problems for higher order ordinary differential equations, 577

Gräter, J.  See Brungs, H. H.

Green, Edward L.; Snashall, Nicole; and Solberg, Øyvind.  The Hochschild cohomology ring of a selfinjective algebra of finite representation type, 3387

Gridneva, Irina V.  See Azizov, Tomas Ya.

Grigor’yan, Mg. G. and Zink, Robert E.  Subsystems of the Walsh orthogonal system whose multiplicative completions are quasibases for $L^p[0, 1]$, $1 \leq p < +\infty$, 1137

Grinshpun, Zinoviy.  On the Bochner theorem on orthogonal operators, 1591

Grzeszczuk, Piotr.  Invariants of semisimple Lie algebras acting on associative algebras, 709

Gu, Caixing and Shapiro, Jonathan E.  Strict convexity of some subsets of Hankel operators, 2779

Guo, Jong-Shenq.  See Chern, Hua-Huai

Guralnick, Robert and Pak, Igor.  On a question of B. H. Neumann, 2021

Hai, D. D.  On a class of sublinear quasilinear elliptic problems, 2409

Hájek, Petr.  Smooth norms on certain $C(K)$ spaces, 2049

Hajlasz, Piotr.  Whitney’s example by way of Assouad’s embedding, 3463

Hamel, Andreas H.  Phelps’ lemma, Danes’ drop theorem and Ekeland’s principle in locally convex spaces, 3025

Han, Deguang.  Interpolation operators associated with sub-frame sets, 275

Han, Jongmin.  Asymptotic limit for condensate solutions in the Abelian Chern-Simons Higgs model, 1839
Asymptotic limit for condensate solutions in the Abelian Chern-Simons Higgs model II, 3827
Han, Young Min. See Djordjević, Slaviša V.
Hanke, Bernhard. See Allday, Christopher
Hanley, Mary. See Gardiner, Stephen J.
Hardie, K. A.; Marcum, H. J.; and Oda, N. The Whitehead products and powers in $W$-topology, 941
Hare, Kathryn E. and Roginskaya, Maria. A Fourier series formula for energy of measures with applications to Riesz products, 165
Harizanov, Valentina S. See Goncharov, Sergey S.
Harris, Adam and Tonegawa, Yoshihiro. A $\partial\bar{\partial}$-Poincaré lemma for forms near an isolated complex singularity, 3329
Hass, Seppo. See Derkach, Vladimir
Hayasaka, Futoshi. See Goto, Shiro
Heinzer, William J. and Lantz, David C. Factorization of monic polynomials, 1049
Herzog, Gerd and Schmoeger, Christoph. A note on a theorem of Raubenheimer and Rode, 3507
Herzog, Jürgen and Hibi, Takayuki. Castelnuovo-Mumford regularity of simplicial semigroup rings with isolated singularity, 2641
Hibi, Takayuki. See Herzog, Jürgen
Hoffman, Christopher. The scenery factor of the $[T,T^{-1}]$ transformation is not loosely Bernoulli, 3731
Hoffmann, Mark. The Banach envelope of Paley-Wiener type spaces, 543
Hörm, Terje. See Enflo, Per
Horváth, Miklós. On the first two eigenvalues of Sturm-Liouville operators, 1215
Hou, Jinchuan. See Cui, Jianlian
Hou, Shengzhao. See Cui, Jianlian
Huang, I-Chiau and Lin, Jan-Li. Residues for Akizuki’s one-dimensional local domain, 2015
Huneke, Craig. Finiteness of representation dimension, 1011
Iannuzzi, Andrea. Induced local actions on taut and Stein manifolds, 3839
Ikeda, Tadashio and Shima, Kazuhiro. An approach to the spectrum structure of Dirac operators by the local-compactness method, 1471
Jelonek, Zbigniew. On bifurcation points of a complex polynomial, 1361
Jenča, Gejza and Pulmannová, Sylvia. Orthocomplete effect algebras, 2663
Ishihara, Hajime and Vîtîa, Luminiţa. Locating subsets of a normed space, 3231
Jackson, Frances Y. and Luxemburg, W. A. J. Sundual characterizations of the translation group of $\mathbb{R}$, 185
Jelonek, Zbigniew. On bifurcation points of a complex polynomial, 1361
Jenča, Gejza and Pulmannová, Sylvia. Orthocomplete effect algebras, 2663
INDEX TO VOLUME 131 (2003)

Jeong, Moonja and Taniguchi, Masahiko. Bell representations of finitely connected planar domains, 2325

Jessup, Barry. See Cuvilliez, Maxence

Ji, Guoxing and Tomiyama, Jun. On characterizations of commutativity of $C^*$-algebras, 3845

Jia, Rong-Qing. Convergence rates of cascade algorithms, 1739

Jibladze, M. See Bakuradze, M.

Joita, Cezar. Traces of convex domains, 2721

Juhász, István; Shelah, Saharon; Soukup, Lajos; and Szentmiklóssy, Zoltán. A tall space with a small bottom, 1907

Jung, Il Bong; Ko, Eungil; and Pearcy, Carl. On quasinilpotent operators, 2121

Jadison, Lars. Hopf algebroids and $H$-separable extensions, 2993

Kąkol, J. See Cascales, B.

Kallel-Jallouli, Saoussen. Existence of $C^\infty$ local solutions of the complex Monge-Ampère equation, 1103

Kalton, N. J. A remark on quasi-isometries, 1225

*Kaplansky, Irving. The forms $x + 32y^2$ and $x + 64y^2$, 2299

Kassabov, M. On pro-unipotent groups satisfying the Golod–Shafarevich condition, 329

Kearton, C. and Wilson, S. M. J. Knot modules and the Nakanishi index, 655

Keleti, Tamás. See Darji, Udayan B.

Kessar, Radha and Linckelmann, Markus. A block theoretic analogue of a theorem of Glauberman and Thompson, 35

Khan, A. A. See Rouhani, B. Djafari

Khare, Chandrashekhar. Limits of residually irreducible $p$-adic Galois representations, 1999

Khoshnavi, V. See Albeverio, S.

Khoroshin, Dmitry and Świątek, Grzegorz. On the number of zeros of certain harmonic polynomials, 409

Khosnevisan, Davar and Xiao, Yimin. Weak unimodality of finite measures, and an application to potential theory of additive Lévy processes, 2611

Khurana, Surjit Singh. Approximation of measurable mappings by sequences of continuous functions, 937

Kim, Dong-Soo and Kim, Young Ho. Compact Einstein warped product spaces with nonpositive scalar curvature, 2573

Kim, Hyun Kwang. On regular polytope numbers, 65

Kim, Sung Gwon and Lee, Sang Hun. Exposed $2$-homogeneous polynomials on Hilbert spaces, 449

Kim, Young Ho. See Kim, Dong-Soo

Klein, Abel. See Germinet, François

Kleper, Dvir and Schechtman, Gideon. Block bases of the Haar system as complemented subspaces of $L_p$, $2 < p < \infty$, 433

Klingenberg, Christian. See Lu, Yun-guang

Ko, Eungil. See Jung, Il Bong

Kohnen, Winfried. See Choie, YoungJu

Kojman, Menachem and Shelah, Saharon. Van der Waerden spaces and Hindman spaces are not the same, 1619

Kolountzakis, Mihail N. and Révész, Szilárd Gy. On a problem of Turán about positive definite functions, 3423

Konieczny, J. See Lipscomb, S.

Kono, Akira; Lin, James P.; and Nishimura, Osamu. Characterization of the mod 3 cohomology of $E_7$, 3289

Koo, Hyungwoon. See Choe, Boo Rim

Koshmanenko, V. See Albeverio, S.

Koskela, Pekka and Zhong, Xiao. Hardy’s inequality and the boundary size, 1151

Kostrykin, Vadim; Makarov, Konstantin A.; and Motovilov, Alexander K. On a subspace perturbation problem, 3469
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kourogenis, Nikolaos C. and Papageorgiou, Nikolaos S.</td>
<td>Nonlinear hemivariational inequalities of second order using the method of upper-lower solutions</td>
<td>2359</td>
</tr>
<tr>
<td>Kovács, Sándor J.</td>
<td>Vanishing theorems, boundedness and hyperbolicity over higher-dimensional bases</td>
<td>3353</td>
</tr>
<tr>
<td>Kovács, J.</td>
<td>Vanishing theorems, boundedness and hyperbolicity over higher-dimensional bases</td>
<td>3353</td>
</tr>
<tr>
<td>Kozma, Gady and Olevskii, Alexander</td>
<td>Random Menshov spectra</td>
<td>1901</td>
</tr>
<tr>
<td>Krupski, Pawel</td>
<td>Means on solenoids</td>
<td>1931</td>
</tr>
<tr>
<td>Kubis, Wieslaw</td>
<td>Perfect cliques and $G_δ$ colorings of Polish spaces</td>
<td>619</td>
</tr>
<tr>
<td>Kuhlmann, Franz-Viktor; Kuhlmann, Salma; and Shelah, Saharon</td>
<td>Functorial equations for lexicographic products</td>
<td>2969</td>
</tr>
<tr>
<td>Kumar, N. Mohan; Peterson, Chris; and Rao, A. Prabhakar</td>
<td>Degenerating families of rank two bundles</td>
<td>3681</td>
</tr>
<tr>
<td>Kunen, Kenneth</td>
<td>See Elekes, Márton</td>
<td></td>
</tr>
<tr>
<td>Kunstmann, Peer Christian and Strkalj, Željko.</td>
<td>$H^∞$-calculus for submarkovian generators</td>
<td>2081</td>
</tr>
<tr>
<td>Kunze, Markus.</td>
<td>Infinitely many radial solutions of a variational problem related to dispersion-managed optical fibers</td>
<td>2181</td>
</tr>
<tr>
<td>Kuo, Hui-Hsiung</td>
<td>See Asai, Nobuhiro</td>
<td></td>
</tr>
<tr>
<td>Kuperberg, Greg</td>
<td>A generalization of Fillman duality</td>
<td>3893</td>
</tr>
<tr>
<td>Kurasov, P.</td>
<td>See Albeverio, S.</td>
<td></td>
</tr>
<tr>
<td>Kusuda, Masaharu</td>
<td>Discrete spectra of $C^<em>$-algebras and complemented submodules in Hilbert $C^</em>$-modules</td>
<td>3075</td>
</tr>
<tr>
<td>Laca, Marcelo and Larsen, Nadia S.</td>
<td>Hecke algebras of semidirect products</td>
<td>2189</td>
</tr>
<tr>
<td>Lacey, Michael T.</td>
<td>See Barrionuevo, Jose</td>
<td></td>
</tr>
<tr>
<td>Laczkovich, M.</td>
<td>The removal of $π$ from some undecidable problems involving elementary functions</td>
<td>2235</td>
</tr>
<tr>
<td>Laister, R. and Beardmore, R. E.</td>
<td>Transversality and separation of zeros in second order differential equations</td>
<td>209</td>
</tr>
<tr>
<td>Lamoreaux, J. W.</td>
<td>See Fearney, David L.</td>
<td></td>
</tr>
<tr>
<td>Landrigan, Michael</td>
<td>See Damanik, David</td>
<td></td>
</tr>
<tr>
<td>Lansky, Joshua and Raghuram, A.</td>
<td>On the correspondence of representations between $GL(n)$ and division algebras</td>
<td>1641</td>
</tr>
<tr>
<td>Lantz, David C.</td>
<td>See Heinzer, William J.</td>
<td></td>
</tr>
<tr>
<td>Laptev, Gennady G.</td>
<td>Nonexistence results for higher-order evolution partial differential inequalities</td>
<td>415</td>
</tr>
<tr>
<td>Laradji, A.</td>
<td>Inverse limits of algebras as retracts of their direct products</td>
<td>1007</td>
</tr>
<tr>
<td>Larsen, Nadia S.</td>
<td>See Laca, Marcelo</td>
<td></td>
</tr>
<tr>
<td>Laskowski, Michael C.</td>
<td>See Goncharov, Sergey S.</td>
<td></td>
</tr>
<tr>
<td>Lassak, Marek.</td>
<td>Erratum to “Approximation of convex bodies by axially symmetric bodies”, 2301</td>
<td></td>
</tr>
<tr>
<td>Lee, Jun Ik.</td>
<td>See Chô, Mumeo</td>
<td></td>
</tr>
<tr>
<td>Lee, Sang Hun.</td>
<td>See Kim, Sung Guen</td>
<td></td>
</tr>
<tr>
<td>Lee, Sanghyuk.</td>
<td>Endpoint estimates for the circular maximal function</td>
<td>1433</td>
</tr>
<tr>
<td>Lee, Woo Young.</td>
<td>See Curto, Raúl E.</td>
<td></td>
</tr>
<tr>
<td>Lefèvre, P. and Rodríguez-Piazza, L.</td>
<td>$p$-Rider sets are $q$-Sidon sets</td>
<td>1829</td>
</tr>
<tr>
<td>Lemańczyk, Mariusz.</td>
<td>See Ahn, Young-Ho</td>
<td></td>
</tr>
<tr>
<td>Lemin, Alex J.</td>
<td>On ultrametrization of general metric spaces</td>
<td>979</td>
</tr>
<tr>
<td>Lempp, Steffen.</td>
<td>See Goncharov, Sergey S.</td>
<td></td>
</tr>
<tr>
<td>Lenart, Cristian and Sottile, Frank.</td>
<td>Skew Schubert polynomials</td>
<td>3319</td>
</tr>
<tr>
<td>Leng, Gangsong.</td>
<td>The minimum number of acute dihedral angles of a simplex</td>
<td>3039</td>
</tr>
<tr>
<td>Lerner, Andrei K.</td>
<td>On pointwise estimates for the Littlewood-Paley operators</td>
<td>1459</td>
</tr>
<tr>
<td>Letutzer, Edward S.</td>
<td>See Gelaki, Shlomo</td>
<td></td>
</tr>
<tr>
<td>Leu, Ming-Guang and Li, Guan-Wei.</td>
<td>The Diophantine equation $2x^2 + 1 = 3^n$, 3643</td>
<td></td>
</tr>
<tr>
<td>Leung, Denny H. and Tang, Wee-Kee.</td>
<td>The $ℓ^1$-indices of Tsirelson type spaces</td>
<td>511</td>
</tr>
<tr>
<td>Leuschke, Graham J.</td>
<td>See Huneke, Craig</td>
<td></td>
</tr>
<tr>
<td>Li, Chi-Kwong and Pierce, Steve.</td>
<td>Linear operators preserving correlation matrices</td>
<td>55</td>
</tr>
<tr>
<td>Li, Congming.</td>
<td>See Chen, Wenxiong</td>
<td></td>
</tr>
</tbody>
</table>
LI, Guan-Wei. See Leu, Ming-Guang.
Li, Hui. \( \pi_1 \) of Hamiltonian \( S^1 \) manifolds, 3579
Li, Yangming and Wang, Yanning. The influence of minimal subgroups on the structure of a finite group, 337
Li, Yuxiang. See Deng, Weibing.
Lin, Huaxin. Simple AH-algebras of real rank zero, 3813
Lin, James P. See Kono, Akira.
Lin, Jan-Li. See Huang, I-Chiau.
Linares, F. See Biagioni, H. A.

Lipman, Joseph. See Tarrío, Leovigildo Alonso.
Lipscomb, S. and Konieczny, J. The class equation and counting in factorizable monoids, 3345
Liu, Jiaquan and Wang, Zhi-Qiang. Soliton solutions for quasilinear Schrödinger equations, I, 441
Liu, William. Convexity of moment polytopes of algebraic varieties, 2921
Liu, Yuming. On stable equivalences of Morita type for finite dimensional algebras, 2657
Lu, Fangyan. Jordan isomorphisms of nest algebras, 147
Lu, Shanzhen and Wu, Qiang. Endpoint estimates for certain commutators of fractional and singular integrals, 467
Lu, Shijie. See Dong, Zhe.
Lu, Yun-guang and Klingenberg, Christian. A mixed type system of three equations modelling reacting flows, 3511
Luca, Florian. On the Diophantine equation \( x^2 = 4q^m - 4q^n + 1 \), 1339
Luo, Chui-Pin. See Chern, Hua-Huai.
Lu, Fangyan. Jordan isomorphisms of nest algebras, 147

Machihara, Shuji and Ozawa, Tohru. Interpolation inequalities in Besov spaces, 1553
Mahdavi-Hezavehi, M. and Tignol, J.-P. Cyclicity conditions for division algebras of prime degree, 3673
Mahzouli, H. See Daoui, A.
Makarov, Konstantin A. See Kostrykin, Vadim.
Manfredini, Maria and Pascucci, Andrea. A priori estimates for quasilinear degenerate parabolic equations, 1115
Manoussakis, A. Some remarks on spreading models and mixed Tsirelson spaces, 2515
Marciszewski, Witold. A function space \( C_p(X) \) without a condensation onto a \( \sigma \)-compact space, 1965
Marcum, H. J. See Hardie, K. A.
Marshall, Dan. The product of a nonsymmetric Jack polynomial with a linear function, 1817
Martin, Miguel. Banach spaces having the Radon-Nikodým property and numerical index 1, 3407

Martínón, Antonio. See Bermúdez, Teresa.
Massaadeh, Basem. See Bagby, Richard J.
Mascioni, Vania. See Curgus, Branko.
Mashevitzky, G. and Schein, Boris M. Automorphisms of the endomorphism semigroup of a free monoid or a free semigroup, 1655
Mathai, Varghese; Schick, Thomas; and Yates, Stuart. Approximating invariants of Harper operators on graphs II, 1917
Matsui, Mai; Yamada, Mino; and Takeo, Fukiko. Supercyclic and chaotic translation semigroups, 3535

INDEX TO VOLUME 131 (2003)
INDEX TO VOLUME 131 (2003)

Maubach, Stefan.  See Crachiola, Anthony
Mauldin, R. Daniel and Yingst, Andrew Q.  Comments about the Steinhaus tiling problem, 2071
May, Warren.  See Göbel, Rüdiger
Mayer, Volker and Urbański, Mariusz.  Finer geometric rigidity of limit sets of conformal IFS, 3695
McCoy, Charles F. D.  See Goncharov, Sergey S.
McCullough, Darryl.  Imbeddings of free actions on handlebodies, 2247
Mc Donald, John N.  Adjoints of a class of composition operators, 601
McDonald, Patrick and Meyers, Robert.  Isospectral polygons, planar graphs and heat content, 3589
McGuire, Paul.  See Feldman, Nathan S.
McKinnon, David.  Vojta’s Main Conjecture for blowup surfaces, 1
Meaney, Christopher.  Divergent Cesàro and Riesz means of Jacobi and Laguerre expansions, 3123
Meda, Ana.  Conditional weak laws in Banach spaces, 2597
Meise, Reinhold.  See Braun, Rüdiger W.
Melas, Antonios D.  A lower bound for sums of eigenvalues of the Laplacian, 631
Menegatto, Valdir A.  See Chen, Debao
Meng, Fanwei and Mingarelli, Angelo B.  Oscillation of linear Hamiltonian systems, 897
Meyers, Robert.  See McDonald, Patrick
Michalewski, Henryk.  Condensations of projective sets onto compacta, 3601
Milišić, Vuk.  Stability and convergence of discrete kinetic approximations to an initial-boundary value problem for conservation laws, 1727
Miller, Chris.  See Edgar, G. A.
Mingarelli, Angelo B.  See Meng, Fanwei
Minh, Pham Anh.  Nilpotency degree of cohomology rings in characteristic p, 363
Miura, Takeshi and Nijjima, Kazuki.  On a characterization of the maximal ideal spaces of algebraically closed commutative C*-algebras, 2869
Molnár, Lajos.  Local automorphisms of operator algebras on Banach spaces, 1867
Moors, Warren B. and Somasundaram, Sivajah.  A weakly Stegall space that is not a Stegall space, 647
Mordukhovich, Boris S. and Wang, Bingwu.  Differentiability and regularity of Lipschitzian mappings, 389
Moreno-Socías, Guillermo.  See Chardin, Marc
Móricz, Ferenc.  Ferenc Lukács type theorems in terms of the Abel-Poisson mean of conjugate series, 1243
Moriya, Katsuhiro.  Existence of algebraic minimal surfaces for an arbitrary puncture set, 303
Mortad, Hichem M.  An application of the Putnam-Fuglede theorem to normal products of self-adjoint operators, 3135
Motovilov, Alexander K.  See Kostrykin, Vadim
Müller, Peter.  Algebraic groups over finite fields, a quick proof of Lang’s theorem, 369
Müller, V.  Power bounded operators and supercyclic vectors, 3807
Murty, M. Ram.  See Chakraborty, K.
Musso, Monica.  See Del Pino, Manuel
Nahlus, Nazih.  Lie algebras and separable morphisms in pro-affine algebraic groups, 1321
Nakai, Hirofumi and Ravenel, Douglas C.  The first cohomology group of the generalized Morava stabilizer algebra, 1629
Nakano, Daniel K.  See Benson, David J.
Nakazi, Takahiko.  The Nevanlinna counting functions for Rudin’s orthogonal functions, 1267
Navarro, Gabriel.  Number of Sylow subgroups in p-solvable groups, 3019
Neelon, Tejinder.  A correction to “Ultradifferentiable functions on lines in $\mathbb{R}^n$”, 991
Ng, Siu-Ah.  See Baratella, Stefano
Nhieu, Duy-Minh.  See Danielli, Donatella
Nielsen, Lance.  Effects of absolute continuity in Feynman’s operational calculus, 781
Nijjima, Kazuki.  See Miura, Takeshi
Nikolov, Nikolai and Pflug, Peter.  Behavior of the Bergman kernel and metric near convex boundary points, 2097
Nishimura, Osamu.  See Kono, Akira
Nizhnik, L.  See Albeverio, S.
Obaya, Rafael.  See Alonso, Ana I.
Oda, N.  See Hardie, K. A.
Ok, Efe A.  Nonzero fixed points of power-bounded linear operators, 1539
Okayasu, Rui.  Type III factors arising from Cuntz-Krieger algebras, 2145
Olevskii, Alexander.  See Kozma, Gady
Oliveri, Aurora and Del Río, Ángel.  Bicyclic units of $\mathbb{Z}_n$, 1649
Omninen, Jani.  A note on the isoperimetric inequality, 3821
Ono, Ken.  See Coogan, Gwynneth H.
Opic, Bohumír.  See Edmunds, David E.
O’Regan, Donal.  See Agarwal, Ravi P.
Ortega, Rafael.  See Alonso, Ana I.
Ouyang, Yong.  An application of Bochner’s technique to the deformations of the complex structure of $\mathbb{C}P^n$, 3703
Ozawa, Makoto and Tsutsumi, Yukihiro.  Totally knotted Seifert surfaces with accidental peripherals, 3945
Ozawa, Tohru.  See Machihara, Shuji
Paeng, Seong-Hun.  On the fundamental group of manifolds with almost nonnegative Ricci curvature, 2577
Pak, Igor.  See Gurarii, Robert
Páles, Zsolt.  On approximately convex functions, 243
Paliogiannis, Fotios C.  On commuting operator exponentials, 3777
Papageorgiou, Nikolaos S.  See Kourogenis, Nikolaos C.
Paras, Agnes T. and Strüngmann, Lutz.  Fully transitive $p$-groups with finite first Ulm subgroup, 371
Park, Chun-Gil.  Multi-quadratic mappings in Banach spaces, 2501
Park, Sang Soo.  See Curto, Raúl
Parthasarathy, R.  See Alaoui, A. El Kacimi
Pascucci, Andrea.  See Manfredini, Maria
Passnicu, Cornel.  The ideal property in crossed products, 2103
Patterson, Joseph P.  See Dilworth, S. J.
Patula, W. T. and Voulov, H. D.  On the oscillation and periodic character of a third order rational difference equation, 905
Patzschke, Norbert.  The strong open set condition for self-conformal random fractals, 2347
Payá, Rafael.  See Finet, Catherine
Pearcy, Carl.  See Jung, Il Bong
Pearson, Kimberly.  See Davis, James F.
Pelant, Jan; Tkachenko, Mihail G.; Tkachuk, Vladimir V.; and Wilson, Richard G.  Pseudocompact Whyburn spaces need not be Fréchet, 3257
Pelczar, Anna Maria.  Subsymmetric sequences and minimal spaces, 765
Peng, Shuangjie.  See Cao, Daomin
Pennanen, Teemu; Revalski, Julian P.; and Théra, Michel.  Graph-distance convergence and uniform local boundedness of monotone mappings, 3721
Penot, Jean-Paul.  A fixed-point theorem for asymptotically contractive mappings, 2371
Peralta, Antonio M.  See Bunce, Leslie J.
Petermichl, S. and Pott, S.  A version of Burkholder’s theorem for operator-weighted spaces, 3457
Peternell, T.  See Campana, F.
Peterson, Chris.  See Kumar, N. Mohan
Pezzotti, Denis.  See Fannes, Mark
Pflug, Peter.  See Nikolov, Nikolai
Pierce, Steve.  See Li, Chi-Kwong
Pigola, Stefano; Rigoli, Marco; and Setti, Alberto G.  A remark on the maximum principle and stochastic completeness, 1283
Pilgrim, Kevin M.  An algebraic formulation of Thurston’s combinatorial equivalence, 3527
INDEX TO VOLUME 131 (2003)

Pirashvili, Teimuraz.  André-Quillen homology via functor homology, 1687
Pittet, Christophe and Saloff-Coste, Laurent.  Random walks on abelian-by-cyclic groups, 1071
Plotka, Krzysztof.  On functions whose graph is a Hamel basis, 1031
Pogorzaly, Zygmunt.  A new invariant of stable equivalences of Morita type, 343
Pol, Roman.  See Burke, Dennis K.
Poletsky, Evgeny A.  See Coman, Dan
Ponce, G.  See Fonseca, G.
Popovici, Nicolae.  See Benoist, Joël
Pott, S.  See Petermichl, S.
Poulakis, Dimitrios.  Affine curves with infinitely many integral points, 1357
Prokhorov, Dmitri V. and Szynal, Jan.  Directional convexity of level lines for functions convex in a given direction, 1453
Prosko, Frank N. and Puri, Madan L.  A strong law of large numbers for generalized random sets from the viewpoint of empirical processes, 2937
Pulmannová, Sylvia.  See Jenča, Gejza
Puppe, Volker.  See Allday, Christopher
Puri, Madan L.  See Proske, Frank N.
Qazi, M. A.  See Dryanov, D. P.
Qian, Chuanxi.  On the regularized Whittaker-Kotel’nikov-Shannon sampling formula, 1169
Qiao, Yuan-Qing and Tall, Franklin D.  Perfectly normal non-metrizable non-Archimedean spaces are generalized Souslin lines, 3929
Quinn, Declan and Raianu, Şerban.  Semiprime crossed products over copointed Hopf algebras, 29
Quinto, Eric Todd.  Mean value extension theorems and microlocal analysis, 3267
Rădulescu, Florin.  See Dykema, Ken
Raeburn, Iain and Thompson, Shaun J.  Countably generated Hilbert modules, the Kasparov Stabilisation Theorem, and frames in Hilbert modules, 1557
Raghu Ram, A.  See Lansky, Joshua
Rahman, Q. I.  See Dryanov, D. P.
Raianu, Şerban.  See Quinn, Declan
Rajić, Rajna.  On the algebra range of an operator on a Hilbert C*-module over compact operators, 3043
Rao, A. Prabhakar.  See Kumar, N. Mohan
Ravenel, Douglas C.  See Nakai, Hiroyumi
Revalski, Julian P.  See Pennanen, Teemu
Révész, Szilárd Gy.  See Kolountzakis, Mihail N.
Rhouma, N. Beihaj.  Principal eigenvalues for indefinite weight problems in all of \( \mathbb{R}^d \), 3747
Richman, Alexander E.  The range of linear fractional maps on the unit ball, 889
Rifford, Ludovic.  Range of the gradient of a smooth bump function in finite dimensions, 3063
Rigoli, Marco.  See Pigola, Stefano
Rittatore, Alvaro.  Reductive embeddings are Cohen-Macaulay, 675
Robert, Frédéric.  Positive solutions for a fourth order equation invariant under isometries, 1423
Rodríguez-Piazza, L.  See Lefèvre, P.
Rogers, James T., Jr.  Higher dimensional apsosydetic decompositions, 3285
Roginskaya, Maria.  See Hare, Kathryn E.
Ron, Amos and Shen, Zuowei.  The wavelet dimension function is the trace function of a shift-invariant system, 1385
Rouhani, B. Djafari and Khan, A. A.  On the embedding of variational inequalities, 3861
Rybkin, Alexei.  Necessary and sufficient conditions for absolute summability of the trace formulas for certain one dimensional Schrödinger operators, 219
Rychtář, Jan.  Renorming of C(K) spaces, 2063
Salarian, Sh.  See Kashyharmanesh, K.
Saloff-Coste, Laurent.  See Pittet, Christophe
Sampson, G.  \( L^p \) estimates for a class of oscillatory integrals, 2727
Sanchez, L.  See Cabada, A.
Sarig, Omri.  Existence of Gibbs measures for countable Markov shifts, 1751
Sato, Ryotaro. *A remark on real coboundary cocycles in $L^\infty$-space*, 231

Sato, Takuji. *Almost Hermitian structures induced from a Kähler structure which has constant holomorphic sectional curvature*, 2903

Saussol, Benoît. *See Alves, José F.*

Saveliev, Peter. *Lomonosov’s invariant subspace theorem for multivalued linear operators*, 825

Savu, A. *See Ivanescu, C.*

Saxon, S. A. *See Cascales, B.*

Schechtman, Gideon. *See Kleper, Dvir* Schein, Boris M. *See Mashevitzky, G.*


Schlumprecht, Thomas and Troitsky, Vladimir G. *On quasi-affine transforms of Read’s operator*, 1405

Schmidt, Karl Michael. *Eigenvalue asymptotics of perturbed periodic Dirac systems in the slow-decay limit*, 1205

Schmitt, Alexander. *A simple proof for the finiteness of GIT-quotients*, 359


Scott, Richard. *See Garrison, Anne* Šega, Liana M. *Vanishing of cohomology over Gorenstein rings of small codimension*, 2313

Seip, Kristian. *See Cichoń, Kinga* Semrl, Peter. *See Brešar, Matej* Seppälä, Mika. *See Buser, Peter*

Seress, Ákos. *A product decomposition of infinite symmetric groups*, 1681

Serra, António. *Interpolating sequences in harmonically weighted Dirichlet spaces*, 2809

Setti, Alberto G. *See Pigola, Stefano* Shakhmatov, Dmitri. *See Fujita, Hiroshi* Shapiro, Jonathan E. *See Gu, Caixing* Shapiro, Michael. *See Gekhtman, Michael* Shapiro, Victor L. *Fractals and distributions on the $N$-torus*, 3431

Sharp, Rodney Y. *Convergence of sequences of sets of associated primes*, 3009

Shelah, Saharon. *A partition relation using strongly compact cardinals*, 2585

Shen, Zhongwei. *The spectrum of Schrödinger operators with positive potentials in Riemannian manifolds*, 3447

Shen, Zuowei. *See Ron, Amos*

Shi, Jian-yi. *Fully commutative elements and Kazhdan–Lusztig cells in the finite and affine Coxeter groups*, 3371

Shiffman, Bernard and Zelditch, Steve. *Asymptotics of almost holomorphic sections of ample line bundles on symplectic manifolds: An addendum*, 291

Shima, Kazuhisa. *See Ikuta, Tadashi* Shimorin, Serguei. *On Beurling-type theorems in weighted $l^2$ and Bergman spaces*, 1777

Simis, Aron and Villarreal, Rafael H. *Constraints for the normality of monomial subrings and birationality*, 2043

Simonetta, Patrick. *An example of a C-minimal group which is not abelian-by-finite*, 3913

Simpson, R. J. and Tijdeman, R. *Multi-dimensional versions of a theorem of Fine and Wilf and a formula of Sylvester*, 1661

Šindelárová, Petra. *A zero topological entropy map with recurrent points not $F_\sigma$*, 2089

Smith, Larry. *On a theorem of R. Steinberg on rings of coinvariants*, 1043

Snashall, Nicole. *See Green, Edward L.*

Solberg, Øyvind. *See Green, Edward L.*

Solecki, Slawomir. *See Farah, Ilijas* Somasundaram, Sivajah. *See Moors, Warren B.*

Sondow, Jonathan. *Criteria for irrationality of Euler’s constant*, 3335
INDEX TO VOLUME 131 (2003)

Sontag, Eduardo D.  See Ingalls, Brian
Sottile, Frank.  See Lenart, Cristian
Soukup, Lajos.  See Juhász, István
Sourour, A. R.  See Fong, C. K.
Speissegger, Patrick.  See Lion, Jean-Marie
Stafford, J. T. and Zhang, J. J.  Algebras without Noetherian filtrations, 1329
Steinberg, B.  See Auinger, K.
Stoica, George.  Market completeness: A return to order, 285
Strkalj, Željko.  See Kunstmann, Peer Christian
Stroethoff, Karel.  See MacCluer, Barbara D.
Stringmann, Lutz.  See Parus, Agnes T.
Sugie, Jitsuro and Yamaoka, Naoto.  Applications of phase plane analysis of a Liénard system to positive solutions of Schrödinger equations, 501
Sun, Qiyu.  See Chui, Charles K.
Sun, Wenchang and Zhou, Xingwei.  Reconstruction of functions in spline subspaces from local averages, 2561
Sun, Ziqi.  An inverse problem for an inhomogeneous conformal Killing field equation, 1583
Suzuki, Tomonari.  On strong convergence to common fixed points of nonexpansive semigroups in Hilbert spaces, 2133
Svaiter, B. F.  Fixed points in the family of convex representations of a maximal monotone operator, 3851
Tanaka, Kazunaga.  See Jeanjean, Louis
Tanahashi, K.; Uchiyama, A.; and Uchiyama, M.  On Schwarz type inequalities, 2549
Taylør, B. A.  See Braun, Rüdiger W.
Taylor, Michael.  Commutator estimates, 1501
Teichner, Peter.  Flatness and the Ore condition for rings, 1977
Théral, Michel.  See Pennanen, Teemu
Thériault, Stephen D.  Proofs of two conjectures of Gray involving the double suspension, 2953
Takahashi, K.; Uchiyama, A.; and Uchiyama, M.  On Schwarz type inequalities, 2549
Tamedov, J. P.  See Mahdavi-Hezavehi, M.
Tijdeman, R.  See Simpson, R. J.
Timotin, D.  See Ambrozie, C.-G.
Tkachenko, Mihail G.  See Pelant, Jan
Tkachuk, Vladimir V.  See Pelant, Jan
Todorcevic, Stevo.  *A proof of Nogura’s conjecture*, 3919
Tomita, Artur Hideyuki.  *Two countably compact topological groups: One of size $\aleph_\omega$ and the other of weight $\aleph_\omega$ without non-trivial convergent sequences*, 2617
Tomiyama, Jun.  See Ji, Guoxing
Tonegawa, Yoshihiro.  See Harris, Adam
Trench, William F.  *Linear perturbations of a nonoscillatory second order differential equation II*, 1415
Troitsky, E. V.  *Discrete groups actions and corresponding modules*, 3411
Troitsky, Vladimir G.  See Schlumprecht, Thomas
Tsai, Dong-Ho.  $C^{2,\alpha}$ estimate of a parabolic Monge-Ampère equation on $S^n$, 3067
Tsankovskii, Eduard.  See Arlinski˘ı, Yury
Tsumura, Hirofumi.  *On alternating analogues of Tornheim’s double series*, 3633
Tsutsumi, Yukihiro.  See Ozawa, Makoto
Turcotte, Daniel.  *Propagation of normality along regular analytic Jordan arcs in analytic functions with values in a complex unital Banach algebra with continuous involution*, 1399
Uchiyama, A.  See Tanahashi, K.
Uchiyama, M.  See Tanahashi, K.
Ulrich, Bernd.  See Eisenbud, David
Urbański, Mariusz.  See Mayer, Volker
Vainshtein, Alek.  See Gekhtman, Michael
Van Assche, Walter.  See Dimitrov, Dimitar K.
Van Der Mee, Cornelis V. M.  See Ehrhardt, Torsten
Vargas, Ana.  See Bennett, Jonathan M.
Vershchinin, V. V.  See Bakuradze, M.
Vestal, Sharon Schaffer and Weber, Eric.  *Orthonormal wavelets and shift invariant generalized multiresolution analyses*, 3089
Viêt, Duong Quóc.  *On some properties of $(fc)$-sequences of ideals in local rings*, 45
Villarreal, Rafael H.  See Simis, Aron
Vîţă, Lumiţa.  See Ishihara, Hajime
Vogel, Thomas.  *On the asymptotic linking number*, 2289
Voulov, H. D.  *Periodic solutions to a difference equation with maximum*, 2155
WEBER, W. R.  A Tauberian theorem for Vilenkin series, 2877
Walter, Martin E.  *Algebraic structures determined by 3 by 3 matrix geometry*, 2129
Wang, Bingwu.  See Mordukhovich, Boris S.
Wang, Libin.  See Gong, Weibang
Wang, Lib-Chung and Chen, Chih-Rung.  *Generalized Tchakaloff’s theorem for semi-spectral measures*, 2201
Wang, Yanning.  See Li, Yangming
Wang, Yuan.  See Ingalls, Brian
Wang, Zaihong.  *Irrational rotation numbers and unboundedness of solutions of the second order differential equations with asymmetric nonlinearities*, 523
Wang, Zhi-Qiang.  See Liu, Jiaqian
Webb, William A. and Yokota, Hisashi.  *Polynomial Pell’s equation*, 993
Weber, Andrzei.  *Formality of equivariant intersection cohomology of algebraic varieties*, 2633
Weber, Eric.  See Vestal, Sharon Schaffer
Weigenroth, Jochen.  *Hypercyclic operators on non-locally convex spaces*, 1759
Wiegierwicz, Jan.  See Edigarian, Armen
Wilson, Richard G.  See Pelant, Jan
Wilson, S. M. J.  See Kearton, C.
Wójcik, Klaudiusz.  See Capiński, Maciej J.
Wood, Peter J.  *Invariant complementation and projectivity in the Fourier algebra*, 1881
Wu, J.  *Average values of symmetric square $L$-functions at the edge of the critical strip*, 1063
Wu, Qiang.  See Lu, Shanzhen
Wu, Wei.  *Locally pre-$C^*$-equivalent algebras*, 555
Xia, Jingbo.  *On a proposed characterization of Schatten-class composition operators*, 2505
INDEX TO VOLUME 131 (2003)

Xiao, Yimin. See Khoshnevisan, Davar
Xie, Chunhong. See Deng, Weibing
Xie, Feng; Yin, Yongcheng; and Sun, Yeshun. Uniform perfectness of self-affine sets, 3053
Yajima, Yukinobu. Characterizations of paracompactness and Lindelöfness by the separation property, 1297
Yamada, Mino. See Matsui, Mai
Yamaoka, Naoto. See Sugie, Jitsuro
Yan, Lixin. See Duong, Xuan Thinh
Yang, Bo. See Graef, John R.
Yang, Chan Woo. Lp regularity of averaging operators with higher fold singularities, 455
Yang, Jiazhong. Differentiable conjugacy of the Poincaré type vector fields on R³, 2715
Yang, Rongwei. A trace formula for isometric pairs, 533
Yang, Tong; Zhao, Huijiang; and Zhu, Changjiang. BV estimates of Lax-Friedrichs’ scheme for a class of nonlinear hyperbolic conservation laws, 1257
Yao, Guowu. ∂-energy integral and harmonic mappings, 2271
Yates, Stuart. See Mathai, Varghese
Yeh, Lina. See Alpin, Yuri A.
Yi, HeungSu. See Choe, Boo Rim
Yi, Inhyeop. Ordered group invariants for nonorientable one-dimensional generalized solenoids, 1273
Yin, Yongcheng. See Xie, Feng
Ying, Jiangang. See Fukushima, Masatoshi
Yingbin, Ruan. See Chen, Lin
Yingst, Andrew Q. See Mauldin, R. Daniel
Yokota, Hisashi. See Webb, William A.
Yong, Alexander. Degree bounds in quantum Schubert calculus, 2649
Yu, Hong Bing. A simple proof of a theorem of Bollobás and Leader, 2639
Zafrullah, Muhammad. See Anderson, D. D.
Zakarias, Lov. The rank of Hankel operators on harmonic Bergman spaces, 1177
Zanghirati, Luisa. See Boiti, Chiara
Zannier, U. See Corvaja, P.
Zarbin, Yuri G. Hyperelliptic Jacobians and simple groups U₃(2ᵐ), 95
Zayed, Ahmed I. See Ismail, Mourad E.
Zeghib, A. See Chidume, C. E.
Ziegler, A. See Feres, R.
Ziegler, Gerd. Limitations on the extendibility of the Radon-Nikodým Theorem, 2491
Zelditch, Steve. See Shiffman, Bernard
Zerrouali, E. H. See Daoui, A.
Zhang, J. J. See Stafford, J. T.
Zhang, Lei. See Taliaferro, Steven D.
Zhang, Qi. See Campana, F.
Zhang, R. B. Howe duality and the quantum general linear group, 2681
Zhang, Shiqing and Zhou, Qing. Periodic solutions for planar 2N-body problems, 2161
Zhao, Huijiang. See Yang, Tong
Zhao, Ruhan. See MacCluer, Barbara D.
Zhong, Xiao. See Koskela, Pekka
Zhou, Ping. See Borwein, Peter B.
Zhou, Qing. See Zhang, Shiqing
Zhou, Xingwei. See Sun, Wenchang
Zhu, Changjiang. See Yang, Tong
Ziggio, Andrea. See Buzano, Ernesto
Zikun, Yan. See Chen, Lin
Zima, Mirosława. On the local spectral radius of positive operators, 845
Zink, Robert E. See Grigorian, M. G.
Zizler, V. See Fabian, M.
Zomorrodian, Reza. On a theorem of supersoluble automorphism groups, 2711
Zorboska, Nina. The Berezin transform and radial operators, 793
## A. ALGEBRA, NUMBER THEORY, AND COMBINATORICS

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>David McKinnon</td>
<td>Vojta’s Main Conjecture for blowup surfaces</td>
<td>1</td>
</tr>
<tr>
<td>J. H. E. Cohn</td>
<td>The Diophantine equation $x^p + 1 = py^2$</td>
<td>13</td>
</tr>
<tr>
<td>Miklós Abért</td>
<td>Symmetric presentations of Abelian groups</td>
<td>17</td>
</tr>
<tr>
<td>Wenzhi Luo</td>
<td>Equidistribution of Hecke eigenforms on the modular surface</td>
<td>21</td>
</tr>
<tr>
<td>Declan Quinn and Șerban Raianu</td>
<td>Semiprime crossed products over copointed Hopf algebras</td>
<td>29</td>
</tr>
<tr>
<td>Radha Kessar and Markus Linckelmann</td>
<td>A block theoretic analogue of a theorem of Glauberman and Thompson</td>
<td>35</td>
</tr>
<tr>
<td>K. Chakraborty and M. Ram Murty</td>
<td>On the number of real quadratic fields with class number divisible by 3</td>
<td>41</td>
</tr>
<tr>
<td>Duong Quốc Viet</td>
<td>On some properties of (fc)-sequences of ideals in local rings</td>
<td>45</td>
</tr>
<tr>
<td>Chi-Kwong Li and Steve Pierce</td>
<td>Linear operators preserving correlation matrices</td>
<td>55</td>
</tr>
<tr>
<td>Hyun Kwang Kim</td>
<td>On regular polytope numbers</td>
<td>65</td>
</tr>
<tr>
<td>Ze-Li Dou</td>
<td>A note on a lemma of Shimura</td>
<td>77</td>
</tr>
<tr>
<td>S. C. Coutinho</td>
<td>Non-holonomic simple $D$-modules over complete intersections</td>
<td>83</td>
</tr>
<tr>
<td>Shiro Goto, Futoshi Hayasaka, and Shin-ichiro Iai</td>
<td>The $a$-invariant and Gorensteinness of graded rings associated to filtrations of ideals in regular local rings</td>
<td>87</td>
</tr>
<tr>
<td>Yuri G. Zarhin</td>
<td>Hyperelliptic Jacobians and simple groups $U_3(2^m)$</td>
<td>95</td>
</tr>
<tr>
<td>Hans Schoutens</td>
<td>A non-standard proof of the Briançon-Skoda theorem</td>
<td>103</td>
</tr>
<tr>
<td>S. P. Dutta</td>
<td>On modules of finite projective dimension over complete intersections</td>
<td>113</td>
</tr>
</tbody>
</table>

## B. ANALYSIS

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jonathan M. Bennett and Ana Vargas</td>
<td>Randomised circular means of Fourier transforms of measures</td>
<td>117</td>
</tr>
<tr>
<td>Ravi P. Agarwal, Said R. Grace, and Donal O'Regan</td>
<td>On nonoscillatory solutions of differential inclusions</td>
<td>129</td>
</tr>
<tr>
<td>Heinz H. Bauschke</td>
<td>The composition of projections onto closed convex sets in Hilbert space is asymptotically regular</td>
<td>141</td>
</tr>
<tr>
<td>Fangyan Lu</td>
<td>Jordan isomorphisms of nest algebras</td>
<td>147</td>
</tr>
<tr>
<td>Ali Abkar</td>
<td>Application of a Riesz-type formula to weighted Bergman spaces</td>
<td>155</td>
</tr>
<tr>
<td>Kathryn E. Hare and Maria Roginskaya</td>
<td>A Fourier series formula for energy of measures with applications to Riesz products</td>
<td>165</td>
</tr>
<tr>
<td>Jean-Marie Lion, Chris Miller, and Patrick Speissegger</td>
<td>Differential equations over polynomially bounded o-minimal structures</td>
<td>175</td>
</tr>
<tr>
<td>Frances Y. Jackson and W. A. J. Luxemburg</td>
<td>Sndual characterizations of the translation group of $\mathbb{R}$</td>
<td>185</td>
</tr>
<tr>
<td>Kinga Cichoń and Kristian Seip</td>
<td>Weighted holomorphic spaces with trivial closed range multiplication operators</td>
<td>201</td>
</tr>
<tr>
<td>R. Laister and R. E. Beardmore</td>
<td>Transversality and separation of zeros in second order differential equations</td>
<td>209</td>
</tr>
<tr>
<td>Alexei Rybkin</td>
<td>Necessary and sufficient conditions for absolute summability of the trace formulas for certain one dimensional Schrödinger operators</td>
<td>219</td>
</tr>
</tbody>
</table>
Ryotaro Sato, A remark on real coboundary cocycles in $L^\infty$-space .......... 231
Bjarte Bøe, A norm on the holomorphic Besov space ......................... 235
Zsolt Páles, On approximately convex functions ............................ 243
Branko Ćurgus and Vania Mascioni, On the location of critical points of polynomials ................................................................. 253
Ernesto Buzano and Andrea Ziggsio, Weyl formula for hypoelliptic operators of Schrödinger type ................................................... 265
Deguang Han, Interpolation operators associated with sub-frame sets .... 275

C. APPLIED MATHEMATICS
George Stoica, Market completeness: A return to order ..................... 285

D. GEOMETRY
Bernard Shiffman and Steve Zelditch, Asymptotics of almost holomorphic sections of ample line bundles on symplectic manifolds: An addendum ...... 291
Katsuhiro Moriya, Existence of algebraic minimal surfaces for an arbitrary puncture set ................................................................. 303

E. LOGIC AND FOUNDATIONS
Natasha Dobrinen, Games and general distributive laws in Boolean algebras ... 309

G. TOPOLOGY
Keiko Chiba, Pseudonormality and starcompactness of $\sigma$-products ........ 319

Vol. 131, No. 2 Whole No. 524 February 2003

A. ALGEBRA, NUMBER THEORY, AND COMBINATORICS
M. Kassabov, On pro-unipotent groups satisfying the Golod–Shafarevich condition ................................................................. 329
Yangming Li and Yanming Wang, The influence of minimal subgroups on the structure of a finite group ........................................ 337
Zygmunt Pogorzały, A new invariant of stable equivalences of Morita type ...... 343
Leovigildo Alonso Tarrío, Ana Jeremías López, and Joseph Lipman, Correction to the paper “Duality and flat base change on formal schemes” ... 351
Alexander Schmitt, A simple proof for the finiteness of GIT-quotients ....... 359
Pham Anh Minh, Nilpotency degree of cohomology rings in characteristic $p$ ... 363
Peter Müller, Algebraic groups over finite fields, a quick proof of Lang’s theorem ................................................................. 369
Agnes T. Paras and Lutz Strüngmann, Fully transitive $p$-groups with finite first Ulm subgroup ................................................................. 371

B. ANALYSIS
Per Enflo and Terje Hōim, Some results on extremal vectors and invariant subspaces ................................................................. 379
Boris S. Mordukhovich and Bingwu Wang, Differentiability and regularity of Lipschitzian mappings ................................................................. 389
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boo Rim Choe, Hyungwoon Koo, and HeungSu Yi, Harmonic Bergman functions as radial derivatives of Bergman functions</td>
<td>401</td>
</tr>
<tr>
<td>Dmitry Khavinson and Grzegorz Świątek, On the number of zeros of certain harmonic polynomials</td>
<td>409</td>
</tr>
<tr>
<td>Gennady G. Laptev, Nonexistence results for higher-order evolution partial differential inequalities</td>
<td>415</td>
</tr>
<tr>
<td>Peter Buser and Mika Seppälä, Triangulations and homology of Riemann surfaces</td>
<td>425</td>
</tr>
<tr>
<td>Dvir Kleper and Gideon Schechtman, Block bases of the Haar system as complemented subspaces of $L_p$, $2 &lt; p &lt; \infty$</td>
<td>433</td>
</tr>
<tr>
<td>Jiaquan Liu and Zhi-Qiang Wang, Soliton solutions for quasilinear Schrödinger equations, I</td>
<td>441</td>
</tr>
<tr>
<td>Sung Guen Kim and Sang Hun Lee, Exposed 2-homogeneous polynomials on Hilbert spaces</td>
<td>449</td>
</tr>
<tr>
<td>Chan Woo Yang, $L^p$ regularity of averaging operators with higher fold singularities</td>
<td>455</td>
</tr>
<tr>
<td>Shanzhen Lu and Qiang Wu, Endpoint estimates for certain commutators of fractional and singular integrals</td>
<td>467</td>
</tr>
<tr>
<td>Nathan S. Feldman, Hypercyclicity and supercyclicity for invertible bilateral weighted shifts</td>
<td>479</td>
</tr>
<tr>
<td>Brian Ingalls, Eduardo D. Sontag, and Yuan Wang, An infinite-time relaxation theorem for differential inclusions</td>
<td>487</td>
</tr>
<tr>
<td>Jitsuro Sugie and Naoto Yamaoka, Applications of phase plane analysis of a Liénard system to positive solutions of Schrödinger equations</td>
<td>501</td>
</tr>
<tr>
<td>Denny H. Leung and Wee-Kee Tang, The $\ell^1$-indices of Tsirelson type spaces</td>
<td>511</td>
</tr>
<tr>
<td>Zaihong Wang, Irrational rotation numbers and unboundedness of solutions of the second order differential equations with asymmetric nonlinearities</td>
<td>523</td>
</tr>
<tr>
<td>Rongwei Yang, A trace formula for isometric pairs</td>
<td>533</td>
</tr>
<tr>
<td>Mark Hoffmann, The Banach envelope of Paley-Wiener type spaces</td>
<td>543</td>
</tr>
<tr>
<td>F. Campana, T. Peternell, and Qi Zhang, On the Albanese maps of compact Kähler manifolds</td>
<td>549</td>
</tr>
<tr>
<td>Wei Wu, Locally pre-$C^*$-equivalent algebras</td>
<td>555</td>
</tr>
<tr>
<td>Tomas Ya. Azizov, Aad Dijksma, and Irina V. Gridneva, On the boundedness of Hamiltonian operators</td>
<td>563</td>
</tr>
<tr>
<td>John R. Graef, Chuanxi Qian, and Bo Yang, Multiple symmetric positive solutions of a class of boundary value problems for higher order ordinary differential equations</td>
<td>577</td>
</tr>
<tr>
<td>Weibang Gong and Libin Wang, Mbekhta’s subspaces and a spectral theory of compact operators</td>
<td>587</td>
</tr>
<tr>
<td>Barbara D. MacCluer, Karel Stroethoff, and Ruhan Zhao, Generalized Schwarz-Pick estimates</td>
<td>593</td>
</tr>
<tr>
<td>John N. McDonald, Adjoints of a class of composition operators</td>
<td>601</td>
</tr>
</tbody>
</table>

**C. APPLIED MATHEMATICS**

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. Ivanescu and A. Savu, The Kowalevski top as a reduction of a Hamiltonian system on $\mathfrak{sp}(4, \mathbb{R})^*$</td>
<td>607</td>
</tr>
</tbody>
</table>

**D. GEOMETRY**

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wiesław Kubiś, Perfect cliques and $G_\delta$ colorings of Polish spaces</td>
<td>619</td>
</tr>
</tbody>
</table>
E. LOGIC AND FOUNDATIONS

Tomek Bartoszynski, Remarks on small sets of reals ........................................... 625

G. TOPOLOGY

Antonios D. Melas, A lower bound for sums of eigenvalues of the Laplacian ...... 631
M. Cristina Costoya-Ramos, Catégorie de Lusternik-Schnirelmann et genre des $H_0$-espaces ................................................................. 637
Warren B. Moors and Sivajah Somasundaram, A weakly Stegall space that is not a Stegall space ............................................. 647
C. Kearton and S. M. J. Wilson, Knot modules and the Nakanishi index .......... 655

Vol. 131, No. 3 Whole No. 525 March 2003

A. ALGEBRA, NUMBER THEORY, AND COMBINATORICS

Julien Bichon, Quantum automorphism groups of finite graphs ....................... 665
Alvaro Rittatore, Reductive embeddings are Cohen-Macaulay .......................... 675
Dan Abramovich and Tyler J. Jarvis, Moduli of twisted spin curves .............. 685
David Eisenbud, Craig Huneke, and Bernd Ulrich, What is the Rees algebra of a module? .............................................................. 701
Piotr Grzeszczuk, Invariants of semisimple Lie algebras acting on associative algebras ................................................................. 709
Gwynneth H. Coogan and Ken Ono, A $q$-series identity and the arithmetic of Hurwitz zeta functions .................................................... 719
Yuri A. Alpin, Mao-Ting Chien, and Lina Yeh, The numerical radius and bounds for zeros of a polynomial ........................................ 725
Michael Gekhtman, Michael Shapiro, and Alek Vainshtein, The number of connected components in double Bruhat cells for nonsimply-laced groups .... 731

B. ANALYSIS

Wenxiong Chen and Congming Li, Gaussian curvature in the negative case ....... 741
David E. Edmunds and Bohumír Opic, Equivalent quasi-norms on Lorentz spaces ................................................................. 745
Xavier Buff, On the Bieberbach conjecture and holomorphic dynamics ......... 755
Richard J. Bagby and Basem Masaedeh, Regularization of $A_p$ weights ........ 761
Anna Maria Pelczar, Subsymmetric sequences and minimal spaces ............... 765
Stephen J. Gardiner and Mary Hanley, Farrell sets for harmonic functions ...... 773
Lance Nielsen, Effects of absolute continuity in Feynman’s operational calculus ................................................................. 781
Nina Zorboska, The Berezin transform and radial operators ............................. 793
Torsten Ehrhardt and Cornelis V. M. van der Mee, Canonical factorization of continuous functions on the $d$-torus .............................. 801
Nobuhiro Asai, Izumi Kubo, and Hui-Hsiung Kuo, Segal-Bargmann transforms of one-mode interacting Fock spaces associated with Gaussian and Poisson measures ................................................................. 815
Peter Saveliev, Lomonosov’s invariant subspace theorem for multivalued linear operators ................................................................. 825
Hugo Aduén and Alfonso Castro, Infinitely many nonradial solutions to a
superlinear Dirichlet problem .................................................... 835
Mirosława Zima, On the local spectral radius of positive operators .......... 845
Ana I. Alonso, Rafael Obaya, and Rafael Ortega, Differential equations with
limit-periodic forcings ................................................................. 851
C.-G. Ambrozie and D. Timotin, A von Neumann type inequality for certain
domains in $C^n$ ................................................................. 859
Catherine Finet, Miguel Martín, and Rafael Payá, Numerical index and
renorming ................................................................. 871
Dan Coman and Evgeny A. Poletsky, Bernstein–Walsh inequalities and the
exponential curve in $C^2$ .......................................................... 879
Alexander E. Richman, The range of linear fractional maps on the unit ball ... 889
Fanwei Meng and Angelo B. Mingarelli, Oscillation of linear Hamiltonian
systems ................................................................. 897
W. T. Patula and H. D. Voulov, On the oscillation and periodic character of a
third order rational difference equation ........................................... 905

C. APPLIED MATHEMATICS

François Germinet and Abel Klein, Operator kernel estimates for functions of
generalized Schrödinger operators .......................................................... 911

D. GEOMETRY

Konrad J. Swanepoel, Helly-type theorems for homothets of planar convex
curves ................................................................. 921

F. STATISTICS AND PROBABILITY

Lucien Chevalier, Une propriété de continuité du temps local .......... 933
Surjit Singh Khurana, Approximation of measurable mappings by sequences of
continuous functions ....................................................... 937

G. TOPOLOGY

in $W$-topology ................................................................. 941
Hiroshi Fujita and Dmitri Shakhmatov, A characterization of compactly
generated metric groups .......................................................... 953
Anne Garrison and Richard Scott, Small covers of the dodecahedron and the
120-cell ................................................................. 963
Karel Dekimpe, On polynomial products in nilpotent and solvable Lie groups ... 973
Alex J. Lemin, On ultrametrization of general metric spaces .................. 979

ERRATA

Tejinder Neelon, A correction to “Ultradifferentiable functions on lines in $R^n$” ... 991

Vol. 131, No. 4 Whole No. 526 April 2003

A. ALGEBRA, NUMBER THEORY, AND COMBINATORICS

William A. Webb and Hisashi Yokota, Polynomial Pell’s equation ............ 993
B. ANALYSIS

Saoussen Kallel-Jallouli, Existence of $C^\infty$ local solutions of the complex Monge-Ampère equation ................................................. 1103
Joël Benoist, Jonathan M. Borwein, and Nicolae Popovici, A characterization of quasiconvex vector-valued functions .................................................. 1109
Maria Manfredini and Andrea Pascucci, A priori estimates for quasilinear degenerate parabolic equations ......................................................... 1115
G. A. Edgar and Chris Miller, Borel subrings of the reals .......................... 1121
Michael Bolt, A local geometric characterization of the Bochner-Martinelli kernel ........................................... 1131
M. G. Grigorian and Robert E. Zink, Subsystems of the Walsh orthogonal system whose multiplicative completions are quasibases for $L^p[0,1]$, $1 \leq p < +\infty$ .................................................................................. 1137
Pekka Koskela and Xiao Zhong, Hardy’s inequality and the boundary size ... 1151
David R. Adams and Ritva Hurri-Syrjänen, Capacity estimates ................. 1159
Liwen Qian, On the regularized Whittaker-Kotel’nikov-Shannon sampling formula ...................................................................................... 1169
Lova Zakariasy, The rank of Hankel operators on harmonic Bergman spaces .... 1177
I. Gasparis, Strictly singular non-compact operators on hereditarily indecomposable Banach spaces ........................................................................ 1181
A. El Kacimi Alaoui and R. Parthasarathy, Trace splittings in $C^*$-algebras of tiling systems via colourings ...................................................... 1191
Karl Michael Schmidt, Eigenvalue asymptotics of perturbed periodic Dirac systems in the slow-decay limit ...................................................... 1205
Miklós Horváth, On the first two eigenvalues of Sturm-Liouville operators .... 1215
N. J. Kalton, A remark on quasi-isometries ............................................. 1225
Brent J. Carswell, Univalent mappings and invariant subspaces of the Bergman and Hardy spaces .............................................................. 1233
Ferenc Móricz, Ferenc Lukács type theorems in terms of the Abel-Poisson mean of conjugate series .......................................................................... 1243
Leslie J. Bunce and Antonio M. Peralta, The alternative Dunford-Pettis property in $C^*$-algebras and von Neumann preduals ............................... 1251
Tong Yang, Huijiang Zhao, and Changjiang Zhu, BV estimates of Lax-Friedrichs’ scheme for a class of nonlinear hyperbolic conservation laws .... 1257
Takahiko Nakazi, The Nevanlinna counting functions for Rudin’s orthogonal functions ...................................................................................... 1267
G. TOPOLOGY

Inhyeop Yi, Ordered group invariants for nonorientable one-dimensional generalized solenoids ......................................................... 1273
Stefano Pigola, Marco Rigoli, and Alberto G. Setti, A remark on the maximum principle and stochastic completeness .......................... 1283
Zoltan T. Balogh, Reflecting point-countable families .......................................................... 1289
Yukinobu Yajima, Characterizations of paracompactness and Lindelöfness by the separation property .................................... 1297
José F. Alves, Vítor Araújo, and Benoît Saussol, On the uniform hyperbolicity of some nonuniformly hyperbolic systems .................. 1303
W. W. Comfort and Jorge Galindo, Pseudocompact topological group refinements of maximal weight ........................................ 1311

Vol. 131, No. 5 Whole No. 527 May 2003

A. ALGEBRA, NUMBER THEORY, AND COMBINATORICS

Nazih Nahlus, Lie algebras and separable morphisms in pro-affine algebraic groups ........................................................................ 1321
J. T. Stafford and J. J. Zhang, Algebras without Noetherian filtrations ...... 1329
Florian Luca, On the Diophantine equation $x^2 = 4q^m - 4q^n + 1$ .......................................................... 1339
H. H. Brungs and J. Gräter, Characterizing nearly simple chain domains .... 1347
Dimitrios Poulakis, Affine curves with infinitely many integral points ........ 1357
Zbigniew Jelonek, On bifurcation points of a complex polynomial .......... 1361
Donu Arapura and Sviatoslav Archava, Kodaira dimension of symmetric powers ............................................................................ 1369

B. ANALYSIS

Vladimir Bolotnikov, Interpolation for multipliers on reproducing kernel Hilbert spaces ................................................................... 1373
Amos Ron and Zuowei Shen, The wavelet dimension function is the trace function of a shift-invariant system ................................ 1385
Daniel Turcotte, Propagation of normality along regular analytic Jordan arcs in analytic functions with values in a complex unital Banach algebra with continuous involution .............................................. 1399
Thomas Schlumprecht and Vladimir G. Troitsky, On quasi-affine transforms of Read’s operator ..................................................... 1405
William F. Trench, Linear perturbations of a nonoscillatory second order differential equation II .................................................. 1415
Frédéric Robert, Positive solutions for a fourth order equation invariant under isometries .................................................................. 1423
Sanghyuk Lee, Endpoint estimates for the circular maximal function ........ 1433
S. Albeverio, V. Koshmanenko, P. Kurasov, and L. Nizhnik, On approximations of rank one $H_{-2}$-perturbations .......................... 1443
Dmitri V. Prokhorov and Jan Szyndal, Directional convexity of level lines for functions convex in a given direction ......................... 1453
Andrei K. Lerner, On pointwise estimates for the Littlewood-Paley operators ... 1459
Tadashi Ikuta and Kazuhiisa Shima, An approach to the spectrum structure of Dirac operators by the local-compactness method .......................... 1471
Paul W. Eloe, The quasilinearization method on an unbounded domain ........ 1481
S. J. Dilworth and Joseph P. Patterson, An extension of Elton’s ℓ₁ theorem to complex Banach spaces .................................................. 1489
Michael Taylor, Commutator estimates ........................................... 1501
Jay Kovats, A three-curves theorem for viscosity subsolutions of parabolic equations ................................................................. 1509
Zhe Dong and Shijie Lu, Finite rank operators in closed maximal triangular algebras II ................................................................. 1515
Charles K. Chui and Qiyu Sun, Tight frame oversampling and its equivalence to shift-invariance of affine frame operators .................. 1527
Efe A. Ok, Nonzero fixed points of power-bounded linear operators ...... 1539
Shuji Machihara and Tohru Ozawa, Interpolation inequalities in Besov spaces ................................................................. 1553
Iain Raeburn and Shaun J. Thompson, Countably generated Hilbert modules, the Kasparov Stabilisation Theorem, and frames in Hilbert modules .... 1557
Chikh Bouzar and Rachid Chaili, Gevrey vectors of multi-quasi-elliptic systems ................................................................. 1565
Weibing Deng, Yuxiang Li, and Chunhong Xie, Existence and nonexistence of global solutions of some non-local degenerate parabolic systems 1573
Ziqi Sun, An inverse problem for an inhomogeneous conformal Killing field equation ................................................................. 1583
Zinoviy Grinshpun, On the Bochner theorem on orthogonal operators .... 1591

F. STATISTICS AND PROBABILITY

A. S. Fainleib, On a characterization of measures of dispersion ............. 1601
Masatoshi Fukushima and Jiangang Ying, A note on regular Dirichlet subspaces ................................................................. 1607

G. TOPOLOGY

Ahmad El Soufi and Saïd Ilias, Extremal metrics for the first eigenvalue of the Laplacian in a conformal class ........................................ 1611
Menachem Kojman and Saharon Shelah, Van der Waerden spaces and Hindman spaces are not the same ........................................ 1619
Sergei Chmutov, Diagrams of divide links ......................................... 1623
Hirofumi Nakai and Douglas C. Ravenel, The first cohomology group of the generalized Morava stabilizer algebra .......................... 1629
Joshua Lansky and A. Raghuram, On the correspondence of representations between GL(n) and division algebras ................................ 1641

Vol. 131, No. 6 Whole No. 528 June 2003

A. ALGEBRA, NUMBER THEORY, AND COMBINATORICS

Aurora Olivieri and Ángel del Río, Bicyclic units of ZSₙ ........................ 1649
G. Mashevitzky and Boris M. Schein, Automorphisms of the endomorphism semigroup of a free monoid or a free semigroup ............... 1655
R. J. Simpson and R. Tijdeman, Multi-dimensional versions of a theorem of Fine and Wilf and a formula of Sylvester .......................... 1661
Emre Alkan, Nonvanishing of Fourier coefficients of modular forms ........ 1673
Ákos Seress, A product decomposition of infinite symmetric groups .......... 1681
Teimuraz Pirashvili, André-Quillen homology via functor homology .......... 1687
Eva Maria Feichtner, Rational versus real cohomology algebras of low-dimen-
sional toric varieties ........................................................................ 1695
P. Corvaja and U. Zannier, On the greatest prime factor of \((ab+1)(ac+1)\) ... 1705

B. ANALYSIS

Young-Ho Ahn and Mariusz Lemańczyk, An algebraic property of joinings ... 1711
R. Feres and A. Zeghib, Leafwise holomorphic functions ................................ 1717
Vuk Milišić, Stability and convergence of discrete kinetic approximations to an
initial-boundary value problem for conservation laws .............................. 1727
Rong-Qing Jia, Convergence rates of cascade algorithms ............................ 1739
Omri Sarig, Existence of Gibbs measures for countable Markov shifts ........ 1751
Jochen Wengenroth, Hypercyclic operators on non-locally convex spaces ...... 1759
Jose Barrionuevo and Michael T. Lacey, A weak-type orthogonality
principle ............................................................................................... 1763
Leonid Golinskii, Mass points of measures on the unit circle and reflection
coefficients ......................................................................................... 1771
Serguei Shimorin, On Beurling-type theorems in weighted \(l^2\) and Bergman
spaces ............................................................................................... 1777
Frédéric Bayart, Similarity to an isometry of a composition operator .......... 1789
Nathan S. Feldman and Paul McGuire, On the spectral picture of an
irreducible subnormal operator II ........................................................... 1793
M. H. Annaby, On sampling theory associated with the resolvents of singular
Sturm-Liouville problems ...................................................................... 1803
Ken Dykema and Florin Rădulescu, Rescalings of free products of
\(I_1\)-factors ....................................................................................... 1813
Dan Marshall, The product of a nonsymmetric Jack polynomial with a linear
function ............................................................................................... 1817
P. Lefèvre and L. Rodríguez-Piazza, \(p\)-Rider sets are \(q\)-Sidon sets .......... 1829
Jongmin Han, Asymptotic limit for condensate solutions in the Abelian Chern-
Simons Higgs model ........................................................................... 1839
G. Fonseca, F. Linares, and G. Ponce, Global existence for the critical
generalized KdV equation ...................................................................... 1847
Daomin Cao and Shuangjie Peng, A global compactness result for singular
elliptic problems involving critical Sobolev exponent ........................... 1857
Lajos Molnár, Local automorphisms of operator algebras on Banach spaces ... 1867
P. C. Fenton, \(\cos \pi \lambda\) again ................................................................. 1875
Peter J. Wood, Invariant complementation and projectivity in the Fourier
algebra ................................................................................................. 1881
E. N. Dancer and Yihong Du, Some remarks on Liouville type results for
quasilinear elliptic equations .................................................................. 1891
Gady Kozma and Alexander Olevskii, Random Menshov spectra ............ 1901

G. TOPOLOGY

István Juhász, Saharon Shelah, Lajos Soukup, and Zoltán Szentmiklóssy,
A tall space with a small bottom .......................................................... 1907
Varghese Mathai, Thomas Schick, and Stuart Yates, Approximating spectral
invariants of Harper operators on graphs II ............................................ 1917
Felix Schlenk, Volume preserving embeddings of open subsets of \(\mathbb{R}^n\) into
manifolds .............................................................................................. 1925
Paweł Krupski, Means on solenoids ........................................ 1931
M. Bakuradze, M. Jibladze, and V. V. Vershinin, Characteristic classes and
transfer relations in cobordism ........................................ 1935
Robert W. Donley, Jr. A cocycle formula for the quaternionic discrete series ... 1943
Adrian Butscher, Deformations of minimal Lagrangian submanifolds with
boundary ................................................................. 1953
Witold Marciszewski, A function space $C_p(X)$ without a condensation onto a
$\sigma$-compact space .................................................. 1965
Iljias Farah and Slawomir Solecki, Two $F_{\sigma\delta}$ ideals ..................... 1971

A. ALGEBRA, NUMBER THEORY, AND COMBINATORICS

Peter Teichner, Flatness and the Ore condition for rings .................... 1977
Mark Fannes and Dénes Petz, Perturbation of Wigner matrices and a
conjecture ............................................................. 1981
Peter B. Borwein and Ping Zhou, On the irrationality of a certain multivariate
$q$ series ........................................................................ 1989
Chandrashekhar Khare, Limits of residually irreducible $p$-adic Galois represen-
tations ................................................................. 1999
David Cox and Hal Schenck, Local complete intersections in $\mathbb{P}^2$ and Koszul
syzygies ........................................................................ 2007
I-Chiau Huang and Jan-Li Lin, Residues for Akizuki's one-dimensional local
domain ........................................................................... 2015
Robert Guralnick and Igor Pak, On a question of B. H. Neumann ................ 2021
Gavril Farkas, Regular components of moduli spaces of stable maps ............. 2027
Anders Skovsted Buch, A direct proof of the quantum version of Monk's
formula ........................................................................ 2037
Aron Simis and Rafael H. Villarreal, Constraints for the normality of monomial
subrings and birationality .................................................. 2043

B. ANALYSIS

Petr Hájek, Smooth norms on certain $C(K)$ spaces ................................ 2049
Oleg N. Ageev, On asymmetry of the future and the past for limit self-joinings ... 2053
Jan Rychtář, Renorming of $C(K)$ spaces .................................... 2063
R. Daniel Mauldin and Andrew Q. Yingst, Comments about the Steinhaus
tiling problem .................................................................. 2071
Peer Christian Kunstmann and Željko Štrkalj, $H^{\infty}$-calculus for submarkovian
generators .................................................................... 2081
Petra Šindelárová, A zero topological entropy map with recurrent points not
$F_0$ .................................................................................. 2089
Nikolai Nikolov and Peter Pflug, Behavior of the Bergman kernel and metric
near convex boundary points .............................................. 2097
Cornel Pasnicu, The ideal property in crossed products ............................ 2103
Etienne Desquith, The Banach algebra induced by a double centralizer ......... 2109
Il Bong Jung, Eungil Ko, and Carl Pearcy, On quasinilpotent operators ...... 2121
Martin E. Walter, Algebraic structures determined by $3 \times 3$ matrix geometry ... 2129
Tomonari Suzuki, On strong convergence to common fixed points of nonexpansive semigroups in Hilbert spaces ............................................. 2133
A. Cabada and L. Sanchez, Second order singular periodic problems in the presence of dry friction ........................................... 2137
Rui Okayasu, Type III factors arising from Cuntz-Krieger algebras ........... 2145
H. D. Voulov, Periodic solutions to a difference equation with maximum ...... 2155
Shiqing Zhang and Qing Zhou, Periodic solutions for planar 2N-body problems ........................................................................... 2161
Zhangjian Hu, Extended Cesàro operators on mixed norm spaces ............ 2171
Markus Kunze, Infinitely many radial solutions of a variational problem related to dispersion-managed optical fibers .............................................. 2181
Marcelo Laca and Nadia S. Larsen, Hecke algebras of semidirect products ... 2189
C. APPLIED MATHEMATICS
Lih-Chung Wang and Chih-Rung Chen, Generalized Tchakaloff’s theorem for semi-spectral measures .............................................. 2201
David Damanik and Michael Landrigan, Log-dimensional spectral properties of one-dimensional quasicrystals ........................................... 2209
D. GEOMETRY
Igor Belegradek, Vector bundles with infinitely many souls .................... 2217
Maxence Cuvilliez and Barry Jessup, The rational LS-category of k-trivial fibrations ........................................................................... 2223
E. LOGIC AND FOUNDATIONS
M. Laczkovich, The removal of π from some undecidable problems involving elementary functions .............................................. 2235
G. TOPOLOGY
David L. Fearnley, L. Fearnley, and J. W. Lamoreaux, Every three-point set is zero dimensional ..................................................... 2241
Darryl McCullough, Imbeddings of free actions on handlebodies ................ 2247
Boris Chorny, The model category of maps of spaces is not cofibrantly generated ........................................................................... 2255
Debe Bednarchak, Geometric properties coded in the long-time asymptotics for the heat equation on $\mathbb{Z}^n$ ............................................. 2261
Guowu Yao, $\mathcal{F}$-energy integral and harmonic mappings ........................ 2271
William G. Fleissner, Normal subspaces of products of finitely many ordinals ... 2279
Thomas Vogel, On the asymptotic linking number .................................... 2289
SHORTER NOTES
Irving Kaplansky, The forms $x + 32y^2$ and $x + 64y^2$ .......................... 2299
ERRATA
Marek Lassak, Erratum to “Approximation of convex bodies by axially symmetric bodies” ...................................................................... 2301
Dimitar K. Dimitrov and Walter Van Assche, Erratum to “Lamé differential equations and electrostatics” .............................................. 2303
A. ALGEBRA, NUMBER THEORY, AND COMBINATORICS

Carl Droms, A complex for right-angled Coxeter groups ......................... 2305
Liana M. Şega, Vanishing of cohomology over Gorenstein rings of small
codimension ................................................................. 2313
Moonja Jeong and Masahiko Taniguchi, Bell representations of finitely
connected planar domains ................................................. 2325
K. Khashyarmanesh and Sh. Salarian, On the rings whose injective hulls are
flat .................................................................................. 2329
Robert Gilmer, Some finiteness conditions on the set of overrings of an integral
domain ............................................................................. 2337

B. ANALYSIS

Norbert Patzschke, The strong open set condition for self-conformal random
fractals .............................................................................. 2347
Nikolaos C. Kourogenis and Nikolaos S. Papageorgiou, Nonlinear hemi-
variational inequalities of second order using the method of upper-lower
solutions ............................................................................ 2359
Jean-Paul Penot, A fixed-point theorem for asymptotically contractive map-
pings ............................................................................... 2371
Regina Sandra Burachik and B. F. Svaiter, Maximal monotonicity,
conjugation and the duality product ....................................... 2379
David Benko, Tamás Erdélyi, and József Szabados, The full Markov-Newman
inequality for Müntz polynomials on positive intervals ................. 2385
Hong Rae Cho, Estimates on the mean growth of $H^p$ functions in convex domains
of finite type .......................................................................... 2393
Louis Jeanjean and Kazunaga Tanaka, A remark on least energy solutions in
$\mathbb{R}^N$ .................................................................................. 2399
D. D. Hai, On a class of sublinear quasilinear elliptic problems ................. 2409
Yihong Du and Li Ma, Some remarks related to De Giorgi’s conjecture .... 2415
Rüdiger W. Braun, Reinhold Meise, and B. A. Taylor, Local radial
Phragmén-Lindelöf estimates for plurisubharmonic functions on analytic
varieties ............................................................................... 2423
Teresa Bermúdez, Antonio Bonilla, and Antonio Martinón, On the
existence of chaotic and hypercyclic semigroups on Banach spaces ...... 2435
Maciej J. Capiński and Klaudiusz Wójcik, Isolating segments for
Carathéodory systems and existence of periodic solutions ............... 2443
Márton Elekes and Kenneth Kunen, Transfinite sequences of continuous and
Baire class 1 functions ................................................................ 2453
Armen Edigarian and Jan Wiegerinck, Graphs that are not complete
pluriharmonic ................................................................. 2459
C. E. Chidume and H. Zegeye, Approximation methods for nonlinear operator
equations ............................................................................ 2467
Raúl E. Curto and Woo Young Lee, Solution of the quadratically hyponormal
completion problem ........................................................... 2479
Gerd Zeibig, Limitations on the extendibility of the Radon-Nikodym Theorem 2491
Chun-Gil Park, Multi-quadratic mappings in Banach spaces ............... 2501
Jingbo Xia, On a proposed characterization of Schatten-class composition
operators .............................................................................. 2505
A. Manoussakis, Some remarks on spreading models and mixed Tsirelson spaces ................................................. 2515
Hajrudin Fejzić, Infinite approximate Peano derivatives ....................... 2527
Richard Delaware, Every set of finite Hausdorff measure is a countable union of sets whose Hausdorff measure and content coincide ......................... 2537
Slaviša V. Djordjević and Young Min Han, A note on Weyl’s theorem for operator matrices ........................................... 2543
K. Tanahashi, A. Uchiyama, and M. Uchiyama, On Schwarz type inequalities ......................................................... 2549

C. APPLIED MATHEMATICS

Wenchang Sun and Xingwei Zhou, Reconstruction of functions in spline subspaces from local averages ........................................ 2561

D. GEOMETRY

Dong-Soo Kim and Young Ho Kim, Compact Einstein warped product spaces with nonpositive scalar curvature ........................................ 2573
Seong-Hun Paeng, On the fundamental group of manifolds with almost nonnegative Ricci curvature ........................................... 2577

E. LOGIC AND FOUNDATIONS

Saharon Shelah, A partition relation using strongly compact cardinals ........ 2585
Udayan B. Darji and Tamás Keleti, Covering $\mathbb{R}$ with translates of a compact set ......................................................... 2593

F. STATISTICS AND PROBABILITY

Ana Meda, Conditional weak laws in Banach spaces .......................... 2597
Davar Khoshnevisan and Yimin Xiao, Weak unimodality of finite measures, and an application to potential theory of additive Lévy processes ........ 2611

G. TOPOLOGY

Artur Hideyuki Tomita, Two countably compact topological groups: One of size $\mathbb{R}_\omega$ and the other of weight $\mathbb{R}_\omega$ without non-trivial convergent sequences .... 2617
Huaipeng Chen, Compact-covering maps and $k$-networks ....................... 2623

Vol. 131, No. 9 Whole No. 531 September 2003

A. ALGEBRA, NUMBER THEORY, AND COMBINATORICS

Andrzej Weber, Formality of equivariant intersection cohomology of algebraic varieties ............................................... 2633
Hong Bing Yu, A simple proof of a theorem of Bollobás and Leader ........... 2639
Jürgen Herzog and Takayuki Hibi, Castelnuovo–Mumford regularity of simplicial semigroup rings with isolated singularity ......................... 2641
Alexander Yong, Degree bounds in quantum Schubert calculus ............... 2649
Yuming Liu, On stable equivalences of Morita type for finite dimensional algebras ......................................................... 2657
Gejza Jenča and Sylvia Pulmannová, Orthocomplete effect algebras .......... 2663
Shlomo Gelaki and Edward S. Letzter, An affine PI Hopf algebra not finite over a normal commutative Hopf subalgebra ............................................. 2673
R. B. Zhang, Howe duality and the quantum general linear group ............. 2681
K. Auinger and B. Steinberg, On the extension problem for partial permutations ................................................................................. 2693
Rüdiger Göbel and Warren May, Cancellation of direct sums of countable abelian p-groups ................................................................. 2705
Reza Zomorrodian, On a theorem of supersoluble automorphism groups ...... 2711

B. ANALYSIS

Jiazhong Yang, Differentiable conjugacy of the Poincaré type vector fields on R^3 ......................................................................................... 2715
Cezar Joita, Traces of convex domains ................................................... 2721
G. Sampson, L^p estimates for a class of oscillatory integrals ...................... 2727
Debao Chen, Valdir A. Menegatto, and Xingping Sun, A necessary and sufficient condition for strictly positive definite functions on spheres .... 2733
D. P. Dryanov, M. A. Qazi, and Q. I. Rahman, Certain extremal problems for polynomials ........................................................................... 2741
Lin Chen, Ruan Yingbin, and Yan Zikun, p-hyponormal operators are subscalar ......................................................................................... 2753
Raúl Curto and Sang Soo Park, k-hyponormality of powers of weighted shifts via Schur products ................................................................. 2761
Monika Budzyńska, An example in holomorphic fixed point theory .......... 2771
Caixing Gu and Jonathan E. Shapiro, Strict convexity of some subsets of Hankel operators ................................................................. 2779
Xiaoman Chen and Shengzhao Hou, A Beurling-type theorem for the Fock space ....................................................................................... 2791
Nils Byrial Andersen, L^p versions of Hardy’s uncertainty principle on hyperbolic spaces ........................................................................... 2797
António Serra, Interpolating sequences in harmonically weighted Dirichlet spaces ....................................................................................... 2809
Razvan Anisca, Subspaces of L_p with more than one complex structure .... 2819
T. W. Dawson and J. F. Feinstein, On the denseness of the invertible group in Banach algebras ........................................................................ 2831
Fabio Nicola, K-theory of SG-pseudo-differential algebras .......................... 2841
Kensho Takegoshi, A note on divergence of L^p-integrals of subharmonic functions and its applications ................................................................. 2849
O. Došlý, J. R. Graef, and J. Jaros, Forced oscillation of second order linear and half-linear difference equations ............................................. 2859
Takeshi Miura and Kazuki Nijima, On a characterization of the maximal ideal spaces of algebraically closed commutative C*-algebras ............. 2869
W. R. Wade, A Tauberian theorem for Vilenkin series ................................ 2877
Wenchang Sun and Xingwei Zhou, Irregular Gabor frames and their stability ............................................................................................... 2883
Steven D. Taliaferro and Lei Zhang, Arbitrarily large solutions of the conformal scalar curvature problem at an isolated singularity ..................... 2895

D. GEOMETRY

Takuji Sato, Almost Hermitian structures induced from a Kähler structure which has constant holomorphic sectional curvature ...................... 2903
Fernando Etayo, The measure of holomorphicness of a real submanifold of an almost Hermitian manifold ........................................ 2911
William Liu, Convexity of moment polytopes of algebraic varieties .......... 2921
Craig J. Sutton, Measures invariant under the geodesic flow and their projections ................................................................. 2933

F. STATISTICS AND PROBABILITY
Frank N. Proske and Madan L. Puri, A strong law of large numbers for generalized random sets from the viewpoint of empirical processes ....... 2937

G. TOPOLOGY
Harold Donnelly, Quantum unique ergodicity .................................. 2945
Stephen D. Theriault, Proofs of two conjectures of Gray involving the double suspension .......................................................... 2953

SHORTER NOTES
J. Berkovits, A note on the imbedding theorem of Browder and Ton .......... 2963

ERRATA
Natasha Dobrinen, Errata to “Games and general distributive laws in Boolean algebras” ................................................................. 2967

Vol. 131, No. 10 Whole No. 532 October 2003

A. ALGEBRA, NUMBER THEORY, AND COMBINATORICS
Franz-Viktor Kuhlmann, Salma Kuhlmann, and Saharon Shelah, Functorial equations for lexicographic products .................................. 2969
M. Brodmann, S. Fumasoli, and R. Tajarod, Local cohomology over homogeneous rings with one-dimensional local base ring ........................ 2977
Rüdiger Göbel and Warren May, Modular group algebras of N1-separable p-groups .............................................................................. 2987
Lars Kadison, Hopf algebroids and H-separable extensions .................... 2993
Craig Huneke and Graham J. Leuschke, Local rings of countable Cohen-Macaulay type ................................................................. 3003
Rodney Y. Sharp, Convergence of sequences of sets of associated primes .... 3009
Gabriel Navarro, Number of Sylow subgroups in p-solvable groups .......... 3019
Chandashekhkar Khare, F-split Galois representations are potentially abelian ...................................................................................... 3021

B. ANALYSIS
Andreas H. Hamel, Phelps’ lemma, Daneš’ drop theorem and Ekeland’s principle in locally convex spaces .............................................. 3025
Gangsong Leng, The minimum number of acute dihedral angles of a simplex . 3039
Rajna Rajić, On the algebra range of an operator on a Hilbert C*-module over compact operators ...................................................... 3043
Feng Xie, Yongcheng Yin, and Yeshun Sun, Uniform perfectness of self-affine sets ............................................................................. 3053
Ethan Akin and Joseph Auslander, Almost periodic sets and subactions in topological dynamics .......................................................... 3059
Ludovic Rifford, Range of the gradient of a smooth bump function in finite dimensions ........................................................................ 3063
Dong-Ho Tsai, $C^{2,\alpha}$ estimate of a parabolic Monge-Ampère equation on $S^n$ .... 3067
Masaharu Kusuda, Discrete spectra of $C^*$-algebras and complemented submodules in Hilbert $C^*$-modules ........................................ 3075
Mohamed Barraa and Mohamed Boumazgour, A note on the spectrum of an upper triangular operator matrix ........................................ 3083
Sharon Schaffer Vestal and Eric Weber, Orthonormal wavelets and shift invariant generalized multiresolution analyses ........................................... 3089
Ali Taheri, Quasiconvexity and uniqueness of stationary points in the multi-dimensional calculus of variations ........................................... 3101
Muneo Chō and Jun Ik Lee, $p$-hyponormality is not translation–invariant .... 3109
H. A. Biagioni and F. Linares, Ill-posedness for the Zakharov system with generalized nonlinearity ....................................................... 3113
Christopher Meaney, Divergent Cesàro and Riesz means of Jacobi and Laguerre expansions ....................................................................... 3123
Tamás Erdélyi, Extremal properties of the derivatives of the Newman polynomials .................................................................................. 3129
Hichem M. Mortad, An application of the Putnam-Fuglede theorem to normal products of self-adjoint operators ........................................ 3135
Yury Arlinski˘ı and Eduard Tsekanovski˘ı, On von Neumann’s problem in extension theory of nonnegative operators ...................................... 3143
Francesca Astengo, An uncertainty principle on homogeneous trees ........ 3155
P. Domaniński and B. Jakubczyk, Linear continuous division for exterior and interior products ........................................................................... 3163
Stefano Baratella and Siu-Ah Ng, A nonstandard proof of the Eberlein-Šmulian theorem .......................................................... 3177
Xuan Thinh Duong and Lixin Yan, Hardy spaces of spaces of homogeneous type .......................................................................................... 3181
Hua-Huai Chern, Jong-Shenq Guo, and Chu-Pin Lo, The self-similar expanding curve for the curvature flow equation .............................. 3191
C. K. Fong and A. R. Sourour, The semigroup generated by a similarity orbit or a unitary orbit of an operator ........................................... 3203

D. GEOMETRY

Seungsu Hwang, The critical point equation on a three-dimensional compact manifold ............................................................................ 3221

E. LOGIC AND FOUNDATIONS

Hajime Ishihara and Luminita Vîtă, Locating subsets of a normed space .... 3231
Peter Eliaš, Covering for category and trigonometric thin sets ............................ 3241

F. STATISTICS AND PROBABILITY

Surjit Singh Khurana, Weak compactness of certain sets of measures ............ 3251

G. TOPOLOGY

Jan Pelant, Mihail G. Tkachenko, Vladimir V. Tkachuk, and Richard G. Wilson, Pseudocompact Whyburn spaces need not be Fréchet ................. 3257
Eric Todd Quinto, Mean value extension theorems and microlocal analysis ...... 3267
Christopher Allday, Bernhard Hanke, and Volker Puppe, Poincaré duality in P.A. Smith theory ................................................................. 3275
James T. Rogers, Jr. Higher dimensional aposyndetic decompositions .......... 3285
Akira Kono, James P. Lin, and Osamu Nishimura, Characterization of the mod 3 cohomology of $E_7$ ......................................................... 3289
Dubravka Ban and Chris Jantzen, The Langlands classification for non-connected $p$-adic groups II: Multiplicity one ............................. 3297

Vol. 131, No. 11 Whole No. 533 November 2003

A. ALGEBRA, NUMBER THEORY, AND COMBINATORICS

Wim Couwenberg, A simple proof of the modular identity for theta functions ... 3305
YoungJu Choie and Winfried Kohnen, Special values of elliptic functions at points of the divisors of Jacobi forms ........................................... 3309
Cristian Lenart and Frank Sottile, Skew Schubert polynomials ..................... 3319
Adam Harris and Yoshihiro Tonegawa, A $\overline{\partial}\partial$-Poincaré lemma for forms near an isolated complex singularity ..................................................... 3329
Jonathan Sondow, Criteria for irrationality of Euler’s constant ..................... 3335
S. Lipscomb and J. Konieczny, The class equation and counting in factorizable monoids ................................................................. 3345
Sándor J. Kovács, Vanishing theorems, boundedness and hyperbolicity over higher-dimensional bases ....................................................... 3353
Anthony Crachiola and Stefan Maubach, The Derksen invariant vs. the Makar-Limanov invariant ......................................................... 3365
Jian-yi Shi, Fully commutative elements and Kazhdan–Lusztig cells in the finite and affine Coxeter groups ............................................. 3371
Florian Enescu, $F$-injective rings and $F$-stable primes ................................ 3379
Edward L. Green, Nicole Snashall, and Øyvind Solberg, The Hochschild cohomology ring of a selfinjective algebra of finite representation type ...... 3387
David J. Benson and Daniel K. Nakano, The nucleus for restricted Lie algebras ................................................................................ 3395

B. ANALYSIS

Miguel Martín, Banach spaces having the Radon-Nikodým property and numerical index 1 ................................................................. 3407
E. V. Troitsky, Discrete groups actions and corresponding modules ................ 3411
Mihail N. Kolountzakis and Szilárd Gy. Révész, On a problem of Turán about positive definite functions ............................................. 3423
Victor L. Shapiro, Fractals and distributions on the $N$-torus ....................... 3431
Jianlian Cui and Jinchuan Hou, Linear maps preserving ideals of $C^*$-algebras ........................................................................ 3441
Zhongwei Shen, The spectrum of Schrödinger operators with positive potentials in Riemannian manifolds ........................................ 3447
S. Petermichl and S. Pott, A version of Burkholder’s theorem for operator-weighted spaces ......................................................... 3457
Piotr Hajłasz, Whitney’s example by way of Assouad’s embedding ............ 3463
C. APPLIED MATHEMATICS

Tom Bohman, A limit theorem for the Shannon capacities of odd cycles I ....... 3559

D. GEOMETRY

James F. Davis and Kimberly Pearson, The Gromov-Lawson-Rosenberg conjecture for cocompact Fuchsian groups ...................... 3571

Hui Li, $\pi_1$ of Hamiltonian $S^1$ manifolds ...................................... 3579

G. TOPOLOGY

Takeshi Izawa, Note on the Riemann-Hurwitz type formula for multiplicative sequences .......................................................... 3583

Patrick McDonald and Robert Meyers, Isospectral polygons, planar graphs and heat content .................................................. 3589

Henryk Michalewski, Condensations of projective sets onto compacta .......... 3601

Wanjun Hu, Tychoff expansions by independent families .......................... 3607

Michael J. Fisher, The $p$-exponent of the $K(1)$,-local spectrum $\Phi SU(n)$ ...... 3617

B. Cascales, J. Kąkol, and S. A. Saxon, Metrizability vs. Fréchet-Urysohn property ................................................................. 3623

A. ALGEBRA, NUMBER THEORY, AND COMBINATORICS

Hirofumi Tsumura, On alternating analogues of Tornheim’s double series ...... 3633

Ming-Guang Leu and Guan-Wei Li, The Diophantine equation $2x^2 + 1 = 3^n$ ...... 3643

Alexander D. Arvanitakis, A proof of the Generalized Banach Contraction Conjecture ................................................................. 3647
B. ANALYSIS

M. Fabian and V. Zizler, A “nonlinear” proof of Pitt’s compactness theorem ........................................... 3693
Volker Mayer and Mariusz Urbański, Finer geometric rigidity of limit sets of
conformal IFS  ................................................................................................................................. 3695
Yong Ouyang, An application of Bochner’s technique to the deformations of the
complex structure of \( \mathbb{CP}^n \) ............................................................................................................. 3703
Mourad E. Ismail and Ahmed I. Zayed, A \( q \)-analogue of the Whittaker-
Shannon-Kotel’nikov sampling theorem .......................................................................................... 3711
Teemu Pennanen, Julian P. Revalski, and Michel Théra, Graph-distance
convergence and uniform local boundedness of monotone mappings ........................................... 3721
Christopher Hoffman, The scenery factor of the \([T,T^{-1}]\) transformation is not
loosely Bernoulli .................................................................................................................................. 3731
M. I. Gil’, Inner bounds for the spectrum of quasinormal operators .......................................... 3737
N. Bejjah Rhouma, Principal eigenvalues for indefinite weight problems in all of
\( \mathbb{R}^d \) ........................................................................................................................................... 3747
Heinz H. Bauschke and Patrick L. Combettes, Construction of best Bregman
approximations in reflexive Banach spaces ...................................................................................... 3757
Alvaro Bustinduy, Zeroes of complete polynomial vector fields .................................................. 3767
Fotios C. Paliogiannis, On commuting operator exponentials ....................................................... 3777
Chiara Boiti and Luisa Zanghirati, Global analytic regularity for non-linear
second order operators on the torus ................................................................................................. 3783
Vladimir Derkach and Seppo Hassi, A reproducing kernel space model for
\( N_k \)-functions .................................................................................................................................. 3795
V. Müller, Power bounded operators and supercyclic vectors ......................................................... 3807
Huaxin Lin, Simple \( AH \)-algebras of real rank zero ............................................................................... 3813
Jani Onninen, A note on the isoperimetric inequality ......................................................................... 3821
Jongmin Han, Asymptotic limit for condensate solutions in the Abelian Chern-
Simons model II .................................................................................................................................... 3827
Matej Brešar, Ajda Fošner, and Peter Šemrl, A note on invertibility preservers
on Banach algebras ............................................................................................................................ 3833
Andrea Iannuzzi, Induced local actions on taut and Stein manifolds .............................................. 3839
Guoxing Ji and Jun Tomiyama, On characterizations of commutativity of \( C^* \)-
algebras ................................................................................................................................................... 3845
B. F. Svaiter, Fixed points in the family of convex representations of a maximal
monotone operator .............................................................................................................................. 3851
B. Djafari Rouhani and A. A. Khan, On the embedding of variational
inequalities ............................................................................................................................................. 3861
Hiroaki Aikawa, Positive harmonic functions of finite order in a Denjoy type
domain ................................................................................................................................................... 3873
Fangyan Lu, Isomorphisms of subalgebras of nest algebras ............................................................ 3883
<table>
<thead>
<tr>
<th>Section</th>
<th>Authors</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>D. GEOMETRY</td>
<td>Greg Kuperberg</td>
<td>A generalization of Filliman duality</td>
<td>3893</td>
</tr>
<tr>
<td></td>
<td>Sergey S. Goncharov, Valentina S. Harizanov, Michael C. Laskowski,</td>
<td>Steffen Lempp, and Charles F. D. McCoy, Trivial, strongly minimal theories are model complete</td>
<td>3901</td>
</tr>
<tr>
<td></td>
<td>Patrick Simonetta</td>
<td>An example of a C-minimal group which is not abelian-by-finite</td>
<td>3913</td>
</tr>
<tr>
<td></td>
<td>Stevo Todorcevic</td>
<td>A proof of Nogura’s conjecture</td>
<td>3919</td>
</tr>
<tr>
<td>E. LOGIC AND FOUNDATIONS</td>
<td>Sergey S. Goncharov, Valentina S. Harizanov, Michael C. Laskowski,</td>
<td>Steffen Lempp, and Charles F. D. McCoy, Trivial, strongly minimal theories are model complete</td>
<td>3901</td>
</tr>
<tr>
<td></td>
<td>Patrick Simonetta</td>
<td>An example of a C-minimal group which is not abelian-by-finite</td>
<td>3913</td>
</tr>
<tr>
<td></td>
<td>Stevo Todorcevic</td>
<td>A proof of Nogura’s conjecture</td>
<td>3919</td>
</tr>
<tr>
<td>G. TOPOLOGY</td>
<td>Thomas E. Gonzalez</td>
<td>Exactly k-to-1 maps and hereditarily indecomposable tree-like continua</td>
<td>3925</td>
</tr>
<tr>
<td></td>
<td>Yuan-Qing Qiao and Franklin D. Tall, Perfectly normal non-metrizable</td>
<td>Non-Archimedean spaces are generalized Souslin lines</td>
<td>3929</td>
</tr>
<tr>
<td></td>
<td>Bruno Colbois</td>
<td>Une inégalité du type Payne-Polya-Weinberger pour le laplacien</td>
<td>3937</td>
</tr>
<tr>
<td></td>
<td>Makoto Ozawa and Yukihiro Tsutsumi, Totally knotted Seifert surfaces</td>
<td>With accidental peripherals</td>
<td>3945</td>
</tr>
<tr>
<td></td>
<td>Dennis K. Burke and Roman Pol, On non-measurability of ( \ell_\infty/c_0 ) in its second dual</td>
<td></td>
<td>3955</td>
</tr>
</tbody>
</table>
Editorial Information

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 solicit and encourage publication of worthy papers of length not exceeding 10 published pages. Published pages are the same size as those generated in the style files provided for AMS-LATeX or AMS-TEx.

Very short notes not to exceed two printed pages 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.

As of July 31, 2003, the backlog for this journal was approximately 7 issues. This estimate is the result of dividing the number of manuscripts for this journal in the Providence office that have not yet gone to the printer on the above date by the average number of articles per issue over the previous twelve months, reduced by the number of issues published in four months (the time necessary for editing and composing a typical issue). In an effort to make articles available as quickly as possible, articles are posted to the AMS website individually after proof is returned from authors and before appearing in an issue.

A Consent to Publish and Copyright Agreement is required before a paper will be published in this journal. After a paper is accepted for publication, the Providence office will send out a Consent to Publish and Copyright Agreement to all authors of the paper. By submitting a paper to this journal, authors certify that the results have not been submitted to nor are they under consideration for publication by another journal, conference proceedings, or similar publication.

Information for Authors

Initial submission. Two copies of the paper should be sent directly to the appropriate Editor and the author should keep a copy.

IF an editor is agreeable, an electronic manuscript prepared in \textsc{T\kern-.125emX} or \textsc{L\kern-.125emT\kern-.125emX} may be submitted by pointing to an appropriate URL on a preprint or e-print server.

The first page of an article must consist of a descriptive title, followed by an abstract that 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 should be the 2000 Mathematics Subject Classification representing the primary and secondary subjects of the article. The classifications are accessible from \url{www.ams.org/msc/}. The list of classifications is also available in print starting with the 1999 annual index of Mathematical Reviews. The Mathematics Subject Classification footnote may be followed by a list of key words and phrases describing the subject matter of the article and taken from it. Journal abbreviations used in bibliographies are listed in the latest Mathematical Reviews annual index. The series abbreviations are also accessible from \url{www.ams.org/publications/}. To help in preparing and verifying references, the AMS offers MR Lookup, a Reference Tool for Linking, at \url{www.ams.org/mrlookup/}. When the manuscript is submitted, authors should supply the editor with electronic addresses if available. These will be printed after the postal address at the end of each article.

Electronically prepared manuscripts. The AMS encourages electronically prepared manuscripts, with a strong preference for \textsc{AMS-L\kern-.125emT\kern-.125emX}. To this end, the Society has prepared \textsc{AMS-L\kern-.125emT\kern-.125emX} author packages for each AMS publication. Author packages include instructions for preparing electronic manuscripts, the \textit{AMS Author Handbook}, samples, and a style file that generates the particular design specifications of that publication.
series. Articles properly prepared using the \texttt{AMS-\LaTeX} style file and the \texttt{\label} and \texttt{\ref} commands automatically enable extensive intra-document linking to the bibliography and other elements of the article for searching electronically on the Web. Because linking must often be added manually to electronically prepared manuscripts in other forms of \TeX, using \texttt{AMS-\LaTeX} also reduces the amount of technical intervention once the files are received by the AMS. This results in fewer errors in processing and saves the author proofreading time. \texttt{AMS-\LaTeX} papers also move more efficiently through the production stream, helping to minimize publishing costs.

\texttt{AMS-\LaTeX} is the highly preferred format of \TeX, but author packages are also available in \texttt{AMS-\TeX}. Those authors who make use of these style files from the beginning of the writing process will further reduce their own efforts. Manuscripts prepared electronically in \texttt{\LaTeX} or plain \TeX are normally not acceptable due to the high amount of technical time required to insure that the file will run properly through the AMS in-house production system. \texttt{\LaTeX} users will find that \texttt{AMS-\LaTeX} is the same as \texttt{\LaTeX} with additional commands to simplify the typesetting of mathematics, and users of plain \TeX should have the foundation for learning \texttt{AMS-\LaTeX}.

Authors may retrieve an author package from the AMS website starting from \url{www.ams.org/tex/} or via FTP to \url{ftp.ams.org} (login as \texttt{anonymous}, enter username as password, and type \texttt{cd pub/author-info}). The \textit{AMS Author Handbook} and the \textit{Instruction Manual} are available in PDF format following the author packages link from \url{www.ams.org/tex/}. The author package can also be obtained free of charge by sending email to \texttt{pub@ams.org} (Internet) or from the Publication Division, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294 USA. When requesting an author package, please specify \texttt{AMS-\LaTeX} or \texttt{AMS-\TeX}, Macintosh or IBM (3.5) format, and the publication in which your paper will appear. Please be sure to include your complete mailing address.

At the time of submission, authors should indicate if the paper has been prepared using \texttt{AMS-\LaTeX} or \texttt{AMS-\TeX} and provide the Editor with a paper manuscript that matches the electronic manuscript. The final version of the electronic manuscript should be sent to the Providence office immediately after the paper has been accepted for publication. The author should also send the final version of the paper manuscript to the Editor, who will forward a copy to the Providence office. Editors will require authors to send their electronically prepared manuscripts to the Providence office in a timely fashion. Electronically prepared manuscripts can be sent via email to \texttt{pub-submit@ams.org} (Internet) or on diskette to the Electronic Prepress Department, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294 USA. When sending a manuscript electronically, please be sure to include a message indicating in which publication the paper has been accepted. No corrections will be accepted electronically. Authors must mark their changes on their proof copies and return them to the Providence office. Complete instructions on how to send files are included in the author package.

**Electronic graphics.** Comprehensive instructions on preparing graphics are available starting from \url{www.ams.org/jourhtml/authors.html}. A few of the major requirements are given here.

Submit files for graphics as EPS (Encapsulated PostScript) files. This includes graphics originated via a graphics application as well as scanned photographs or other computer-generated images. If this is not possible, TIFF files are acceptable as long as they can be opened in Adobe Photoshop or Illustrator. No matter what method was used to produce the graphic, it is necessary to provide a paper copy to the AMS.

Authors using graphics packages for the creation of electronic art should also avoid the use of any lines thinner than 0.5 points in width. Many graphics packages allow the user to specify a “hairline” for a very thin line. Hairlines often look acceptable when proofed on a typical laser printer. However, when produced on a high-resolution laser imagesetter, hairlines become nearly invisible and will be lost entirely in the final printing process.

Screens should be set to values between 15% and 85%. Screens which fall outside of this range are too light or too dark to print correctly. Variations of screens within a graphic should be no less than 10%.
AMS policy on making changes to articles after posting. Articles are posted to the AMS website individually after proof is returned from authors and before appearing in an issue. To preserve the integrity of electronically published articles, once an article is individually posted to the AMS website but not yet in an issue, changes cannot be made in place in the paper. However, an “Added after posting” section may be added to the paper right before the References when there is a critical error in the content of the paper. The “Added after posting” section gives the author an opportunity to correct this type of critical error before the article is put into an issue for printing and before it is then reposted with the issue. The “Added after posting” section remains a permanent part of the paper. The AMS does not keep author-related information, such as affiliation, current address, and email address, up to date after a paper is initially posted.

Once the article is assigned to an issue, even if the issue has not yet been posted to the AMS website, corrections may be made to the paper by submitting a traditional errata article to the Editor. The errata article will appear in a future print issue and will link back and forth on the web to the original article online.

Secure manuscript tracking on the Web and via email. Authors can track their manuscripts through the AMS journal production process using the personal AMS ID and Article ID printed in the upper right-hand corner of the Consent to Publish form sent to each author who publishes in AMS journals. Access to the tracking system is available from www.ams.org/mstrack/ or via email sent to mstrack-query@ams.org. To access by email, on the subject line of the message simply enter the AMS ID and Article ID. To track more than one manuscript by email, choose one of the Article IDs and enter the AMS ID and the Article ID followed by the word all on the subject line. An explanation of each production step is provided on the web through links from the manuscript tracking screen. Questions can be sent to proc-query@ams.org.

\TeX files available. Beginning with the January 1992 issue of the Bulletin and the January 1996 issues of Transactions, Proceedings, Mathematics of Computation, and the Journal of the AMS, \TeX files can be downloaded from the AMS website, starting from www.ams.org/journals/. Authors without Web access may request their files at the address given below after the article has been published. For Bulletin papers published in 1987 through 1991 and for Transactions, Proceedings, Mathematics of Computation, and the Journal of the AMS papers published in 1987 through 1995, \TeX files are available upon request for authors without Web access by sending email to file-request@ams.org or by contacting the Electronic Prepress Department, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294 USA. The request should include the title of the paper, the name(s) of the author(s), the name of the publication in which the paper has or will appear, and the volume and issue numbers if known. The \TeX file will be sent to the author making the request after the article goes to the printer. If the requestor can receive Internet email, please include the email address to which the file should be sent. Otherwise please indicate a diskette format and postal address to which a disk should be mailed. Note: Because \TeX production at the AMS sometimes requires extra fonts and macros that are not yet publicly available, \TeX files cannot be guaranteed to run through the author’s version of \TeX without errors. The AMS regrets that it cannot provide support to eliminate such errors in the author’s \TeX environment.

Inquiries. Any inquiries concerning a paper that has been accepted for publication that cannot be answered via the manuscript tracking system mentioned above should be sent to proc-query@ams.org or directly to the Electronic Prepress Department, American Mathematical Society, 201 Charles Street, Providence, RI 02904-2294 USA.
Editors

Authors are requested to send papers directly to the appropriate Editor (the one whose area of responsibility and expertise, as described below, most closely approximates the subject field of the manuscript). Only when in doubt about an appropriate Editor, should manuscripts be sent to the Coordinating Editor responsible for the area in mathematics most closely connected to the paper. If in doubt about the area, send the manuscript to the Managing Editor, to whom all other communication about the journal should also be addressed. (All addresses should include the line “Department of Mathematics”, unless another department is indicated.)

Managing Editor: Eric Bedford, Indiana University, Bloomington, IN 47405-5701 USA; e-mail: bedford@indiana.edu

1. ODE, PDE, GLOBAL ANALYSIS, AND DYNAMICAL SYSTEMS

Coordinating Editor: Linda Keen, CUNY-Lehman College, Bronx, NY 10468 USA; e-mail: linda@alpha.lehman.cuny.edu; keen@bers.gc.cuny.edu

Dynamical systems and ergodic theory, Michael Handel, Department of Mathematics and Computer Science, Herbert Lehman College (CUNY), Bronx, NY 10468-1589 USA; e-mail: michael@alpha.lehman.cuny.edu

Global analysis, Jozef Dodziuk, Ph.D. Program in Mathematics, Graduate School and University Center (CUNY), 365 Fifth Avenue, New York, NY 10016-4309 USA; e-mail: jodzek@derham.math.qc.edu

Ordinary differential equations and special functions, Carmen C. Chicone, University of Missouri, Columbia, MO 65211-0001 USA; e-mail: carmen@chicone.math.missouri.edu

Partial differential equations, David S. Tartakoff, University of Illinois at Chicago, Chicago, IL 60607 USA; e-mail: dst@uic.edu

2. LIE GROUPS, TOPOLOGY, AND GEOMETRY

Coordinating Editor: Ronald A. Fintushel, Michigan State University, East Lansing, MI 48824-1027 USA; e-mail: ronfint@math.msu.edu

Algebraic topology, Paul Goerss, Northwestern University, Evanston, IL 60208-2730 USA; e-mail: pgoerss@math.nwu.edu

Differential geometry (Riemannian, symplectic, contact, Kähler, and complex geometries), Jon G. Wolfson, Michigan State University, East Lansing, MI 48824-1027 USA; e-mail: wolfson@math.msu.edu

Geometric analysis (geometric PDE, minimal surfaces, and harmonic maps), Richard A. Wentworth, Johns Hopkins University, Baltimore, MD 21218 USA; e-mail: wentworth@jhu.edu

Low dimensional topology, gauge theory, 4-manifolds, Ronald A. Fintushel

3. ANALYSIS AND OPERATOR THEORY

Coordinating Editor: Christopher D. Sogge, Johns Hopkins University, Baltimore, MD 21218 USA; e-mail: sogge@jhu.edu

Banach spaces and linear functional analysis, N. Tomczak-Jaegermann, University of Alberta, Edmonton, AB, Canada T6G 2G1; e-mail: ntomczak@math.ualberta.ca; nicole.tomczak@ualberta.ca

Geometric measure theory and classical real analysis, David Preiss, Department of Mathematics, University College London, Gower Street, London WC1E 6BT, United Kingdom; e-mail: dp@math.ucl.ac.uk

Harmonic analysis, Andreas Seeger, University of Wisconsin, Madison, WI 53706 USA; e-mail: seeger@math.wisc.edu
Linear and nonlinear functional analysis, Jonathan M. Borwein, Department of Mathematics and Statistics, Simon Fraser University, Burnaby, BC, Canada V5A 1S6; e-mail: jborwein@cecm.sfu.ca

One complex variable and potential theory, Juha M. Heinonen, University of Michigan, Ann Arbor, MI 48109-1109 USA; e-mail: PAMS1@math.1sa.umich.edu

Operator algebras and wavelets, David R. Larson, Texas A&M University, College Station, TX 77843-3368 USA; e-mail: larson@math.tamu.edu

Operator theory, Joseph A. Ball, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061 USA; e-mail: ball@math.vt.edu

Several complex variables, Mei-Chi Shaw, University of Notre Dame, Notre Dame, IN 46556-0398 USA; e-mail: mei-chi.shaw.1@nd.edu

4. ALGEBRA, NUMBER THEORY, COMBINATORICS, AND LOGIC
Coordinating Editor: Lance W. Small, University of California San Diego, La Jolla, CA 92093-0112 USA; e-mail: lwsmall@ucsd.edu

Algebraic geometry, Michael Stillman, Cornell University, Malott Hall, Ithaca, NY 14853-4201 USA; e-mail: mike@math.cornell.edu

Automorphic forms, number theory, and applications of number theory, Wen-Ching Winnie Li, Pennsylvania State University, University Park, PA 16802-6401 USA; e-mail: wli@math.psu.edu

Combinatorics, John R. Stembridge, University of Michigan, Ann Arbor, MI 48109-1109 USA; e-mail: jrs@umich.edu

Commutative algebra, Bernd Ulrich, Purdue University, West Lafayette, IN 47907-1395 USA; e-mail: ulrich@math.purdue.edu

General number theory, David E. Rohrlich, Boston University, Boston, MA 02215-2411 USA; e-mail: rohrlich@math.bu.edu

Group theory, Jonathan I. Hall, Michigan State University, East Lansing, MI 48824-1027 USA; e-mail: jhall@math.msu.edu

Lie algebras, Dan M. Barbasch, Cornell University, Malott Hall, Ithaca, NY 14853-4201 USA; e-mail: barbasch@math.cornell.edu

Logic and foundations, Carl G. Jockusch, Jr., University of Illinois, 1409 W. Green St., Urbana, IL 61801-2917 USA; e-mail: jockusch@math.uiuc.edu

Noncommutative rings, Martin Lorenz, Temple University, Philadelphia, PA 19122-6094 USA; e-mail: lorenz@math.temple.edu

5. APPLIED MATHEMATICS, PROBABILITY, AND STATISTICS
Coordinating Editor: Mark J. Ablowitz, Department of Applied Mathematics, Campus Box 526, University of Colorado, Boulder, CO 80309-0526 USA; e-mail: markjab@newton.colorado.edu

Applied mathematics, David Sharp, Theoretical Division, Los Alamos National Laboratory MSB285, Los Alamos, NM 87545 USA; e-mail: dhs@lanl.gov

Hyperbolic partial differential equations, Suncica Canic, University of Houston, Houston, TX 77204-3476 USA; e-mail: canic@math.uh.edu

Probability, Richard C. Bradley, Indiana University, Bloomington, IN 47405-4301 USA; e-mail: bradleyr@indiana.edu

Statistics, Richard A. Davis, Department of Statistics, Colorado State University, Fort Collins, CO 80523-1877 USA; e-mail: rdavis@stat.colostate.edu
Huaxin Lin, Simple $AH$-algebras of real rank zero ........................................ 3813
Jani Onninen, A note on the isoperimetric inequality ................................. 3821
Jongmin Han, Asymptotic limit for condensate solutions in the Abelian Chern-Simons Higgs model II ................................................................. 3827
Matej Brešar, Ajda Fošner, and Peter Šemrl, A note on invertibility preservers on Banach algebras ................................................................. 3833
Andrea Iannuzzi, Induced local actions on taut and Stein manifolds ........ 3839
Guoxing Ji and Jun Tomiyama, On characterizations of commutativity of $C^*$-algebras ................................................................................. 3845
B. F. Svaiter, Fixed points in the family of convex representations of a maximal monotone operator ............................................................. 3851
B. Djafari Rouhani and A. A. Khan, On the embedding of variational inequalities ......................................................................................... 3861
Hiroaki Aikawa, Positive harmonic functions of finite order in a Denjoy type domain ..................................................................................... 3873
Fangyan Lu, Isomorphisms of subalgebras of nest algebras ........................................ 3883

D. GEOMETRY

Greg Kuperberg, A generalization of Filliman duality .................................... 3893

E. LOGIC AND FOUNDATIONS

Sergey S. Goncharov, Valentina S. Harizanov, Michael C. Laskowski, Steffen Lempp, and Charles F. D. McCoy, Trivial, strongly minimal theories are model complete after naming constants ......................... 3901
Patrick Simonetta, An example of a $C$-minimal group which is not abelian-by-finite ......................................................................................... 3913
Stevo Todorcevic, A proof of Nogura’s conjecture ........................................ 3919

G. TOPOLOGY

Thomas E. Gonzalez, Exactly $k$-to-1 maps and hereditarily indecomposable tree-like continua ............................................................................. 3925
Yuan-Qing Qiao and Franklin D. Tall, Perfectly normal non-metrizable non-Archimedean spaces are generalized Souslin lines ......................... 3929
Bruno Colbois, Une inégalité du type Payne-Polya-Weinberger pour le laplacien brut ......................................................................................... 3937
Makoto Ozawa and Yuukihiro Tsutsumi, Totally knotted Seifert surfaces with accidental peripherals .......................................................... 3945
Dennis K. Burke and Roman Pol, On non-measurability of $\ell_\infty/c_0$ in its second dual ..................................................................................... 3955
A. ALGEBRA, NUMBER THEORY, AND COMBINATORICS

Hirofumi Tsumura, On alternating analogues of Tornheim’s double series ........................................... 3633
Ming-Guang Leu and Guan-Wei Li, The Diophantine equation $2x^2 + 1 = 3^n$ ............................................ 3643
Alexander D. Arvanitakis, A proof of the Generalized Banach Contraction Conjecture ................................................................. 3647
Fernando Szechtman, $n$-inner automorphisms of finite groups ................................................................. 3657
S. Bazzoni, Cotilting modules are pure-injective ......................................................................................... 3665
M. Mahdavi-Hezavehi and J.-P. Tignol, Cyclicity conditions for division algebras of prime degree ........................................ 3673
Alexander Borisov, On a question of Craven and a theorem of Belyi .............................................................. 3677
N. Mohan Kumar, Chris Peterson, and A. Prabhakar Rao, Degenerating families of rank two bundles ......................... 3681
D. D. Anderson and Muhammad Zafrullah, A property of weakly Krull domains ........................................... 3689

B. ANALYSIS

M. Fabian and V. Zizler, A “nonlinear” proof of Pitt’s compactness theorem .................................................... 3693
Volker Mayer and Mariusz Urbański, Finer geometric rigidity of limit sets of conformal IFS ........................................ 3695
Yong Ouyang, An application of Bochner’s technique to the deformations of the complex structure of $\mathbb{CP}^n$ .................................................... 3703
Mourad E. Ismail and Ahmed I. Zayed, A $q$-analogue of the Whittaker-Shannon-Kotel’nikov sampling theorem .......................................................... 3711
Teemu Pennanen, Julian P. Revalsaki, and Michel Théra, Graph-distance convergence and uniform local boundedness of monotone mappings ................................................... 3721
Christopher Hoffman, The scenery factor of the $[T, T^{-1}]$ transformation is not loosely Bernoulli ......................... 3731
M. I. Gil’, Inner bounds for the spectrum of quasinormal operators ............................................................... 3737
N. Bejjah Rhouma, Principal eigenvalues for indefinite weight problems in all of $\mathbb{R}^d$ ........................................... 3747
Heinz H. Bauschke and Patrick L. Combettes, Construction of best Bregman approximations in reflexive Banach spaces ......................................................................................... 3757
Alvaro Bustinduy, Zeros of complete polynomial vector fields .......................................................................... 3767
Fotios C. Paliosiannis, On commuting operator exponentials .............................................................................. 3777
Chiara Boiti and Luisa Zanghirati, Global analytic regularity for non-linear second order operators on the torus ................................................................. 3783
Vladimir Derkach and Seppo Hassi, A reproducing kernel space model for $N_{n}$-functions ....................................... 3795
V. Müller, Power bounded operators and supercyclic vectors ................................................................. 3807

(Continued on inside back cover)