

INDEX TO VOLUME 74

RESEARCH ANNOUNCEMENTS

- Akutowitz, E. J. *On mean-periodicity*, 698.
Allan, N. D. *On the commensurability class of the Siegel modular group*, 115.
Allen, H. P. and Ferrar, J. C. *New simple Lie algebras of type D_4* , 478.
Anshel, Michael and Clay, J. R. *Planarity in algebraic systems*, 746.
Arkowitz, Martin. *A homological method for computing certain Whitehead products*, 1079.
Arnold, Ludwig and Michalek, Johannes. *On the norm of stable measures*, 364.
Askey, Richard. *Jacobi polynomial expansions with positive coefficients and imbeddings of projective spaces*, 301.
Barr, Michael. *A note on commutative algebra cohomology*, 310.
Baumslag, Gilbert. *More groups that are just about free*, 752.
Beals, Richard. *Global estimates for elliptic spectral functions and eigenvalues*, 358.
_____, *On eigenvalue distributions for elliptic operators without smooth coefficients. II*, 1024.
Ben-Israel, A. and Charnes, A. *On the intersections of cones and subspaces*, 541.
Berens, H., Butzer, P. L. and Westphal, U. *Representation of fractional powers of infinitesimal generators of semigroups*, 191.
Berg, I. D. and Rubel, L. A. *Densities on locally compact Abelian groups*, 298.
Berger, C. A. and Coburn, L. A. *C^* -algebras of translations and multipliers*, 1008.
Berstein, Israel. *Involutions with nonzero Arf invariant*, 678.
Bhattacharya, R. N. *Berry-Esseen bounds for the multi-dimensional central limit theorem*, 285.
Binmore, K. G. and Katz, Melvin. *A note on the strong law of large numbers*, 941.
Blakely, G. R. *Intrinsic characterization of polynomial transformations between vector spaces over a field of characteristic zero*, 472.
Block, R. E. *Differentiably simple algebras*, 1086.
Bloom, C. O. *Diffraction by a hyperbolic cylinder*, 587.
Boardman, J. M. and Vogt, R. M. *Homotopy-everything H -spaces*, 1117.
Bragg, L. R. and Dettman, J. W. *Related problems in partial differential equations*, 375.
Brauer, Alfred and Gentry, I. C. *On the characteristic roots of tournament matrices*, 1133.
Brauer, George. *Summability viewed as integration*, 609.
Brauer, Richard. *On simple groups of order $5 \cdot 3^a \cdot 2^b$* , 900.
Brenner, J. L. *Gershgorin theorems by Householder's proof*, 625; erratum 768.
Browder, F. E. *Nonlinear eigenvalue problems and Galerkin approximations*, 651.
_____, *Semicontractive and semiaccretive nonlinear mappings in Banach spaces*, 660.
_____, and Nussbaum, R. D. *The topological degree for noncompact nonlinear mappings in Banach spaces*, 671.
_____, and Petryskyn, W. V. *The topological degree and Galerkin approximation for noncompact operators on Banach spaces*, 641.
Brown, H. I. and Kerr, D. R. *Some remarks of l - l summability*, 529.
Bryant, J. L. and Seebeck, C. L., III. *Locally nice embeddings in codimension three*, 378.
Buck, R. C. *Decidable semigroups*, 892.
Burde, G. and Zieschang, H. *A topological classification of certain 3-manifolds*, 122.
Busenberg, Stavros. See Kraut Edgar.

- Butzer, P. L. and Görlich, E. *Characterizations of Favard classes for functions of several variables*, 149.
- , and Trebels, W. *Hilbert transforms, fractional integration and differentiation*, 106.
- . See Berens, H.
- Cantrell, J. C. and Lacher, R. C. *Flattening a submanifold in codimensions one and two*, 314.
- Cashwell, E. D. and Everett, C. J. *A general mean value theorem*, 1135.
- Chandra, Jagdish and Fleishman, B. A. *Bounds and maximal solutions for nonlinear functional equations*, 512.
- Charnes, A. See Ben-Israel, A.
- Cheeger, Jeff and Gromoll, Detlef. *The structure of complete manifolds of nonnegative curvature*, 1147.
- Cholewinski, F. M. See Haimo, D. T.
- Clay, J. R. See Anshel, Michael.
- Coburn, L. A. See Berger, C. A.
- Coifman, R. R. *Remarks on weak type inequalities for operators commuting with translations*, 710.
- Connell, E. H. *Examples of nontrivial H-cobordisms*, 176.
- Corner, A. L. S. and Crawley, Peter. *An abelian p-group without the isomorphic refinement property*, 743.
- Cossey, John and Macdonald, S. O. *A basis for the laws of $\text{PSL}(2, 5)$* , 602.
- Crawley, Peter and Hales, A. W. *The structure of torsion abelian groups given by presentations*, 954.
- . See Corner, A. L. S.
- Darst, R. B. *On a theorem of Nikodym with applications to weak convergence and von Neumann algebras*, 283.
- Davis, W. J. *Schauder decompositions in Banach spaces*, 1083.
- Dauns, John. *Representation of f-rings*, 249.
- Della Riccia, Giacomo. *Interiority of a holomorphic mapping on the set of its exceptional points*, 484.
- Dettman, J. W. See Bragg, L. R.
- Diaz, J. B. and Margolis, Beatriz. *A fixed point theorem of the alternative, for contractions on a generalized complete metric space*, 305.
- Douglas, R. G. *Toeplitz and Wiener-Hopf operators in $H^\infty + C$* , 895.
- Dunham, C. B. *Continuity of the varisolvent Chebyshev operator*, 606.
- Duvall, P. F., Jr. *Topological embeddings in codimension one*, 1113.
- Ebin, D. G. *On the space of Riemannian metrics*, 1001.
- Ecker, J. G. See Peterson, E. L.
- Edrei, Albert and Weitsman, Allen. *Asymptotic behavior of meromorphic functions with extremal deficiencies*, 140.
- Elworthy, K. D. *Fredholm maps and $\text{GL}_+(E)$ -structures*, 582.
- England, J. W. and Martin, N. F. G. *On weak mixing metric automorphisms*, 505.
- Everett, C. J. See Cashwell, E. D.
- Fabes, E. B. and Jodiet, M. Jr. *L^p boundary value problems for parabolic equations*, 1098.
- Farrell, F. T. and Hsiang, W. C. *A geometric interpretation of the Künneth formula for algebraic K-theory*, 548.
- Federer, Herbert. *Some properties of distributions whose partial derivatives are representable by integration*, 183.

- Feit, S. D. *k-mersions of manifolds*, 294.
- Ferrar, J. C. See Allen, H. P.
- Fields, Jerry. See Wimp, Jet.
- Fisher, Stephen. *The convex hull of the finite Blaschke products*, 1128.
- Flatto, Leopold. *Basic sets of invariants for finite reflection groups*, 730.
- Fleishman, B. A. See Chandra, Jagdish.
- Fogarty, J. and Rim, D. S. *Serre sequences and Chern classes*, 919.
- Francis, G. K. *The folded ribbon theorem for regular closed curves in the plane*, 264.
- Frank, D. L. *An invariant for almost-closed manifolds*, 562.
- Freedman, D. A. *On the derivative of a semigroup*, 749.
- Frolík, Zdeněk. *Fixed points of maps of BN*, 187.
- Gentry, I. C. See Brauer, Alfred.
- Gerstenhaber, Murray. *The obstruction to an automorphism of a filtered ring*, 695.
- Gilmer, Robert and Heinzer, William. *On the existence of exceptional field extensions*, 545.
- Glassman, N. D. *Cohomology of nonassociative algebras*, 590.
- Goldstein, L. J. *Analогues of Artin's conjecture*, 517.
- Goodman, Roe. *Analytic domination by fractional powers of a positive operator*, 702.
- Görlich, E. See Butzer, P. L.
- Gretsky, N. E. *Representation theorems on Banach function spaces*, 705.
- Grimm, L. J. and Schmitt, Klaus. *Boundary value problems for delay-differential equations*, 997.
- Gromoll, Detlef. See Cheeger, Jeff.
- Gross, Fred. *On the equation $f^n + g^n = 1$. II*, 647.
—, On the growth of $f(g)$, 1032.
—, Some theorems on factorization of meromorphic functions, 649.
- Grossberg, Stephen. *Global ratio limit theorems for some nonlinear functional-differential equations. I*, 95.
—, Global ratio limit theorems for some nonlinear functional-differential equations. II, 100.
- Gupta, N. D. *Polynilpotent groups of prime exponent*, 559.
- Gustafson, Karl. *The angle of an operator and positive operator products*, 488.
- Haber, Seymour. *A combination of Monte Carlo and classical methods for evaluating multiple integrals*, 683.
- Haimo, D. T. and Cholewinski, F. M. *The Poisson-Laguerre transform*, 137.
- Hales, A. W. See Crawley, Peter.
- Hall, William. See Kraut Edgar.
- Hartman, Philip. *Disconjugate nth order differential equations and principal solutions*, 125.
- Heinzer, William. See Gilmer, Robert.
- Helgason, S. and Koranyi, A. *A Fatou type theorem for harmonic functions on symmetric spaces*, 258.
- Hewitt, Edwin and Ross, K. A. *A maximal problem in harmonic analysis. III*, 225.
- Hill, Paul. *Extending automorphisms on primary groups*, 1123.
- Hilton, Peter and Roitberg, Joseph. *Note on principal S^3 -bundles*, 957.
- Hofmann, K. H. and Mostert P. S. *The cohomology of compact abelian groups*, 975.
- Holland, S. S., Jr. *On the adjoint of the product of operators*, 931.
- Hsiang, W. C. See Farrell, F. T.
- Hubbuck, J. R. *Some results in the theory of H-spaces*, 965.
- Jaco, William. *Constructing 3-manifolds from group homomorphisms*, 936.

- Jodiet, M. Jr. See Fabes, E. B.
- Johnson, J. L. and Smoller, J. A. *Global solutions of hyperbolic systems of conservation laws in two dependent variables*, 915.
- Jones, S. L. *The impossibility of filling E^n with arcs*, 155.
- Kamber, Franz. *On the characteristic homomorphism of a discrete uniform subgroup of a nilpotent Lie group*, 690.
- Kato, Mitsuyoshi. *Regular neighborhoods are not topologically invariant*, 988.
- Katz, Melvin. See Binmore, K. G.
- Keller, H. B. *Nonexistence and uniqueness of positive solutions of nonlinear eigenvalue problems*, 887.
- Kerr, D. R. See Brown, H. I.
- Kirby, R. C. *The union of flat $(n-1)$ -balls is flat in R^n* , 614.
- Konheim, A. G. and Rivlin, T. J. *The bounded linear operators that commute with the Bernstein operators*, 111.
- Korányi, A. See Helgason, S.
- de Korvin, *Expectations in von Neumann algebras*, 912.
- Kovács, L. G. *Varieties of groups and Burnside's problem*, 599.
- _____, Newman, M. F. and Pentony, P. F. *Generating groups of nilpotent varieties*, 968.
- Kraut, Edgar, Busenberg, Stavros and Hall, William. *On an additive decomposition of functions of several complex variables*, 372.
- Krengel, U. and Sucheston, L. *On mixing in infinite measure spaces*, 1150.
- Kühn, Joachim. *Ein Analogon zum high indices theorem für Potenzreihen mit wenigen Vorzeichenwechseln*, 133; errata, 628.
- Kwack, M. H. *Generalization of the big Picard theorem*, 759.
- Lacher, R. C. *Cell-like mappings of ANR's*, 933.
- _____. See Cantrell, J. C.
- Laha, R. G. *Nonnegative eigen functions of Laplace-Beltrami operators on symmetric spaces*, 167.
- Landweber, P. S. *Conjugations on complex manifolds and equivariant homotopy of MU*, 271.
- Lay, David. *Characterizations of the essential spectrum of F. E. Browder*, 246.
- Lebow, Arnold. *Maximal ideals in tensor products of Banach algebras*, 1021.
- Lickorish, W. B. R. and Martin, J. M. *The impossibility of desuspending collapses*, 979.
- Lindsey, J. H., II. *On a projective representation of the Hall-Janko group*, 1094.
- Loeb, P. A. and Walsh, Bertram. *An axiomatic approach to the boundary theories of Wiener and Royden*, 1004.
- Lou, Betty. *The centralizer of a regular unipotent element in a semisimple algebraic group*, 1144.
- Lucas, W. F. *A game with no solution*, 237.
- Macdonald, I. G. *Spherical functions on a p -adic Chevalley group*, 520.
- Macdonald, S. O. See Cossey, John.
- Mallows, C. L. and Riordan, John. *The inversion enumerator for labeled trees*, 92.
- Margolis, Beatriz. *On some fixed points theorems in generalized complete metric spaces*, 275.
- _____. See Diaz, J. B.
- Markin, J. T. *A fixed point theorem for set valued mappings*, 639.
- Martin, D. A. *The axiom of determinateness and reduction principles in the analytical hierarchy*, 687.

- Martin, J. M. See Lickorish, W. B. R.
- Martin, N. F. G. See England, J. W.
- Masani, P. *On the representation theorem of scattering*, 618.
- May, J. P. *The cohomology of principal bundles, homogeneous spaces, and two-stage Postnikov systems*, 334.
- McClendon, J. F. *A spectral sequence for classifying liftings in fiber space*, 982.
- McMillan, H. E. *On the geometric theory of functions meromorphic in a disc*, 119.
- Michalicek, Johannes. See Arnold, Ludwig.
- Miller, R. K. and Sell, G. R. *A note on Volterra integral equations and topological dynamics*, 904.
- Mosher, R. E. *Some homotopy of stunted complex projective space*, 179.
- Mostert, P. S. See Hoffmann, K. H.
- Mowat, D. G. *A Galois problem for mappings*, 1095.
- Mukherjea, K. K. *Coincidence theory for infinite dimensional manifolds*, 493.
- Neggers, J. *Some automorphism groups in Noetherian domains*, 572.
- Newman, B. B. *Some results on one-relator groups*, 568.
- Newman, M. F. See Kovács, L. G.
- Nussbaum, R. D. See Browder, F. E.
- Oberst, Ulrich. *Exactness of inverse limits*, 1129.
- Oddson, J. K. *On the boundary point principle for elliptic equations in the plane*, 666.
- Orlik, P. and Rourke, C. P. *Free involutions on homotopy $(4k+3)$ -spheres*, 949.
- Palis, J. *On Morse-Smale diffeomorphisms*, 985.
- Palmer, T. W. *Characterizations of C^* -algebras*, 538.
- Payne, S. E. *A Bruck-Ryser type nonexistence theorem*, 922.
- Peck, N. T. *A note on support points*, 1103.
- Pentony, P. F. See Kovács, L. G.
- Peterson, E. L. and Ecker, J. G. *A unified duality theory for quadratically constrained quadratic programs and l_p -constrained l_p -approximation problems*, 316.
- Pertyshyn, W. V. See Browder, F. E.
- Poénaru, Valentin. *Constructions on low-dimensional differentiable manifolds*, 253.
- Pollack, R. D. *Restricted Lie algebras of bounded type*, 326.
- Putnam, C. R. *Wiener-Hopf operators and absolutely continuous spectra. II*, 340.
- Rabin, M. O. *Decidability of second order theories and automata on infinite trees*, 1027.
- Radjavi, Heydar and Rosenthal, Peter. *Invariant subspaces and weakly closed algebras*, 1013.
- Rao, M. M. *Local functionals and generalized random fields*, 288.
- Rauch, H. E. *Functional independence of theta constants*, 633.
- Rhodes, John. *The fundamental lemma of complexity for arbitrary finite semigroups*, 1104.
- Richards, Ian. *More on rings on rings*, 677.
- Rim, D. S. See Fogarty, J.
- Riordan, John. See Mallows, C. L.
- Rivièrre, N. M. *Vector valued multipliers and applications*, 946.
- Rivlin, T. J. See Konheim, A. G.
- Roitberg, Joseph. See Hilton, Peter.
- Rolfsen, Dale. *Strongly convex metrics in cells*, 171.
- Rosenthal, Peter. See Radjavi, Heydar.
- Ross, K. A. See Hewitt, Edwin.
- Rourke, C. P. See Orlik, P.
- Rubel, L. A. See Berg, I. D.

- Rubin, Herman. *Representation of nonnegative continuous functions on product spaces*, 332.
- Rubinstein, Zalman. *On the approximation by C-polynomials*, 1091.
- Rudin, Walter. *Modification sets of density zero*, 526.
_____, *Proof of a conjecture of Helson*, 727.
- Russo, B. *Isometries of L^p -spaces associated with finite von Neumann algebras*, 228.
- Schaaffer, A. J. *Boundedness of solutions to linear differential equations*, 508; errata 1036.
- Schechter, Martin. *Riesz operators and Fredholm perturbations*, 1139.
- Schmitt, Klaus. See Grimm, L. J.
- Seebeck, C. L., III, See Bryant, J. L.
- Sell, G. R. See Miller, R. K.
- Shaneson, J. L. *Embeddings with codimension two of spheres in spheres and H-cobordisms of $S^1 \times S^3$* , 972.
_____, *Wall's surgery obstruction groups for $Z \times G$, for suitable groups G*, 467.
- Shapiro, H. S. *Some Tauberian theorems with applications to approximations theory*, 500.
- Sherman, T. L. *On solutions of nth order linear differential equations with N zeros*, 923.
- Shih, Weishu. *On the symbol of a pseudo-differential operator*, 657.
- Shrader, Susan. See Wiginton, C. L.
- Shult, Ernest. *The solution of Boen's problem*, 268.
- Siebenmann, L. C. *On the homotopy type of compact topological manifolds*, 738.
- Smith, J. W. *An exact sequence for submersions*, 233.
- Smoller, J. A. See. Johnson, J. L.
- Sotomayor, J. *Generic one-parameter families of vector fields on two-dimensional manifolds*, 722.
- Stallings, John. *Groups of dimension 1 are locally free*, 361.
- Stenger, William. *On the projection of a self-adjoint operator*, 369.
- Stolzenberg, Gabriel. *Constructive normalization of an algebraic variety*, 595.
- Strauss, Aaron and Yorke, J. A. *Perturbing asymptotically stable differential equations*, 992.
- Sucheston, L. See Krengel, U.
- Sullivan, F. E. *Norm characterization of real L^p spaces*, 153.
- Swan, R. G. *Generators and relations for certain special linear groups*, 576.
- Swartz, Blair. *$O(h^{2n+2-l})$ bounds on some spline interpolation errors*, 1072.
- Taylor, D. C. *A characterization of Banach algebras with approximate unit*, 761.
- Treibels, W. See Butzer, P. L.
- Vasquez, A. T. *On characteristic classes of flat Riemannian manifolds*, 715.
- Verma, Daya-Nand. *Structure of certain induced representations of complex semisimple Lie algebras*, 160; errata 628.
- Vogt, R. M. See Boardman, J. M.
- Wales, D. B. *Finite linear groups in seven variables*, 197.
- Wall, C. T. C. *Free piecewise linear involutions on spheres*, 554.
_____, *Graded algebras, anti-involutions, simple groups and symmetric spaces*, 198.
- Walsh, Bertram. See Loeb, P. A.
- Walsh, J. L. *Note on classes of functions defined by integrated Lipschitz conditions*, 344.
- Warner, Seth. *Two types of locally compact rings*, 926.
- Weidmann, Joachim. *Strong Carleman operators are of Hilbert-Schmidt type*, 735.
- Weiss, N. J. *Almost everywhere convergence of Poisson integrals on generalized half-planes*, 533.

- Weitsman, Allen. See Edrie, Albert.
- Wells, G. S. *Immersions of G-manifolds, G finite*, 130.
- West, J. E. *Extending certain transformation group actions in separable, infinite-dimensional Frechet spaces and the Hilbert cube*, 1016.
- Westphal, B. See Berens, H.
- Wiegand, Roger. *The cohomological dimension of Stone spaces*, 944.
- Wiginton, C. L. and Shrader, Susan. *Spaces determined by a group of functions*, 1010.
- Wilf, H. S. *Hadamard determinants, Möbius functions, and the chromatic number of a graph*, 960.
- Williams, F. D. *A characterization of spaces with vanishing generalized higher Whitehead products*, 497.
- Wimp, Jet and Fields, Jerry. *On the factorization of a class of difference operators*, 1068.
- Winter, D. J. *Representations of locally finite groups*, 145.
- _____, *Solvable and nilpotent subalgebras of Lie algebras*, 754.
- Wong, J. S. W. *Second order linear oscillation with integrable coefficients*, 909.
- Wong, Y.-C. *Conjugate loci in Grassmann manifolds*, 240.
- Wright, Perrin. *A uniform generalized Schoenflies theorem*, 718.
- Yorke, J. A. *Extending Liapunov's second method to non-Lipshitz Liapunov functions*, 322.
- _____. See Strauss, Aaron.
- Youngs, J. W. T. *Remarks on the Heawood conjecture (nonorientable case)*, 347.
- _____, *The nonorientable genus of K_n* , 354.
- Zieschang, H. See Burde, G.

BOOK REVIEWS

- Bauer, Heinz. *Review of "Probability and potentials,"* by P. A. Meyer, 75.
- Shapiro, V. L. *Review of "Real and complex analysis,"* by Walter Rudin, 79.

REPORTS OF MEETINGS AND MISCELLANEOUS ARTICLES

- Anderson, R. D. and Bing, R. H. *A complete elementary proof that Hilbert space is homeomorphic to the countable infinite product of lines*, 771.
- Bateman, P. T. Reports of Meetings of the American Mathematical Society: The November meeting in Urbana, 91.
- _____. See Pitcher, Everett.
- Bing, R. H. See Anderson, R. D.
- Council and Board of Trustees—1967, 204.
- Federer, Herbert. Reports of Meetings of the American Mathematical Society: The October meeting in Cambridge, 89; The April Meeting in New York, 1066.
- Harrold, O. G. Reports of Meetings of the American Mathematical Society: The November meeting in Knoxville, 90.
- Martin, W. T. Reports of the Treasurer, 1966 and 1967, 85, 884.
- Peirce, R. S. Reports of Meetings of the American Mathematical Society: The March meeting in Los Angeles, 631; The November Meeting in Albuquerque, 224; The June Meeting in Portland, 1067.
- _____. See Pitcher, Everett.
- Pitcher, Everett, 1967 Election of Council Members and Board of Trustees, 84.
- _____, and Bateman, P. T. Reports of Meetings of the American Mathematical Society: The April Meeting in Chicago, 880.

—, and Pierce, R. S. *Reports of Meetings of the American Mathematical Society: The Annual meeting in San Francisco*, 455.

Thompson, J. G. *Nonsolvable groups all of whose local subgroups are solvable*, 383.

INVITED ADDRESSES

Albert, A. A. *On associative division algebras*, 438.

—, 455.

Almgren, F. J. 1066.

Atkinson, F. V. *Multi-parameter spectral theory*, 1.

Auslander, Louis, 455.

Bade, W. G. 1067.

Brown, E. H. 89.

Gale, David. *A mathematical theory of optimal economic development*, 207.

Getoor, R. K., 224.

Goodman, A. W. *Problems on univalent and multivalent functions*, 1035.

Gordon, Basil, 224.

Heller, Alex. *Stable homotopy categories*, 28.

Householder, A. S., 90.

—, *Norms and the localization of roots of matrices*, 816.

Jonsson, Bjarni, 90.

Lefshetz, Solomon. *A page of mathematical autobiography*, 854.

Lewis, D. J., 91.

Luxemburg, W. A. J., 1067.

Mahowald, M. E., 91.

Mattuck, A. P., 89

McKean, H. P., 1066.

Peterson, F. P., 1066.

Porcelli, Pasquale, 90.

Ree, Rimhak, 631.

Reiner, Irving, 880.

Seligman, G. B., 1066.

—, *Algebraic Lie algebras*, 1051.

Smale, Stephen, 880.

Thom, René, 880.

Tutte, W. T., *On the enumeration of planar maps*, 64.

Wasow, Wolfgang, 455.

—, *Connection problems for asymptotic series*, 831.

Weinberger, Hans, 880.

Wigner, E. P., 455.

—, *Symmetry principles in old and new physics*, 793.