VOLUME 38 Number 4

ILLINOIS JOURNAL OF MATHEMATICS

a quarterly journal published by the
UNIVERSITY OF ILLINOIS
at Urbana-Champaign

edited by
STEPHANIE ALEXANDER
EARL R. BERKSON
E. GRAHAM EVANS, JR.
ADOLF HILDEBRAND
MAUNG MIN-OO
PHILIPPE TONDEUR
LOU VAN DEN DRIES

WINTER 1994 Pages 521–700

ILLINOIS JOURNAL OF MATHEMATICS

Manuscript

Original research papers in pure and applied mathematics intended for publication in this journal may be written in English, French or German. The submission of a paper implies the author's assurance that it has not been published or submitted for publication elsewhere. Manuscripts should be addressed to the Illinois Journal of Mathematics, 1409 West Green Street, University of Illinois at Urbana-Champaign, Urbana, Illinois 61801 (e-mail ijm@math.uiuc.edu) or one of the editors:]

STEPHANIE ALEXANDER, University of Illinois, Department of Mathematics, 273 Altgeld Hall, 1409 West Green St., Urbana, Illinois 61801

EARL R. BERKSON, University of Illinois, Department of Mathematics, 273 Altgeld Hall, 1409 West Green St., Urbana, Illinois 61801.

E. GRAHAM EVANS, JR., University of Illinois, Department of Mathematics, 273 Altgeld Hall, 1409 West Green St., Urbana, Illinois 61801.

ADOLF HILDEBRAND, University of Illinois, Department of Mathematics, 273 Altgeld Hall, 1409 West Green St., Urbana, Illinois 61801.

MAUNG MIN-OO, McMaster University, Department of Mathematics and Statistics, 1280 Main St. West, Hamilton, Ontario, Canada L8S 4K1.

PHILIPPE TONDEUR (Managing Editor), University of Illinois, Department of Mathematics, 273 Altgeld Hall, 1409 West Green St., Urbana, Illinois 61801.

LOU VAN DEN DRIES, University of Illinois, Department of Mathematics, 273 Altgeld Hall, 1409 West Green St., Urbana, Illinois 61801.

Continued on inside back cover

THE ILLINOIS JOURNAL OF MATHEMATICS (ISSN 0019-2082) is published quarterly (Spring, Summer, Fall, Winter) by the University of Illinois Press, 54 E. Gregory Dr., Champaign, IL 61820, on behalf of the Department of Mathematics of the University of Illinois. Second-class postage paid at Champaign, Illinois and additional mailing offices. *Postmaster:* Please send change-of-address notices to University of Illinois Press, 1325 S. Oak, Champaign, Illinois 61820.

Subscription price: $105; single issues, $26 (volumes 29 to date). Address orders to the University of Illinois Press. Requests for replacement of damaged or undelivered issues will be honored for up to six months after publication of the issue. Back issues of Volumes 1–28 are available from Swets & Zeitlinger B.V., Herreweg 347-b, P.O. Box 810, 2160 SZ Lisse-Holland.

© 1994 by the Board of Trustees of the University of Illinois
Manufactured in the United States of America

VOLUME 38 1994

ILLINOIS JOURNAL OF MATHEMATICS

a quarterly journal published by the
UNIVERSITY OF ILLINOIS
at Urbana-Champaign

edited by
STEPHANIE ALEXANDER
EARL R. BERKSON
E. GRAHAM EVANS, JR.
ADOLF HILDEBRAND
MAUNG MIN-OO
PHILIPPE TONDEUR
LOU VAN DEN DRIES

Pages

ANDRADAS, CARLOS and RUIZ, JESÚS, Low dimensional sections of basic semialgebraic sets 303–326

ARMENTROUT, STEVE, Knots and shellable cell partitionings of S^3 347–365

BAK, JONG-GUK, Restrictions of Fourier transforms to flat curves in $\mathbf{R}^2$ 327–346

BERMAN, ROBERT and SINGMAN, DAVID, Intermittent oscillation and tangential growth of functions with respect to Nagel-Stein regions on a half-space. 19–46

BORZELLINO, JOSEPH E. and ZHU, SHUN-HUI, The splitting theorem for orbifolds 679–691

BUJALANCE, EMILIO and COSTA, ANTONIO F., Orientation reversing automorphisms of Riemann surfaces 616–623

BURGER, EDWARD B., Inhomogeneous inequalities over number fields 452–470

CARLIP, WALTER, Regular orbits of nilpotent subgroups of solvable groups. 198–222

CHAN, SHIH-PING, LANG, MONG-LUNG, LIM, CHONG-HAI and TAN, SER-PEOW, The invariants of the congruence subgroups $G_0(\mathfrak{P})$ of the Hecke group G_5 636–652

CHEN, LUNG-KEE, The multiplier operators on the product spaces. 420–433

CHUA, SENG-KEE, Some remarks on extension theorems for weighted Sobolev spaces 95–126

CORACH, G., PORTA, H. and RECHT, L., Convexity of the geodesic distance on spaces of positive operators. 87–94

COSTA, ANTONIO F. and BUJALANCE, EMILIO, Orientation reversing automorphisms of Rieman surfaces 616–623

DAI, CHAOSHOU and TAYLOR, S. JAMES, Defining fractals in a probability space 480–500

DAZORD, P., Mecanique Hamiltonienne en presence de constraites 148–175

FISHER, STEPHEN D. and STESSIN, MICHAEL, On n-widths of classes of holomorphic functions with reproducing kernels . . . 589–615

FREMLIN, D. H., The Henstock and McShane integrals of vector-valued functions 471–479

FREMLIN, D. H. and MENDOZA, J., On the integration of vector-valued functions 127–147

GOSSELIN, J. and STEMPAK, K., Conjugate expansions for Hermite functions 177–197

GRINNELL, RAYMOND J. and HARE, KATHRYN E., Lorentz-improving measures 366–389

HARE, KATHRYN E. and GRINNELL, RAYMOND J., Lorentz-improving measures 366–389

HEITSCH, JAMES L. and LAZAROV, CONNOR, Spectral asymptotics of foliated manifolds 653–678

HOPENWASSER, ALAN and PETERS, JUSTIN R., Full nest algebras .. 501–520

HUANG, XIAOJUN, A preservation principle of extremal mappings near a strongly pseudoconvex point and its applications 283–302

JEFFERIES, BRIAN and OKADA, SUSUMU, Pettis integrals and singular integral operators 250–272

JONES, ROGER, ROSENBLATT, JOSEPH, and TEMPLEMAN, ARKADY, Ergodic theorems for convolutions of a measure on a group 521–553

LANG, MONG-LUNG, CHAN, SHIH-PING, LIM, CHONG-HAI and TAN, SER-PEOW, The invariants of the congruence subgroups $G_0(\mathfrak{P})$ of the Hecke group G_5 636–652

LAGARIAS, J. C., PORTA, H. A. and STOLARSKY, K. B., Asymmetric tent map expansions II. Purely periodic points 574–589

LAZAROV, CONNOR and HEITSCH, JAMES L., Spectral asymptotics of foliated manifolds 653–678

LEE, MIN HO, Mixed Siegel modular forms and Kuga fiber varieties 692–700

LIM, CHONG-HAI, CHAN, SHIH-PING, LANG, MONG-LUNG and TAN, SER-PEOW, The invariants of the congruence subgroups $G_0(\mathfrak{P})$ of the Hecke group G_5 636–652

MCCULLOUGH, DARRYL, Weak concentration points for Möbius groups 624–635

MENDOZA, J. and FREMLIN, D. H., On the integration of vector-valued functions 127–147

MÜLLER, PAUL F. X., Orthogonal projections on martingale H^1 spaces of two parameters 554–573

NIELSEN, N. J, A note on unconditional structures in weak Hilbert spaces 390–393

OKADA, SUSUMU and JEFFERIES, BRIAN, Pettis integrals and singular integral operators 250–272

PELOSO, MARCO M., Hankel operators on weighted Bergman spaces on strongly pseudoconvex domains 223–249

PETERS, JUSTIN R. and HOPENWASSER, ALAN, Full nest algebras . . 501–520
PFEFFER, CAROLYN, Fejer theorems on compact solvmanifolds . . . 79–86
PORTA, H., RECHT, L. and CORACH, G., Convexity of the geodesic distance on spaces of positive operators. 87–94
PORTA, H. A., LAGARIAS, J. C., and STOLARSKY, K. B., Asymmetric tent map expansions II. Purely periodic points 574–588
RECHT, L., CORACH, G. and PORTA, H., Convexity of the geodesic distance on spaces of positive operators. 87–94
ROIG, AGUSTI, Formalizability of dg modules and morphisms of cdg algebras 434–451
ROMANI, GUILIANO, Codimension reduction theorems in conformal geometry 273–282
ROSENBLATT, JOSEPH, JONES, ROGER and TEMPLEMAN ARKADY, Ergodic theorems for convolutions of a measure on a group . . 521–553
RUIZ, JESÚS and ANDRADAS, CARLOS, Low dimensional sections of basic semialgebraic sets 303–326
SARALEGI, MARTIN, Homological properties of stratified spaces. . . 47–70
SÁRKÖZY, A. and STEWART, C. L., On the average value for the number of divisors of sums $a + b$ 1–18
SINGMAN, DAVID and BERMAN, ROBERT, Intermittent oscillation and tangential growth of functions with respect to Nagel-Stein regions on a half-space. 19–46
STEMPAK, K. and GOSSELIN, J., Conjugate expansions for Hermite functions 177–197
STESSIN, MICHAEL and FISHER, STEPHEN D., On n-widths of classes of holomorphic functions with reproducing kernels . . . 589–615
STEWART, C. L. and SÁRKÖZY, A., On the average value for the number of divisors of sums $a + b$ 1–18
STOLARSKY, K. B., LAGARIAS, J. C. and PORTA, H. A., Asymmetric tent map expansions II. Purely periodic points. 574–588
TAN, SER-PEOW, CHAN, SHIH-PING, LANG, MONG-LUNG and LIM, CHONG-HAI, The invariants of the congruence subgroups $G_0(\mathfrak{P})$ of the Hecke group G_5 636–652
TAYLOR, S. JAMES and DAI, CHAOSHOU, Defining fractals in a probability space 480–500
TEMPLEMAN, ARKADY, ROSENBLATT, JOSEPH and JONES, ROGER, Ergodic theorems for convolutions of a measure on a group . . 521–553
VAMANAMURTHY, M. K. and VUORINEN, M, Functional inequalities, Jacobi products, and quasiconformal maps 394–419

VUORINEN, M. and VAMANAMURTHY M. K., Functional inequalities, Jacobi products, and quasiconformal maps 394–419

WENPENG, ZHANG, On the mean square value of the Hurwitz zeta-function. 71–78

ZHU, SHUN-HUI and BORZELLINO, JOSEPH E., The splitting theorem for orbifolds 679–691