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

SUMMER 1994 Pages 177-346

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@symcom.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-00, 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, 54 E. Gregory Drive, Champaign, Illinois 61820.

Subscription price: \$104.00; single issues, \$26.00 (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