

# MATHEMATIKA

A JOURNAL OF PURE AND APPLIED MATHEMATICS



<b>R. J. GARDNER</b>	Convex bodies equidecomposable by locally discrete groups of isometries	1
<b>L. FEJES TÓTH</b>	Isoperimetric problems for tilings	10
<b>J. H. LOXTON</b>	The distribution of exponential sums	16
<b>H. NIEDERREITER and R. F. TICHY</b>	Solutions of a problem of Knuth on complete uniform distribution sequences	26
<b>J. P. ALLOUCHE and M. MENDÈS FRANCE</b>	On an extremal property of the Rudin-Shapiro sequence	33
<b>R. ERNVALL</b>	An upper bound for the index of $\chi$ -irregularity	39
<b>M. A. KENKU</b>	A note on the integral points of a modular curve of level 7	45
<b>K. ALZUBAIDY</b>	Free actions on $(S^n)^k$	49
<b>H. HILLER</b>	Cohomology of Bieberbach groups	55
<b>A. G. BABIKER and J. D. KNOWLES</b>	Functions and measures on products spaces	60
<b>F. TOPSOE</b>	Extending criteria for differentiation theorems	68
<b>D. C. SHAW and R. A. DAWE</b>	Perturbation theory for a displacement front passing discontinuities in capillary pressure and permeability in a porous medium	75
<b>N. A. WATSON</b>	Thinness and boundary behaviour of potentials for the heat equations	90
<b>K. B. STOLARSKY</b>	Singularities of Bessel-zeta functions and Hawkins polynomials	96
<b>P. BALDWIN</b>	Zeros of generalized Airy functions	104
<b>G. W. BLUMAN and R. D. GREGORY</b>	On the transformation of the biharmonic equation	118
<b>M. S. P. EASTHAM</b>	The asymptotic solution of linear differential systems	131
<b>J. K. LANGLEY</b>	On Hayman's alternative	139
<b>R. W. HANSELL, J. E. JAYNE and C. A. ROGERS</b>	Separation of $K$ -analytic sets	147

JUNE 1985

ISSN 0025-5793

# MATHEMATIKA

A JOURNAL OF PURE AND APPLIED MATHEMATICS

*Founded by*

H. DAVENPORT

*Edited by*

P. M. COHN, D. H. MICHAEL,  
C. A. ROGERS, J. G. SEMPLE, F. T. SMITH

**MATHEMATIKA** is published by the Department of Mathematics, University College London. It contains original notes and memoirs on mathematics and its applications. Any diagrams submitted with manuscripts should be of a size not exceeding 1.5 times the final size for printing.

Two parts of **MATHEMATIKA** are published each year. The parts normally appear in June and December, but are sometimes delayed.

The subscription price for the volume of two parts for 1986 is £27.00. Cheques and Bankers' drafts should be made payable to University College London and should be sent to

**MATHEMATIKA**

UNIVERSITY COLLEGE,  
GOWER STREET,  
LONDON, WC1E 6BT  
ENGLAND.

Overseas subscribers must arrange to pay by Bankers' Draft drawn in Sterling on London, otherwise bank collection charges absorb a substantial proportion of the total payment, money we can ill afford to lose.

A special subscription rate of £20.00 applies to members of some national Mathematical Societies requiring **MATHEMATIKA** for their personal use.

Back numbers are available. The price is £27.00 per volume.

© UNIVERSITY COLLEGE LONDON, 1985

# MATHEMATIKA

A JOURNAL OF PURE AND APPLIED MATHEMATICS

*Founded by*

H. DAVENPORT

*Edited by*

P. M. COHN,  
D. H. MICHAEL,  
C. A. ROGERS,  
J. G. SEMPLE,  
F. T. SMITH

VOLUME 32

1985

Published by  
THE DEPARTMENT OF MATHEMATICS  
UNIVERSITY COLLEGE  
LONDON

Printed by  
J. W. ARROWSMITH LTD  
WINTERSTOKE ROAD  
BRISTOL BS3 2NT  
ENGLAND

© UNIVERSITY COLLEGE LONDON, 1985