

## INDEXES TO VOLUME 403 (A)

### *Author index*

- Baker, J. M., Bleaney, B., Davoust, C. E., Hutchison, C. A., Jr, Leask, M. J. M., Martineau, P. M., Robinson, M. G., Weber, R. T. & Wells, M. R. Optical and magnetic studies of thulium nicotinate dihydrate, 199.
- Baker, J. M., Hutchison, C. A., Jr & Martineau, P. M. Electron paramagnetic resonance of  $Tm^{3+}$  ions in lanthanide nicotinate dihydrates., 221.
- Bayliss, K. H. & Latham, R. V. An analysis of fluid-induced hot-electron emission from metal-insulated microstructures on broad-area high-voltage electrodes, 285.
- Bleaney, B. *See Baker et al.*
- Brown, Susan N. *See Ingham & Brown.*
- Chandrasekhar, Subrahmanyan & Xanthopoulos, Basilis C. On the collision of impulsive gravitational waves when coupled with null dust, 189.
- Cox, D. R. *See Rodriguez-Iturbe et al.*
- D'Anna, A., Lignola, P. G. & Scott, S. K. The application of singularity theory to isothermal, autocatalytic open systems: the elementary scheme  $A + mB = (m + 1)B$ , 341.
- Davoust, C. E. *See Baker et al.*
- Dyson, A., Evans, H. P. & Snidle, R. W. Wildhaber–Novikov circular arc gears: geometry and kinematics, 313.
- Eagleson, P. S. *See Rodriguez-Iturbe et al.*
- Evans, H. P. *See Dyson et al.*
- Harrison, J. H. *See Witz et al.*
- Hutchison, C. A., Jr *See Baker et al.*
- Hutchison, C. A., Jr *See Baker et al.*
- Ingham, D. B. & Brown, Susan N. Flow past a suddenly heated vertical plate in a porous medium, 51.
- Keogh, P. S. *See Morton & Keogh.*
- Latham, R. V. *See Bayliss & Latham.*
- Leask, M. J. M. *See Baker et al.*
- Lignola, P. G. *See D'Anna et al.*
- Longuet-Higgins, M. S. Bifurcation and instability in gravity waves, 167.
- Martineau, P. M. *See Baker et al.*
- Martineau, P. M. *See Baker et al.*
- Michels, J. P. J. & Wiegel, F. W. On the topology of a polymer ring, 269.
- Morton, P. G. & Keogh, P. S. Thermoelastic influences in journal bearing lubrication, 111.
- Nye, J. F. The catastrophe optics of liquid drop lenses, 1.
- Patel, M. H. *See Witz et al.*
- Robinson, M. G. *See Baker et al.*
- Rodriguez-Iturbe, I., Cox, D. R. & Eagleson, P. S. Spatial modelling of total storm rainfall, 27.

Scott, S. K. *See* D'Anna *et al.*

Snidle, R. W. *See* Dyson *et al.*

Weber, R. T. *See* Baker *et al.*

Wells, M. R. *See* Baker *et al.*

Wiegel, F. W. *See* Michels & Wiegel.

Wilkinson, M. Von Neumann lattices of Wannier functions for Bloch electrons in a magnetic field, 135.

Witz, J. A., Patel, M. H. & Harrison, J. H. On the hydrodynamics of semisubmersibles with articulated members, 81.

Wu, J. Z. Conical turbulent swirling vortex with variable eddy viscosity, 235.

Xanthopoulos, Basilis C. *See* Chandrasekhar & Xanthopoulos.

*Subject index*

- articulated semisubmersibles, 81.  
 autocatalytic reactions, 341.
- bearings, thermal distortion, 111.  
 bifurcation, 167.  
 boundary-layer flows, 51.
- catastrophe, winged-cusp, 341.  
 catastrophe optics, 1.  
 catastrophe phenomena, 81.  
 catastrophe theory, 1.  
 caustics, 1.  
 collision of gravitational waves, 189.  
 conformal gears, 313.
- dielectric switching, 285.  
 dimeric molecular crystals, 199, 221.  
 distortion, journal bearings, 111.
- e.p.r. of  $Tm^{3+}$ , 221.  
 e.p.r. transition mechanisms, 221.  
 eddy viscosity, 235.  
 electron emission spectroscopy, 285.  
 entanglements, 269.  
 existence theorems, 235.
- flow reactors, 341.  
 free convection flow, 51.
- gear tooth interference, 313.  
 geometrical optics, 1.  
 gravitational waves coupled with null dust, 189.  
 gravity waves, 167.
- hammagraphy, 269.  
 helicopter rotor drives, 313.  
 high-voltage insulation, 285.  
 hot-electron emission, 285.  
 hydrodynamics of semisubmersibles, 81.
- impulsive gravitational waves, 189.  
 instabilities, 167.  
 integro-differential equations, 235.
- journal bearings, distortion, 111.
- knots, 269.
- lanthanide paramagnetic ions, 221.  
 links, 269.  
 liquid drop lenses, 1.  
 lubrication, thermoelastic, 111.
- magnetic pair interactions, 199, 221.  
 magnetic resonance spectroscopy, 199.  
 magnetic susceptibility, 199.  
 marine vessel dynamics, 81.  
 metal-insulator microstructures, 285.  
 multiple stationary states, 341.
- Navier-Stokes equations, 235.  
 non-conjugate gears, 313.  
 null dust, 189.  
 numerical polymer enumerations, 269.
- optical absorption spectroscopy, 199.  
 optical caustics, 1.
- point stochastic process, 27.  
 polymer, 269.  
 porous medium, 51.  
 pressure-angle determination, 313.
- semisubmersible hydrostatic stability, 81.  
 similarity solutions, 51.  
 singularity theory, 341.  
 spatial stochastic process, 27.  
 stability of semisubmersibles, 81.  
 stochastic hydrology, 27.  
 storm modelling, 27.
- thulium nicotinate dihydrate, 199., 221.  
 tornados, 235.
- unsteady flow, 51.
- vortices, 235.
- waves, gravity, 167, 189.

PROCEEDINGS OF  
THE ROYAL SOCIETY  
OF LONDON

SERIES A VOLUME 403  
MATHEMATICAL AND PHYSICAL SCIENCES

1986

PUBLISHED BY THE ROYAL SOCIETY  
6 CARLTON HOUSE TERRACE LONDON SW1Y 5AG

The two numbers in this volume can be obtained separately from  
the Royal Society, 6 Carlton House Terrace, London SW1Y 5AG.

*Printed in Great Britain by the University Press, Cambridge*

## CONTENTS

### SERIES A VOLUME 403

#### NUMBER 1824 8 JANUARY 1986

The catastrophe optics of liquid drop lenses. By J. F. Nye, F.R.S. [Plates 1–12]	<i>page</i> 1
Spatial modelling of total storm rainfall. By I. Rodriguez-Iturbe, D. R. Cox, F.R.S., and P. S. Eagleson	27
Flow past a suddenly heated vertical plate in a porous medium. By D. B. Ingham and Susan N. Brown	51
On the hydrodynamics of semisubmersibles with articulated members. By J. A. Witz, M. H. Patel and J. H. Harrison	81
Thermoelastic influences in journal bearing lubrication. By P. G. Morton and P. S. Keogh	111
Von Neumann lattices of Wannier functions for Bloch electrons in a magnetic field. By M. Wilkinson	135

#### NUMBER 1825 8 FEBRUARY 1986

Bifurcation and instability in gravity waves. By M. S. Longuet-Higgins, F.R.S.	167
On the collision of impulsive gravitational waves when coupled with null dust. By Subrahmanyan Chandrasekhar, F.R.S., and Basilis C. Xanthopoulos	189
Optical and magnetic studies of thulium nicotinate dihydrate. By J. M. Baker, B. Bleaney, F.R.S., C. E. Davoust, C. A. Hutchison, Jr, M. J. M. Leask, P. M. Martineau, M. G. Robinson, R. T. Weber and M. R. Wells	199
Electron paramagnetic resonance of $Tm^{3+}$ ions in lanthanide nicotinate dihydrates. By J. M. Baker, C. A. Hutchison, Jr and P. M. Martineau	221
Conical turbulent swirling vortex with variable eddy viscosity. By J. Z. Wu	235
On the topology of a polymer ring. By J. P. J. Michels and F. W. Wiegel	269
An analysis of field-induced hot-electron emission from metal-insulator microstructures on broad-area high-voltage electrodes. By K. H. Bayliss and R. W. Latham	285
Wildhaber–Novikov circular arc gears: geometry and kinematics. By A. Dyson, H. P. Evans and R. W. Snidle. [Plate 1]	313
The application of singularity theory to isothermal autocatalytic open systems: the elementary scheme $A + mB = (m + 1)B$ . By A. D'Anna, P. G. Lignola and S. K. Scott	341
Indexes	365