

CAMBRIDGE

JOURNALS

JFM ARCHIVE

**Journal of
Fluid Mechanics**

Digital Archive
1956–1996

*Vital research from
the definitive source*

The JFM Digital Archive contains every article from the first 40 years of the journal, scanned and digitised to the highest standards.

Please speak to your librarian about gaining access.

journals.cambridge.org/jfm



**CAMBRIDGE
UNIVERSITY PRESS**

CAMBRIDGE

JOURNALS

**JFM FAST
TRACK HAS
EVOLVED**

JFM RAPIDS

.....

- Faster publication
- Greater visibility for papers
- Freely available to all for the first year

For more information visit

journals.cambridge.org/rapids



**CAMBRIDGE
UNIVERSITY PRESS**

Proceedings of the Royal Society of Edinburgh, Section A: Mathematics

Marketed and Distributed for the Royal Society of Edinburgh

Chairman and Executive Editor

B. P. Rynne, *Heriot-Watt University, UK*

A flagship publication of The Royal Society of Edinburgh, Proceedings A is a prestigious, general mathematics journal publishing peer-reviewed papers of international standard across the whole spectrum of mathematics, but with the emphasis on applied analysis and differential equations. An international journal, publishing six issues per year, Proceedings A has been publishing the highest-quality mathematical research for nearly 70 years. Recent issues have included a wealth of key contributors and considered research papers.

Price information

is available at: <http://journals.cambridge.org/prm>

Free email alerts

Keep up-to-date with new material – sign up at
<http://journals.cambridge.org/prm-alerts>

Volume 136 Part 5 (2006) pages 889–1109

ISSN 0308-2105

THE ROYAL SOCIETY OF
EDINBURGH



PROCEEDINGS SECTION A
MATHEMATICS

PUBLISHED BY THE RSE SCOTLAND FOUNDATION
22 GEORGE STREET, EDINBURGH EH2 2PQ

*Proceedings of the Royal Society of
Edinburgh, Section A: Mathematics*

is available online at:

<http://journals.cambridge.org/prm>

To subscribe contact Customer Services

in Cambridge:

Phone +44 (0)1223 326070

Fax +44 (0)1223 325150

Email journals@cambridge.org

in New York:

Phone +1 (845) 353 7500

Fax +1 (845) 353 4141

Email

subscriptions_newyork@cambridge.org

For free online content visit:
<http://journals.cambridge.org/prm>



CAMBRIDGE
UNIVERSITY PRESS

592 Fluid injection into a confined porous layer
S. S. Pegler, H. E. Huppert & J. A. Neufeld

621 A fluid-mechanical model of elastocapillary coalescence
K. Singh, J. R. Lister & D. Vella

647 Effects of finite-rate chemistry and detailed transport on the instability of jet diffusion flames
Y. C. See & M. Ihme

682 Viscous film flow coating the interior of a vertical tube. Part 1. Gravity-driven flow
R. Camassa, H. R. Ogrosky & J. Olander

JFM Rapids (online only)

R1 Closed-form shock solutions
B. M. Johnson

R2 Creeping axisymmetric plumes with strongly temperature-dependent viscosity
A. Crosby & J. R. Lister

S indicates supplementary data or movies available online.

- 1 Bubbling reduces intermittency in turbulent thermal convection
R. Lakkaraju, F. Toschi & D. Lohse
- 25 Spanwise-localized solutions of planar shear flows
J. F. Gibson & E. Brand
- 62 Stochastic modelling of transverse wave instability in a liquid-propellant rocket engine
P. P. Popov, A. Sideris & W. A. Sirignano
- 92 Direct numerical simulation of a turbulent flow in a rotating channel with a sudden expansion
E. Lamballais
- 132 On the laminar–turbulent transition of the rotating-disk flow: the role of absolute instability
S. Imayama, P. H. Alfredsson & R. J. Lingwood
- 164 Crossover between two- and three-dimensional turbulence in spatial mixing layers
L. Biancofiore
- 180 Vortex formation of a finite-span synthetic jet: effect of rectangular orifice geometry
T. Van Buren, E. Whalen & M. Amitay
- 208 Hydraulic falls under a floating ice plate due to submerged obstructions
C. Page & E. I. Pärä
- 223 Direct numerical simulations of an inertial wave attractor in linear and nonlinear regimes
L. Jouve & G. I. Ogilvie
- 251 Nonlinear stability of gravitationally unstable, transient, diffusive boundary layers in porous media
N. Tilton & A. Riaz
- 279 Collision statistics of inertial particles in two-dimensional homogeneous isotropic turbulence with an inverse cascade
R. Onishi & J. C. Vassilicos
- 300 Spanwise reflection symmetry breaking and turbulence control: plane Couette flow
G. Chagelishvili, G. Khujadze, H. Foysi & M. Oberlack
- 321 Dispersion in the large-deviation regime. Part 1: shear flows and periodic flows
P. H. Haynes & J. Vanneste
- 351 Dispersion in the large-deviation regime. Part 2. Cellular flow at large Péclet number
P. H. Haynes & J. Vanneste
- 378 Revisiting the mixing-length hypothesis in the outer part of turbulent wall layers: mean flow and wall friction
S. Pirozzoli
- 398 Similarity solution for oblique water entry of an expanding paraboloid
G. X. Wu & S. L. Sun
- 409 Turbidity currents interacting with three-dimensional seafloor topography
M. M. Nasr-Azadani & E. Meiburg
- 444 Global linear stability analysis of falling films with inlet and outlet
C. Albert, A. Tezuka & D. Bothe
- 487 Effects of membrane hardness and scaling analysis for capsules in planar extensional flows
P. Dimitrakopoulos
- 509 Multi-oscillations of a bubble in a compressible liquid near a rigid boundary
Q. X. Wang
- 537 Violent expiratory events: on coughing and sneezing
L. Bourouiba, E. Dehandschoewercker & J. W. M. Bush
- 564 Extreme solitary waves on falling liquid films
S. Chakraborty, P.-K. Nguyen, C. Ruyer-Quil & V. Bontozoglou

Contents continued on inside back cover.