

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](https://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](https://journals.cambridge.org/rapids)**



**CAMBRIDGE  
UNIVERSITY PRESS**

CAMBRIDGE

JOURNALS

# Glasgow Mathematical Journal

Published for The Glasgow Mathematical Journal Trust

## Editor-in-Chief

I. A. B. Strachan, *University of Glasgow, UK*

Glasgow Mathematical Journal publishes original research papers in any branch of pure and applied mathematics. An international journal, its policy is to feature a wide variety of research areas, which in recent issues have included ring theory, group theory, functional analysis, combinatorics, differential equations, differential geometry, number theory, algebraic topology, and the application of such methods in applied mathematics.

---

## Price information

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

## Free email alerts

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



ISSN 0017 0955

## Glasgow Mathematical Journal

Volume 56 Part 1 January 2014

CAMBRIDGE  
UNIVERSITY PRESS

**Glasgow Mathematical Journal**  
is available online at:  
<http://journals.cambridge.org/gmj>

## To subscribe contact Customer Services

### in Cambridge:

Phone +44 (0)1223 326070  
Fax +44 (0)1223 325150  
Email [journals@cambridge.org](mailto:journals@cambridge.org)

### in New York:

Phone +1 (845) 353 7500  
Fax +1 (845) 353 4141  
Email  
[subscriptions\\_newyork@cambridge.org](mailto:subscriptions_newyork@cambridge.org)

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



CAMBRIDGE  
UNIVERSITY PRESS

**JFM Rapids (online only)**

R1 Receptivity and sensitivity of the leading-edge boundary layer of a swept wing

**G. Meneghello, P. J. Schmid & P. Huerre**

R2 Hairpin-like optimal perturbations in plane Poiseuille flow

**M. Farano, S. Cherubini, J.-C. Robinet & P. De Palma**

R3 Ring formation on an inclined surface

**X. Du & R. D. Deegan**

*S* indicates supplementary data or movies available online.

- S 1 Growth-and-collapse dynamics of small bubble clusters near a wall  
**A. Tiwari, C. Pantano & J. B. Freund**
- 24 Computational study of granular shear flows of dry flexible fibres using the discrete element method  
**Y. Guo, C. Wassgren, B. Hancock, W. Ketterhagen & J. Curtis**
- 53 Dissolution of a CO<sub>2</sub> spherical cap bubble adhered to a flat surface in air-saturated water  
**P. Peñas-López, M. A. Parrales & J. Rodríguez-Rodríguez**
- 77 Deformation of spherical compound capsules in simple shear flow  
**Z. Y. Luo, L. He & B. F. Bai**
- 105 On the scale-dependent turbulent convection velocity in a spatially developing flat plate turbulent boundary layer at Reynolds number  $Re_\theta = 13\,000$   
**N. Renard & S. Deck**
- 149 The turbulent wake of a towed grid in a stratified fluid  
**X. Xiang, T. J. Madison, P. Sellappan & G. R. Spedding**
- S 178 Optimal morphokinematics for undulatory swimmers at intermediate Reynolds numbers  
**W. M. van Rees, M. Gazzola & P. Koumoutsakos**
- 189 The log behaviour of the Reynolds shear stress in accelerating turbulent boundary layers  
**G. Araya, L. Castillo & F. Hussain**
- 201 Self-sustained hydrodynamic oscillations in lifted jet diffusion flames: origin and control  
**U. A. Qadri, G. J. Chandler & M. P. Juniper**
- 223 Inertia-gravity waves in inertially stable and unstable shear flows  
**F. Lott, C. Millet & J. Vanneste**
- 241 Nonlinear optimal suppression of vortex shedding from a circular cylinder  
**X. Mao, H. M. Blackburn & S. J. Sherwin**
- 266 Separation of upslope flow over a uniform slope  
**C. M. Hocut, D. Liberzon & H. J. S. Fernando**
- 288 Viscous-poroelastic interaction as mechanism to create adhesion in frogs' toe pads  
**A. Tulchinsky & A. D. Gat**
- S 304 Transmission and reflection of internal solitary waves incident upon a triangular barrier  
**B. R. Sutherland, S. Keating & I. Shrivastava**
- 328 A simple model of wave-current interaction  
**N. Tambroni, P. Blondeaux & G. Vittori**
- 349 Non-axisymmetric flows in a differential-disk rotating system  
**T. Vo, L. Montabone, P. L. Read & G. J. Sheard**
- 387 Frequency domain and time domain analysis of thermoacoustic oscillations with wave-based acoustics  
**A. Orchini, S. J. Illingworth & M. P. Juniper**
- 415 Temperature statistics above a deep-ocean sloping boundary  
**A. A. Cimattorus & H. van Haren**
- 436 Classical scaling and intermittency in strongly stratified Boussinesq turbulence  
**S. M. de Bruyn Kops**
- 464 Diapycnal diffusivity, turbulent Prandtl number and mixing efficiency in Boussinesq stratified turbulence  
**H. Salehipour & W. R. Peltier**
- 501 Lorentz force effects in the Bullard-von Kármán dynamo: saturation, energy balance and subcriticality  
**S. Miralles, N. Plihon & J.-F. Pinton**

Contents continued on inside back cover.