JOURNALS

JFM ARCHIVE

Journal of Fluid Mechanics

Digital Archive 1956–1996



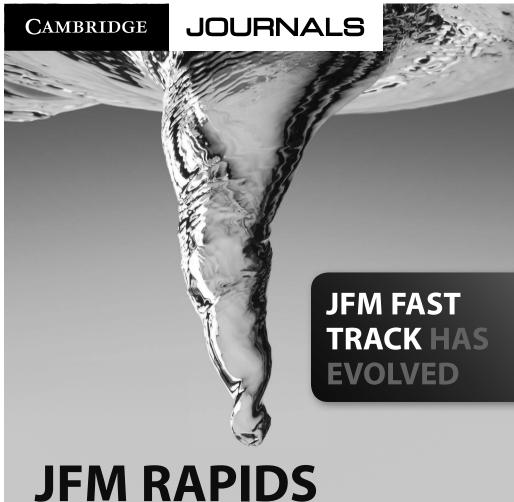
Vital research from the definitive source

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





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

For more information visit

journals.cambridge.org/rapids



https://doi.org/10.1017/jfm.2014.523 Published online by Cambridge University Press

Journal of Mechanics

Published on behalf of The Society of Theoretical and Applied Mechanics, R.O.C.

Ediror-in-Chief

K. C. Wu, National Taiwan University, Taiwan

The objective of the *Journal of Mechanics* is to provide an international forum to foster exchange of ideas among mechanics communities in different parts of world. The Journal publishes original research in all fields of theoretical and applied mechanics.

The Journal of Mechanics especially welcomes papers that are related to recent technological advances, such as micro/nanomechanics, medical and biological systems, and microscale heat transfer. The contributions, which may be analytical, experimental or numerical, should be of significance to the progress of mechanics. Papers which are merely illustrations of established principles and procedures will generally not be accepted. Reports that are of technical interest are published as Short articles. Review articles are published only by invitation.

Price information

is available at: http://journals.cambridge.org/jom

Free email alerts

Keep up-to-date with new material — sign up at http://journals.cambridge.org/jom-alerts



Journal of Mechanics

is available online at: http://journals.cambridge.org/jom

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/jom



555 Dense shallow granular flows

V. Kumaran

600 Numerical investigation of the development of three-dimensional wavepackets in a sharp cone boundary layer at Mach 6

J. Sivasubramanian & H. F. Fasel

650 Bifurcation analysis of steady natural convection in a tilted cubical cavity with adiabatic sidewalls

J. F. Torres, D. Henry, A. Komiya & S. Maruyama

689 Scaling behaviour in impulsively started viscous flow past a finite flat plate

L. Xu & M. Nitsche

716 Force acting on a square cylinder fixed in a free-surface channel flow

Z. X. Qi, I. Eames & E. R. Johnson

728 Spinning detonation, cross-currents, and the Chapman–Jouguet velocity

M. Kurosaka & N. Tsuboi

758 Vortex force decomposition in the tip region of impulsively-started flat plates

J. Kriegseis & D. E. Rival

S 771 Bursting water balloons

H. M. Lund & S. B. Dalziel

816 On the emergence of non-classical decay regimes in multiscale/fractal generated isotropic turbulence

M. Meldi, H. Lejemble & P. Sagaut

JFM Rapids (online only)

R1 Turbulence structure behind the shock in canonical shock–vortical turbulence interaction

J. Ryu & D. Livescu

S indicates supplementary data or movies available online.

844 High Rayleigh number convection in a porous medium containing a thin low-permeability layer

D. R. Hewitt, J. A. Neufeld & J. R. Lister

870 A stochastic model for the relative motion of high Stokes number particles in isotropic turbulence

S. L. Rani, R. Dhariwal & D. L. Koch

903 Flow and solute transport through a periodic array of vertical cylinders in shallow water

X. Guo, B. Wang & C. C. Mei

935 The instability of a sedimenting suspension of weakly flexible fibres

H. Manikantan, L. Li, S. E. Spagnolie & D. Saintillan

965 Nonlinear evolution of a baroclinic wave and imbalanced dissipation

B. T. Nadiga

1007 Wave-vortex decomposition of one-dimensional ship-track data

O. Bühler, J. Callies & R. Ferrari

S 1027 Efficient mixing in stratified flows: experimental study of a Rayleigh–Taylor unstable interface within an otherwise stable stratification

M. S. Davies Wykes & S. B. Dalziel

1058 Pressure fluctuations beneath instability wavepackets and turbulent spots in a hypersonic boundary layer

K. M. Casper, S. J. Beresh &

S. P. Schneider

R2 Suppression of shock-induced separation in fluids having large bulk viscosities

F. Bahmani & M. S. Cramer

Journal of Fluid Mechanics

1 A decade's investigation of the stability of erodible stream beds

M. Colombini

5 Fluid flow analysis of a shark-inspired microstructure

S. Martin & B. Bhushan

30 Space-time characteristics of a compliant wall in a turbulent channel flow

E. Kim & H. Choi

54 Segregation in dense sheared flows: gravity, temperature gradients, and stress partitioning K. M. Hill & D. S. Tan

89 Heat transport and pressure buildup during carbon dioxide injection into depleted gas reservoirs

S. A. Mathias, J. N. McElwaine & J. G. Gluyas

110 Confinement effects in wind-turbine and propeller measurements

A. Segalini & P. Inghels

S 130 The effectiveness of an air curtain in the doorway of a ventilated building

D. Frank & P. F. Linden

165 Interference effects of three consecutive wall-mounted cubes placed in deep turbulent boundary layer

H. C. Lim & M. Ohba

191 Pressure Hessian and viscous contributions to velocity gradient statistics based on Gaussian random fields

M. Wilczek & C. Meneveau

226 Longitudinal-transverse aerodynamic force in viscous compressible complex flow L. Q. Liu, Y. P. Shi, J. Y. Zhu, W. D. Su, S. F. Zou & J. Z. Wu

252 Evolution of the velocity-gradient tensor in a spatially developing turbulent flow R. Gomes-Fernandes,

B. Ganapathisubramani & J. C. Vassilicos

293 Resonance patterns in spatially forced Rayleigh-Bénard convection S. Weiss, G. Seiden & E. Bodenschatz

309 Wave turbulence in the two-layer ocean model K. L. Harper, S. V. Nazarenko, S. B. Medvedev & C. Connaughton

328 Shock wave-boundary layer interactions in rectangular inlets: three-dimensional separation topology and critical points W. E. Eagle & J. F. Driscoll

354 Flow structure on a simultaneously pitching and rotating wing

M. Bross & D. Rockwell

384 Pressure fluctuations produced by forward steps immersed in a turbulent boundary layer M. Awasthi, W. J. Devenport, S. A. L. Glegg & J. B. Forest

422 Numerical investigation of tandem-cylinder noise reduction using plasma-based flow control

> A. Eltaweel, M. Wang, D. Kim, F. O. Thomas & A. V. Kozlov

452 Three-dimensional boundary layers with short spanwise scales

R. E. Hewitt & P. W. Duck

470 Intermittency route to thermoacoustic instability in turbulent combustors V. Nair, G. Thampi & R. I. Sujith

488 Evolution of a turbulent cloud under rotation A. Ranjan & P. A. Davidson

S 510 Flow phenomena in the very near wake of a flat plate with a circular trailing edge M. M. Rai

544 Impact dynamics for a floating elastic membrane

L. Duchemin & N. Vandenberghe

Contents continued on inside back cover.



