

Journal of
Fluid Mechanics

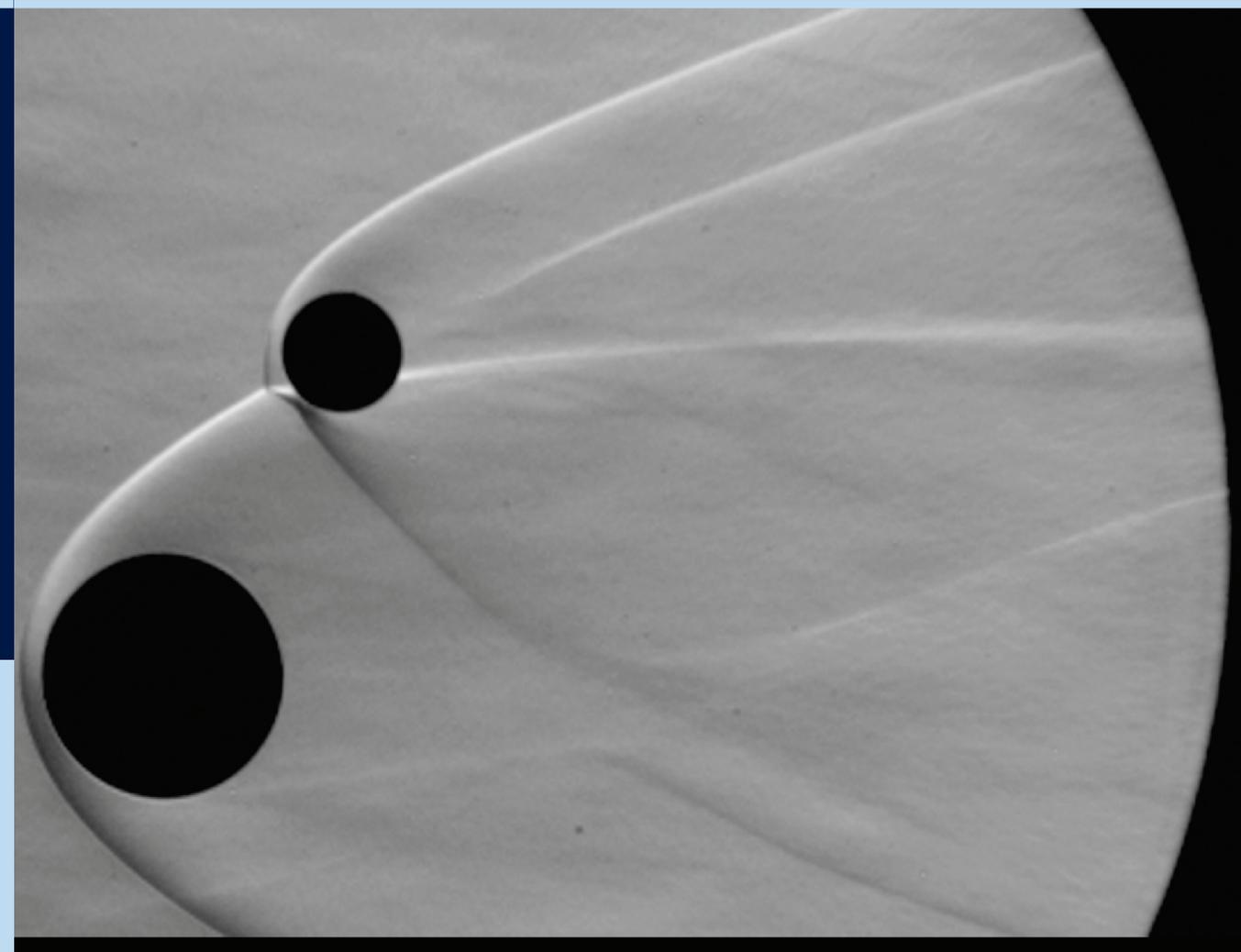
VOLUME 713

- 1 A numerical study of granular shear flows of rod-like particles using the discrete element method
Y. Guo, C. Wassgren, W. Ketterhagen, B. Hancock, B. James & J. Curtis
- 27 Effect of microstructural anisotropy on the fluid–particle drag force and the stability of the uniformly fluidized state
W. Holloway, J. Sun & S. Sundaresan
- 50 Spreading dynamics of drop impacts
G. Lagubeau, M. A. Fontelos, C. Josserand, A. Maurel, V. Pagneux & P. Petitjeans
- 61 Formation process of the vortex ring generated by an impulsively started circular disc
A.-I. Yang, L.-b. Jia & X.-z. Yin
- 86 Spectral analysis of the transition to turbulence from a dipole in stratified fluid
P. Augier, J.-M. Chomaz & P. Billant
- 109 Jettable fluid space and jetting characteristics of a microprint head
L.-Y. Wong, G.-H. Lim, T. Ye, F. B. S. Silva, J.-M. Zhuo, R.-Q. Png, S.-J. Chua & P. K. H. Ho
- 123 The structure of the absolutely unstable regions in the near field of low-density jets
W. Coenen & A. Sevilla
- 150 Generating controllable velocity fluctuations using twin oscillating hydrofoils
S. F. Harding & I. G. Bryden
- S 159 Dynamical separation of spherical bodies in supersonic flow
S. J. Laurence, N. J. Parziale & R. Deiterding
- S 183 Stokes flow singularity at the junction between impermeable and porous walls
L. C. Nitsche & P. Parthasarathi
- 216 Linear biglobal analysis of Rayleigh–Bénard instabilities in binary fluids with and without throughflow
J. Hu, D. Henry, X.-Y. Yin & H. BenHadid
- 243 Turbulent duct flows in a liquid metal magnetohydrodynamic power generator
H. Kobayashi, H. Shionoya & Y. Okuno
- 271 Motion of a solid particle in a shear flow along a porous slab
S. Khabthani, A. Sellier, L. Elasmı & F. Feuillebois
- 307 Computations of fully nonlinear hydroelastic solitary waves on deep water
P. Guyenne & E. I. Părău
- 330 On the effects of finite-rate carbon/oxygen chemistry on supersonic jet instability
L. Massa & P. Ravindran
- 362 Exact solutions for wave propagation over a patch of large bottom corrugations
J. Yu & G. Zheng

Contents continued on inside back cover.

VOLUME

713

25 Dec.
2012

SUBSCRIPTIONS

The *Journal of Fluid Mechanics* (ISSN 0022-1120) is published *semimonthly* in 24 volumes each year by Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 8RU, UK/Cambridge University Press, 32 Avenue of the Americas, New York, NY 10013-2473, USA. The subscription price (excluding VAT but including postage) for volumes 690–713, 2012, is £2812 or \$5190 (online and print) and £2530 or \$4432 (online only) for institutions; £803 or \$1487 (online and print) and £785 or \$1364 (online only) for individuals. The print-only price available to institutional subscribers is £2650 (US \$4665 in USA, Canada and Mexico). Single volumes cost £120 (US \$213 in the USA, Canada and Mexico) plus postage. Orders, which must be accompanied by payment, should be sent to any bookseller or subscription agent, or direct to the publisher: Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 8RU. Subscriptions in the USA, Canada and Mexico should be sent to Cambridge University Press, Journals Fulfillment Department, 100 Brook Hill Drive, West Nyack, NY 10994-2133. EU subscribers (outside the UK) who are not registered for VAT should add VAT at their country's rate. VAT registered subscribers should provide their VAT registration number. Japanese prices for institutions are available from Kinokuniya Company Ltd, PO Box 55, Chitose, Tokyo 156, Japan. Prices include delivery by air. Copies of the *Journal* for subscribers in the USA, Canada and Mexico are sent by air to New York. Periodicals postage is paid at New York, NY, and at additional mailing offices. POSTMASTER: send address changes in USA, Canada and Mexico to *Journal of Fluid Mechanics*, Cambridge University Press, 100 Brook Hill Drive, West Nyack, NY 10994-2133. Claims for missing issues can only be considered if made immediately upon receipt of the subsequent issue. Copies of back numbers are available from Cambridge University Press.

COPYING

The *Journal* is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923. Organizations in the USA which are also registered with CCC may therefore copy material (beyond the limits permitted by sections 107 and 108 of US copyright law) subject to payment to CCC of the per-copy fee of \$16.00. This consent does not extend to multiple copying for promotional or commercial purposes. Code 0022-1120/2012/\$16.00.

ISI Tear Sheet Service, 3501 Market Street, Philadelphia, PA 19104, USA is authorized to supply single copies of separate articles for private use only.

Organizations authorized by the Copyright Licensing Agency may also copy material subject to the usual conditions.

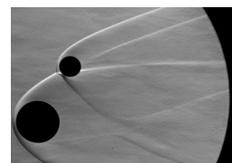
For all other use of material from the *Journal* permission should be sought from Cambridge or the American Branch of Cambridge University Press.

Information on *Journal of Fluid Mechanics* is available on <http://www.jfm.damtp.cam.ac.uk/> and it is included in the Cambridge Journals Online service which can be found at journals.cambridge.org/. For further information on other Press titles access cambridge.org/.

Readers should note that where reference is made to a Web site for additional material relating to an article published in *Journal of Fluid Mechanics* this material has not been refereed and the Editors and Cambridge University Press have no responsibility for its content.

This journal issue has been printed on FSC-certified paper and cover board. FSC is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the World's forests. Please see www.fsc.org for information.

Printed in the UK by MPG Books Ltd.



The picture on the cover is based on figure 8(a) of 'Dynamical separation of spherical bodies in supersonic flow', by S. J. Laurence, N. J. Parziale & R. Deiterding.

- 376 Nonlinear self-excited thermoacoustic oscillations: intermittency and flame blowout
L. Kabiraj & R. I. Sujith
- 398 Drag reduction due to spatial thermal modulations
M. Z. Hossain, D. Floryan & J. M. Floryan
- 420 Microstructural theory and the rheology of concentrated colloidal suspensions
E. Nazockdast & J. F. Morris
- 453 Finite-Péclet-number effects on the scaling exponents of high-order passive scalar structure functions
J. Lepore & L. Mydlarski
- 482 Flux correlations in supersonic isothermal turbulence
R. Wagner, G. Falkovich, A. G. Kritsuk & M. L. Norman
- 491 Flow of power-law fluids in fixed beds of cylinders or spheres
J. P. Singh, S. Padhy, E. S. G. Shaqfeh & D. L. Koch
- 528 Nonlinear stability of hypersonic flow over a cone with passive porous walls
V. Michael & S. O. Stephen
- 564 Lattice-Boltzmann equations for describing segregation in non-ideal mixtures
P. C. Philippi, K. K. Mattila, D. N. Siebert, L. O. E. dos Santos, L. A. Hegele Júnior & R. Surmas
- 588 Effect of compressibility on the small-scale structures in isotropic turbulence
J. Wang, Y. Shi, L.-P. Wang, Z. Xiao, X. T. He & S. Chen
- 632 Surface tension-induced global instability of planar jets and wakes
O. Tammisola, F. Lundell & L. D. Söderberg
- 659 On the transition pattern of the oblique detonation structure
H. H. Teng & Z. L. Jiang

S indicates supplementary data or movies available online.