INDEX

Anderson, A. M., Brush, L. N. & Davis, S. H. Foam mechanics: spontaneous rupture of thinning liquid films with Plateau borders, 63–88

Antuono, M. A shock solution for the nonlinear shallow water equations, 166–187

Bazant, M. Z. *See* Kamrin, Bazant & Stone

Boulouchos, K. *See* Pizza, Frouzakis, Mantzaras, Tomboulides & Boulouchos

Brady, J. F. *See* Zia & Brady

Brush, L. N. *See* Anderson, Brush & Davis

Carter, J. D. *See* Henderson, Segur & Carter

Chen, H., Orszag, S. A. & Staroselsky, I. Macroscopic description of arbitrary Knudsen number flow using Boltzmann–BGK kinetic theory. Part 2, 294–309

Chen, J. H. *See* Gruber, Sankaran, Hawkes & Chen

Collins, L. R. *See* Lavezzo, Soldati, Gerashchenko, Warhaft & Collins

Davis, S. H. *See* Anderson, Brush & Davis

Feng, J. Q. A deformable liquid drop falling through a quiescent gas at terminal velocity, 438–462

Fernandes, A. M. & Krishnamurti, R. Salt finger fluxes in a laminar shear flow, 148–165

Frouzakis, C. E. *See* Pizza, Frouzakis, Mantzaras, Tomboulides & Boulouchos

Gerashchenko, S. *See* Lavezzo, Soldati, Gerashchenko, Warhaft & Collins

Gruber, A., Sankaran, R., Hawkes, E. R. & Chen, J. H. Turbulent flame–wall interaction: a direct numerical simulation study, 5–32

Guo, X. & Shen, L. Interaction of a deformable free surface with statistically steady homogeneous turbulence, 33–62

Hawkes, E. R. *See* Gruber, Sankaran, Hawkes & Chen

Henderson, D. M., Segur, H. & Carter, J. D. Experimental evidence of stable wave patterns on deep water, 247–278

Kamrin, K., Bazant, M. Z. & Stone, H. A. Effective slip boundary conditions for arbitrary periodic surfaces: the surface mobility tensor, 409–437

Kessler, D. A. *See* Kizner, Khvoles & Kessler

Khvoles, R. *See* Kizner, Khvoles & Kessler

Kinnas, S. A. *See* Vinayan & Kinnas

Kizner, Z., Khvoles, R. & Kessler, D. A. Viscous selection of an elliptical dipole, 492–508

Kloker, M. J. *See* Messing & Kloker

Koulova, D. *See* Traoré, Pérez, Koulova & Romat

Krishnamurti, R. *See* Fernandes & Krishnamurti

Lavezzo, V., Soldati, A., Gerashchenko, S., Warhaft, Z. & Collins, L. R. On the role of gravity and shear on inertial particle accelerations in near-wall turbulence, 229–246

Liu, P. L.-F. *See* Park & Liu

Mantzaras, J. *See* Pizza, Frouzakis, Mantzaras, Tomboulides & Boulouchos

McEligot, D. M. *See* Nolan, Walsh & McEligot

McKeon, B. J. & Sharma, A. S. A critical-layer framework for turbulent pipe flow, 336–382

Messing, R. & Kloker, M. J. Investigation of suction for laminar flow control of three-dimensional boundary layers, 117–147

Morfey, C. L. *See* Suponitsky, Sandham & Morfey

Nolan, K. P., Walsh, E. J. & McEligot, D. M. Quadrant analysis of a transitional boundary layer subject to free-stream turbulence, 310–335

Orszag, S. A. *See* Chen, Orszag & Staroselsky

Park, Y. S. & Liu, P. L.-F. Oscillatory pipe flows of a yield-stress fluid, 211–228

Pérez, A. T. *See* Traoré, Pérez, Koulova & Romat

Pitsch, H. Shedding new light on a burning question, 1–4

Pizza, G., Frouzakis, C. E., Mantzaras, J., Tomboulides, A. G. & Boulouchos, K. Three-dimensional simulations of premixed hydrogen/air flames in microtubes, 463–491

Romat, H. *See* Traoré, Pérez, Koulova & Romat

Sandham, N. D. *See* Suponitsky, Sandham & Morfey

Sankaran, R. *See* Gruber, Sankaran, Hawkes & Chen

Segur, H. *See* Henderson, Segur & Carter

Sharma, A. S. *See* McKeon & Sharma

Shen, L. *See* Guo & Shen

Soldati, A. *See* Lavezzo, Soldati, Gerashchenko, Warhaft & Collins

Staroselsky, I. *See* Chen, Orszag & Staroselsky

Stone, H. A. *See* Kamrin, Bazant & Stone

Sugimoto, N. Thermoacoustic-wave equations for gas in a channel and a tube subject to temperature gradient, 89–116

Suponitsky, V., Sandham, N. D. & Morfey, C. L. Linear and nonlinear mechanisms of sound radiation by instability waves in subsonic jets, 509–538

Tomboulides, A. G. *See* Pizza, Frouzakis, Mantzaras, Tomboulides & Boulouchos

Traoré, Ph., Pérez, A. T., Koulova, D. & Romat, H. Numerical modelling of finite-amplitude electro-thermo-convection in a dielectric liquid layer subjected to both unipolar injection and temperature gradient, 279–293

Vinayan, V. & Kinnas, S. A. A numerical nonlinear analysis of two-dimensional ventilating entry of surface-piercing hydrofoils with effects of gravity, 383–408

Walsh, E. J. *See* Nolan, Walsh & McEligot

Warhaft, Z. *See* Lavezzo, Soldati, Gerashchenko, Warhaft & Collins

Zia, R. N. & Brady, J. F. Single-particle motion in colloids: force-induced diffusion, 188–210

ANNUAL REVIEWS

The Essential Resource for Chemical and Biomolecular Engineers

Annual Reviews offers comprehensive, timely collections of critical, topical reviews written by acknowledged experts. Annual Reviews journals examine 40 focused disciplines within the Biomedical, Life, Physical, and Social Sciences. Our Editorial Committees are specialists in selecting and synthesizing literature into concise, insightful review articles. As a result, Annual Reviews journals are among the most highly cited in scientific literature and are consistently ranked within the top ten of journals for their disciplines as indexed by the ISI® Journal Citation Reports (JCR®).

Annual Review of Chemical and Biomolecular Engineering

Volume 1 • July 2010 • Online & In Print • http://chemeng.annualreviews.org

Editor: John M. Prausnitz, *University of California, Berkeley*

The *Annual Review of Chemical and Biomolecular Engineering* provides a perspective on the broad field of chemical (and related) engineering. It addresses advances in applied chemistry and biology, with a focus on concepts, old and new materials, and/or processes. The series draws from disciplines as diverse as biology, physics, and engineering, with development of chemical products and processes as the unifying theme.

This journal is of direct interest to those with a general background in the natural sciences as well as for a broad range of scientists concerned with the physical, chemical, and biological properties of materials encountered in the contemporary and future chemical industries.

Access this and all Annual Reviews journals via your institution at www.annualreviews.org

Personal copies available at a reduced rate. Institutional site license options available. Contact Annual Reviews for details.

ANNUAL REVIEWS • *A Nonprofit Scientific Publisher • 40 Journals • Since 1932*

TEL: 800.523.8635 (US/CAN) • TEL: 650.493.4400 • FAX: 650.424.0910 • EMAIL: service@annualreviews.org

658

ISSN 0022-1120

Journal of Fluid Mechanics

10 September 2010

1 Shedding new light on a burning question
H. Pitsch

5 Turbulent flame–wall interaction: a direct numerical simulation study
A. Gruber, R. Sankaran, E. R. Hawkes & J. H. Chen

33 Interaction of a deformable free surface with statistically steady homogeneous turbulence
X. Guo & L. Shen

63 Foam mechanics: spontaneous rupture of thinning liquid films with Plateau borders
A. M. Anderson, L. N. Brush & S. H. Davis

89 Thermoacoustic-wave equations for gas in a channel and a tube subject to temperature gradient
N. Sugimoto

117 Investigation of suction for laminar flow control of three-dimensional boundary layers
R. Messing & M. J. Kloker

148 Salt finger fluxes in a laminar shear flow
A. M. Fernandes & R. Krishnamurti

166 A shock solution for the nonlinear shallow water equations
M. Antuono

188 Single-particle motion in colloids: force-induced diffusion
R. N. Zia & J. F. Brady

211 Oscillatory pipe flows of a yield-stress fluid
Y. S. Park & P. L.-F. Liu

229 On the role of gravity and shear on inertial particle accelerations in near-wall turbulence
V. Lavezzo, A. Soldati, S. Gerashchenko, Z. Warhaft & L. R. Collins

247 Experimental evidence of stable wave patterns on deep water
D. M. Henderson, H. Segur & J. D. Carter

279 Numerical modelling of finite-amplitude electro-thermo-convection in a dielectric liquid layer subjected to both unipolar injection and temperature gradient
Ph. Traoré, A. T. Pérez, D. Koulova & H. Romat

294 Macroscopic description of arbitrary Knudsen number flow using Boltzmann–BGK kinetic theory. Part 2
H. Chen, S. A. Orszag & I. Staroselsky

310 Quadrant analysis of a transitional boundary layer subject to free-stream turbulence
K. P. Nolan, E. J. Walsh & D. M. McEligot

336 A critical-layer framework for turbulent pipe flow
B. J. McKeon & A. S. Sharma

383 A numerical nonlinear analysis of two-dimensional ventilating entry of surface-piercing hydrofoils with effects of gravity
V. Vinayan & S. A. Kinnas

409 Effective slip boundary conditions for arbitrary periodic surfaces: the surface mobility tensor
K. Kamrin, M. Z. Bazant & H. A. Stone

438 A deformable liquid drop falling through a quiescent gas at terminal velocity
J. Q. Feng

463 Three-dimensional simulations of premixed hydrogen/air flames in microtubes
G. Pizza, C. E. Frouzakis, J. Mantzaras, A. G. Tomboulides & K. Boulouchos

492 Viscous selection of an elliptical dipole
Z. Kizner, R. Khvoles & D. A. Kessler

509 Linear and nonlinear mechanisms of sound radiation by instability waves in subsonic jets
V. Suponitsky, N. D. Sandham & C. L. Morfey

540 INDEX TO VOLUME 658

Cambridge Journals Online
For further information about this journal please go to the journal web site at
journals.cambridge.org/flm

FSC
Mixed Sources
Product group from well-managed forests and other controlled sources
Cert no. SA-COC-1527
www.fsc.org
© 1996 Forest Stewardship Council

CAMBRIDGE UNIVERSITY PRESS