PHYSICAL REVIEW E STATISTICAL, NONLINEAR, AND SOFT MATTER PHYSICS

Chaos, Hydrodynamics, Plasmas, and Related Topics

GARY S. GREST			One Ph
(Sandia National Laboratories)	Term ending 31 December 2003		College Park
Associate Editors	B. ECKHARDT	Classical Chaos, Quantum	President
MICHAEL BRENNER	D. Communica	Chaos	President-Elect
	D. GRIFFITHS	Electrodynamics	Vice-President
(Harvard University)	E. J. HINCH	Fluid Dynamics	Editor-in-Chief
GERALD HEDSTROM	A. LIU	Complex Fluids, Polymers	Treasurer
(Lawrence Livermore National Laboratory)	T. LUBENSKY	Liquid Crystals, Complex Fluids	and Publisher
(Lawrence Livermore National Laboratory)	S. NAGEL	Glass Transitions, Granular	Executive Officer
BRANT M. JOHNSON		Materials	
(Brookhaven National Laboratory)	T. ROSER	Beam Physics	
(Brooknaven National Laboratory)	D. WEITZ	Complex Fluids, Biological Physics	Member
RANDALL D. KAMIEN			APS Member
(University of Pennsylvania)	Term end	Term ending 31 December 2004	
	A. AHARONY	Critical Phenomena, Percolation	One Ph
YURI KIVSHAR	A. ALBANO	Statistical Physics, Chaos	College Park
(Australian National University)	JP. BOUCHAUD	Statistical Physics, Chaos Statistical Physics	Phone: (3
	W. FIRTH	Nonlinear Optics, Optical	Fax: (30
MARGARET MALLOY	W. FIKIH	Patterns, Solitons	Email: mem
(APS Editorial Office)	I. FREUND	Statistical Optics, Singular Optics	
	H. A. GOULD	Computational Physics	
ANTONIO POLITI	R. KAPRAL	Statistical Mechanics.	
(Istituto Nazionale di Ottica Applicata)	K. KAPKAL	Nonlinear Dynamics	Nonmembe
BODEDT ZVER	J. KRUG	Statistical Physics	APS Subsc
ROBERT ZIFF	Y. POMEAU	Fluid Mechanics, Kinetic Theory	Sui
(University of Michigan)	J. SOMMERER	Experimental Chaos	2 Hunting
	H. SOMPOLINSKY	Disordered Systems, Spin	Melville, M
Assistant Editors	H. SOMPOLINSKI	Glasses, Neural Networks	Phone: (516) 576
MARGARET FOSTER	P. W. TALKNER	Statistical Physics	Fax: (51
JILL M. GARGANO	R. TEMKIN	Beam Physics	Email: s
VALERIE L. MILLER	A. G. YODH	Complex Fluids, Optics	
JOANNA POPADIUK	A. G. TODH	Complex Fluids, Optics	
JOANNATOTADIUK	Term ending 31 December 2005		
		-	Production a
APS Editorial Office	N. ABRAHAM	Chaos, Nonlinear Dynamics, Optics	
1 Research Road, Box 9000	J. CARY	Plasmas	American In
Ridge, NY 11961-9000	P. HÄNGGI	Statistical and Stochastic Physics	Sui
Phone: (631) 591-4050	D. LOHSE	Turbulence	2 Hunting
	O. LAVRENTOVICH	Liquid Crystals	Melville, M
Fax: (631) 591-4141	E. MARX	Classical and Quantum Physics	Phone: (5
Email: pre@aps.org	A. PIKOVSKY	Nonlinear Physics	Fax: (51
Web: http://publish.aps.org/ Submissions: pretex@aps.org or	S. J. SCHIFF	Biological Physics	Email:
	M. WORTIS	Biological and Statistical Physics	
http://publish.aps.org/ESUB/			
lanuscripts should be submitted electronicall			

The American Physical Society One Physics Ellipse College Park, MD 20740-3844

1

lent MYRIAM P. SARACHIK lent-Elect HELEN R. QUINN President MARVIN L. COHEN -in-Chief MARTIN BLUME urer Publisher THOMAS J. MCILIRATH

THOMAS J. MCILRATH JUDY R. FRANZ

Member Subscriptions:

APS Membership Department One Physics Ellipse College Park, MD 20740-3844 Phone: (301) 209-3280 Fax: (301) 209-0867 Email: membership@aps.org

Nonmember Subscriptions:

APS Subscription Services Suite 1NO1 2 Huntington Quadrangle Melville, NY 11747-4502 Phone: (516) 576-2270, (800) 344-6902 Fax: (516) 349-9704 Email: subs@aps.org

Production and distribution by

American Institute of Physics Suite 1NO1 2 Huntington Quadrangle Melville, NY 11747-4502 Phone: (516) 576-2200 Fax: (516) 576-2643 Email: pre@aip.org

Manuscripts should be submitted electronically in appropriate format (see http://publish.aps.org/ESUB/ or inquire at pretex@aps.org). If this is not possible, send four copies to the Editorial Office. Submission is a representation that the manuscript has not been published previously and is not currently under consideration for publication elsewhere. A signed APS copyright-transfer form (effective only on acceptance for publication) must be provided; the form is available on the APS Web server and appears at the end of the 16 December 2002 issue of *Physical Review Letters*. Information for contributors may be found on our Web server or in the January and July issues.

To help defray editorial and production expenses, authors of published articles are requested to pay a **publication charge** of \$100 per article plus \$100 per journal page. Publication charges are not requested for properly prepared electronic submissions. Acceptable formats are REVTEX (preferred), LATEX, Harvmac, plain TEX; PostScript figures. **Reprints** are offered for sale to authors.

For information about **subscription prices** and about the **online version** of the journal, see our Web server, or inquire at assocpub@aps.org. **Member** inquiries regarding **subscriptions**, renewals, address changes, missing or damaged copies, microfilm, and single-copy orders should be addressed to the APS Membership Department. **Nonmembers** should address subscription inquiries to APS Subscription Services. For address changes please send both old and new addresses, and, if possible, include an address stencil imprint from the mailing wrapper of a recent issue; allow six weeks advance notice.

Copyright 2003 by The American Physical Society

Permission to quote excerpts or to reprint any figures or tables should be obtained directly from an author. The American Physical Society for its part hereby grants permission to quote excerpts and reprint figures and/or tables from its journals with acknowledgment of the sources. Individual teachers, students, researchers, and libraries in nonprofit institutions acting for them are permitted to make hard copies of articles for use in teaching or research, provided such copies are not sold. Copying of articles for sale by document delivery services or suppliers, or beyond the free copying allowed above, is permitted against payment of a copying fee. The current copying fee is \$20.00, per article, per copy. Express permission of APS is not required, except for purposes stated below, provided that the fee is paid through the Copyright Clearance Center, Inc. (CCC), 222 Rosewood Drive, Danvers, MA 01923. Contact the CCC for information on how to report copying and remit payments. **Reproduction** in a reprint collection, or for advertising or promotional purposes, or republication in any form requires permission of one of the authors and a license from APS. Such a license must be sought from Barbara Hicks, Associate Publisher, The American Physical Society, One Physics Ellipse, College Park, MD 20740-3844. Permission from the author must be sought and obtained from him or her directly.

Physical Review E (ISSN: 1063-651X; CODEN PLEEE8; printed in USA) is published monthly by The American Physical Society through the American Institute of Physics.

POSTMASTER: Send address changes to Physical Review E, APS Subscription Services, Suite 1NO1, 2 Huntington Quadrangle, Melville, NY 11747-4502. The 2003 print + online subscription price is \$2130 Academic Base; \$2450 Carnegie Doctoral/Equivalent; \$2675 Carnegie Research/Equivalent/Corporate & Government. Periodicals postage rates are paid at Huntington Station, NY, and additional mailing offices.

EDITORIAL BOARD

Editor

(L)