PHYSICAL REVIEW LETTERS

Providing rapid publication of short reports of important fundamental research, with coverage of major advances in all aspects of physics and of developments with significant consequences across subdisciplines.

Editors

JACK SANDWEISS
GEORGE BASBAS
STANLEY G. BROWN
REINHARDT B. SCHUHMANN
GENE L. WELLS (*Consulting*)

Associate Editor

BRANT M. JOHNSON

Senior Assistant Editors

ROBERT GARISTO
JEROME MALENFANT

Assistant Editors

SAMINDRANATH MITRA
CHRISTOPHER WESSELBORG

Senior Assistants to the Editors

SAAD E. HEBBOUL
RASHMI RAY

Assistants to the Editors

MARIE KAPLAN
PAUL K. SHERARD
JANE THROWE

Editorial Assistant

JACQUELINE DOLAN

Adjunct Associate Editors

FREDERICK MACKINTOSH
M. MUTHUKUMAR
FRANK NARDUCCI

Editorial Board ***(Divisional Associate Editors)***

JACK SANDWEISS, *Chairman*

Astrophysics M. BARING, S. P. BOUGHN, D. SCOTT, T. JACOBSON, R. PRICE

Atomic, Molecular, and Optical Physics P. G. BURKE, K. BURNETT, E. CORNELL, M. LEWENSTEIN, M. RAIZEN, W. SCHLEICH

Biological Physics R. E. GOLDSTEIN

Chemical Physics B. J. BERNE, S. T. CEYER

Condensed Matter Physics T. ANDO, G. E. W. BAUER, J. H. BREWER, C. BRUDER, M. H. W. CHAN, R. COMPTON, E. DAGOTTO, B. DEVEAUD, L. GLAZMAN, F. GUINEA, H. HAUG, T. R. KIRKPATRICK, M. V. KLEIN, J. D. MAYNARD, L. W. MOLENKAMP, S. R. SHENOY, H. SPOHN, Y. TAKADA, J. TOBOCHNIK, J. TRANQUADA, J. M. VAN RUITENBEEK, D. VANDERBILT, P. WÖLFLE

Fluid Dynamics U. FRISCH

High Polymer Physics G. H. FREDRICKSON, P. F. GREEN

Laser Science K. C. KULANDER

Materials Physics N. C. BARTELT, J. M. D. COEY, G. COMSA, S. M. GIRVIN, J. A. VENABLES

Nuclear Physics P. BRAUN-MUNZINGER, I. Y. LEE, S. E. PRATT, G. VAN DER STEENHOVEN, P. VOGEL, S. J. WALLACE

Particles and Fields A. BURAS, R. S. CHIVUKULA, R. GUPTA, R. HEUER, I. KLEBANOV, P. G. LANGACKER

Physics of Beams F. ZIMMERMANN

Plasma Physics H. BERK, J. FINN, A. HIROSE, T. JOHNSTON

Foundations of Quantum Mechanics P. EBERHARD

Quantum Information C. H. BENNETT

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

President WILLIAM F. BRINKMAN
President-Elect MYRIAM P. SARACHIK
Vice-President HELEN R. QUINN
Editor-in-Chief MARTIN BLUME
Treasurer and Publisher THOMAS J. MCILRATH
Executive Officer JUDY R. FRANZ

APS Editorial Office
1 Research Road, Box 9000
Ridge, NY 11961-9000
Phone: (631) 591-4060
Fax: (631) 591-4141
Email: prl@aps.org
Web: http://publish.aps.org/
Submissions: prltex@aps.org or http://publish.aps.org/ESUB/

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

Letters intended for this Journal must be short and self-contained. A description of editorial Policies and Practices is published in the first January and July issues and can be found on our Web server. Instructions for manuscript preparation are given in the Information for Contributors published in the first issue of each volume and available on our Web server. Rules pertaining to allowed length and memos regarding production requirements appear at the end of some issues of the Journal.

Manuscripts may be **submitted** electronically if in appropriate format (see http://publish.aps.org/ESUB/ or inquire at prltex@aps.org). Alternatively, 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. Authors should provide indexing codes according to the PACS scheme available at http://publish.aps.org/PACS/. A signed APS **copyright-transfer** form (effective only on acceptance for publication) must be provided; the form is available on our Web server and appears at the end of the 3 December 2001 issue of *Physical Review Letters*. To help defray editorial and production expenses, authors of published Letters are requested to pay a **publication charge** of $595 ($215 for a Comment or Reply). Requested charges are lower ($485 for a Letter, $170 for a Comment or Reply) 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. The general subscription price is $2650 (nonmember, U.S. and possessions, January-December 2002).

Copyright 2002 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 of the author must be sought and obtained from him or her directly.

Physical Review Letters (ISSN: 0031-9007; CODEN PRLTAO; printed in USA) is published weekly by The American Physical Society, 1 Research Road, Box 9000, Ridge, NY 11961-9000.

POSTMASTER: Send address changes to Physical Review Letters, APS Subscription Services, Suite 1NO1, 2 Huntington Quadrangle, Melville, NY 11747-4502. The 2002 print + online subscription price is $2650 Academic Base; $2925 Carnegie Doctoral/Equivalent; $3195 Carnegie Research/Equivalent/Corporate & Government. Periodicals postage rates are paid at Huntington Station, NY, and additional mailing offices.