PHYSICAL REVIEW A ATOMIC, MOLECULAR, AND OPTICAL PHYSICS

Editor BERND CRASEMANN

(University of Oregon)

Associate Editors
LEE A. COLLINS
(Los Alamos National Laboratory)

JULIO GEA-BANACLOCHE

(University of Arkansas)

MARGARET MALLOY
(APS Editorial Office)

FRANK NARDUCCI (Naval Air Systems Command)

LORENZO NARDUCCI (Drexel University)

STEPHEN J. SMITH (University of Colorado)

Senior Assistant Editor
MARGARET FOSTER

Assistant Editors
DIRK JAN BUKMAN
JILL M. GARGANO
VALERIE L. MILLER
JOANNA POPADIUK

APS Editorial Office

1 Research Road, Box 9000 Ridge, NY 11961-9000 Phone: (631) 591-4010 Fax: (631) 591-4141 Email: pra@aps.org Web: http://publish.aps.org/ Submissions: pratex@aps.org or

http://publish.aps.org/ESUB/

EDITORIAL BOARD

Term ending 31 December 2003

L. J. CURTIS Atomic Physics J. DOWLING Quantum Optics, Quantum Information G. W. F. DRAKE Atomic Theory M. HILLERY Quantum Information A. MAOUET Atomic Physics M. PESHKIN Theoretical Physics J. SHERTZER Atomic Theory H. T. C. STOOF Matter Waves

Term ending 31 December 2004

Quantum Optics S. M. BARNETT W. BECKER Atomic Physics I. BIALYNICKI-BIRULA Theoretical Physics D. DIVINCENZO Quantum Information H. GREENE Atomic Theory W. R. JOHNSON Atomic Theory A. OREL Molecular Theory L. OROZCO Quantum Optics A. PERES Quantum Theory S. ROLSTON Matter Waves H. WISEMAN Quantum Theory

Term ending 31 December 2005

M. FLEISCHHAUER
D. J. GAUTHIER
P. L. GOULD
M. KOASHI
U. LEONHARDT

Quantum Optics
Quantum Optics
Atomic and Molecular Physics
Quantum Information, Quantum Optics
Theoretical Physics

The American Physical Society

One Physics Ellipse College Park, MD 20740-3844

President
President-Elect
Vice-President
Editor-in-Chief
Treasurer
and Publisher

MYRIAM P. SARACHIK
HELEN R. QUINN
MARVIN L. COHEN
MARTIN BLUME
THOMAS J. MCILRATH

Executive Officer

Member Subscriptions:

JUDY R. FRANZ

APS Membership Department

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

Institutional 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: pra@aip.org

Manuscripts should be submitted electronically in acceptable format (see http://publish.aps.org/ESUB/ or inquire at pratex@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. Authors should provide indexing codes according to the PACS scheme (available at http://publish.aps.org/PACS/). An executed APS copyright-transfer form must be provided (effective only on acceptance for publication); the form is available on the APS web server and appears at the end of the 6 June 2003 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 articles which are not submitted in acceptable electronic format are expected to pay a **publication charge** of \$100 plus \$100 per journal page. Acceptable formats are REVTEX (preferred), LATEX, plain TEX; MS Word; 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. **Institutional subscribers** should address subscription inquiries to APS Subscription Services. For address changes please send both old and new addresses, and if possible, send the mailing label from a recent issue.

Copyright 2003 by The American Physical Society

Rights and Permissions

Copying: No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the written permission of the publisher, except as stated below. Single copies of individual articles may be made for private use or research. Authorization is given to copy articles beyond the use permitted by Sections 107 and 108 of the U.S. Copyright Law, provided the copying fee of \$20 per copy per article is paid to the Coyright Clearance Center, 222 Rosew3ood Drive, Danvers, MA 01923, USA.

Reproduction of an entire Article in a reprint collection, or for advertising or promotional purposes, or republication in any form requires permission from APS. Permission must be sought from the Associate Publisher, The American Physical Society, One Physics Ellipse, College Park, MD 20740-3844.

Other Use: Permission is granted to quote from the journal with the customary acknowledgment of the source. Permission must be sought from the APS Associate Publisher to reproduce a figure, table, or excerpt of an Article. Authorization for private use or research does not extend to systematic or multiple reproduction, to copying for promotional purposes, to distribution (in any format), or to republication in any form. In all such cases, specific permission from APS must be obtained.

Physical Review A (ISSN: 1050-2947; CODEN PLRAAN; printed in USA) is published monthly by The American Physical Society through the American Institute of Physics.

POSTMASTER: Send address changes to Physical Review A, APS Subscription Services, Suite 1NO1, 2 Huntington Quadrangle, Melville, NY 11747-4502. The 2003 print + online base price is \$2065. Periodicals postage rates are paid at Huntington Station, NY, and additional mailing offices.