

PHYSICAL REVIEW A

ATOMIC, MOLECULAR, AND OPTICAL PHYSICS

Editor

BERND CRISEMANN
(University of Oregon)

Associate Editors

LEE A. COLLINS
(Los Alamos National Laboratory)

GORDON W. F. DRAKE
(University of Windsor)

JULIO GEA-BANACLOCHE
(University of Arkansas)

MARK HILLERY
(Hunter College)

MARGARET MALLOY
(APS Editorial Office)

FRANK NARDUCCI
(Naval Air Systems Command)

LORENZO NARDUCCI
(Drexel University)

STEPHEN J. SMITH
(University of Colorado)

Senior Assistant Editors

DIRK JAN BUKMAN

MARGARET FOSTER

Assistant Editors

JILL M. GARGANO

VALERIE L. MILLER

JOANNA POPADIUK

Senior Editorial Assistant

JOYCE MASTERSON

Editorial Assistants

TERRE ARENA

JO-ANNE IZZO

EDITORIAL BOARD

Term ending 31 December 2005

M. FLEISCHHAUER	Quantum Optics
D. J. GAUTHIER	Quantum Optics
P. L. GOULD	Atomic and Molecular Physics
M. KOASHI	Quantum Information, Quantum Optics
U. LEONHARDT	Theoretical Physics

Term ending 31 December 2006

A. D. BANDRAUK	Short Laser Pulses
L. J. CURTIS	Atomic Physics
P. MOHR	Atomic Theory
C. J. PETHICK	Matter Waves
J. M. ROST	Atomic Theory
K. WODKIEWICZ	Quantum Information, Quantum Optics

Term ending 31 December 2007

I. BIALYNICKI-BIRULA	Theoretical Physics
V. BUZEK	Quantum Information
L. DAVIDOVICH	Quantum Optics
A. C. DOHERTY	Foundations of Quantum Mechanics
M. V. FEDEROV	Atomic Physics
A. OREL	Molecular Theory
L. OROZCO	Quantum Optics
M. B. PLENIO	Quantum Information
W. P. REINHARDT	Matter Waves
S. ROLSTON	Matter Waves
J. SAPIRSTEIN	Atomic Theory
H. WISEMAN	Quantum Theory

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

<i>President</i>	MARVIN L. COHEN
<i>President-Elect</i>	JOHN BAHCALL
<i>Vice-President</i>	JOHN J. HOPFIELD
<i>Editor-in-Chief</i>	MARTIN BLUME
<i>Treasurer</i>	
<i>and Publisher</i>	THOMAS J. MCILRATH
<i>Executive Officer</i>	JUDY R. FRANZ

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://authors.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

Institutional Subscriptions:

APS Subscription Services

Suite 1N01

2 Huntington Quadrangle

Melville, NY 11747-4502

Phone: (516) 576-2270, (800) 344-6902

Fax: (516) 349-9704

Email: subs@aps.org

Manuscripts should be **submitted** electronically in acceptable format (see <http://authors.aps.org/ESUB/> or inquire at pratex@aps.org). If this is not possible, send one copy 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 via our Web submission server and via <http://authors.aps.org/>. 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 \$115 plus \$115 per journal page. Acceptable formats are REV_T_EX (preferred), L^AT_EX, plain T_EX; 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 © 2005 by The American Physical Society. All rights reserved.

Physical Review ATM is a trademark of 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 \$23.00 per copy per article is paid to the Copyright Clearance Center, 222 Rosewood 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; email: assocpub@aps.org.

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 (print), 1094-1622 (online); CODEN PLRAAN; printed in USA] is published monthly by The American Physical Society, 1 Research Road, Box 9000, Ridge, NY 11961-9000.

POSTMASTER: Send address changes to Physical Review A, APS Subscription Services, Suite 1N01, 2 Huntington Quadrangle, Melville, NY 11747-4502. The 2005 print + online base price is \$2155. Periodicals postage rates are paid at Huntington Station, NY, and additional mailing offices.