

THE JOURNAL OF CHEMICAL PHYSICS

John Light, Editor Donald Levy, Associate Editor
J. W. Stout, Consulting Editor

Editorial Board

<i>Term ending 31 December 1986</i>	<i>Term ending 31 December 1987</i>	<i>Term ending 31 December 1988</i>
Hans C. Andersen	A. W. Castleman, Jr.	Bruce J. Berne
Charles W. Bauschlicher, Jr.	Kenneth Eisenthal	Robert W. Field
V. E. Bondybey	K. Keith Innes	Jon T. Hougen
J. M. Deutch	Jack Simons	Jiri Jonas
W. Ronald Gentry	John C. Tully	Charles S. Parmenter
Stephen R. Leone	John T. Yates	Richard E. Smalley

Editorial Supervisor: Kathleen Strum; *Chief Copy Editors:* Mary Ellen Echausse, Deborah McHone;

Copy Editors: Stephen Burby, Christine Canavan, Cara Heffernan, Grace Mueller

The Journal of Chemical Physics is published semimonthly by the American Institute of Physics (AIP). Its purpose is to bridge a gap between journals of physics and journals of chemistry. The artificial boundary between physics and chemistry has now been in actual fact completely eliminated, and a large and active group is engaged in research which is as much the one as the other. It is to this group that the Journal is rendering its principal service and makes its greatest appeal, both as a prompt and efficient medium for publication of research and as a convenient and carefully edited assemblage of pertinent information.

Information for Contributors

Submit manuscripts to John Light, Editor, *Journal of Chemical Physics*, Department of Chemistry, 5735 S. Ellis Avenue, The University of Chicago, Chicago, IL 60637. Submission is a representation that the manuscript has not been published previously nor currently submitted for publication elsewhere. The manuscript should be accompanied by a statement transferring copyright from the authors (or their employers—whoever holds the copyright) to AIP; a suitable form for copyright transfer is occasionally printed in the back of this journal and is available from the Editor's office or AIP. This written transfer of copyright, which previously was assumed to be implicit in the act of submitting a manuscript, is necessary under the 1978 U.S. copyright law in order for AIP to continue disseminating physics research results as widely as possible. Further information may be obtained from AIP.

Publication Charge: To support the cost of wide dissemination of research results through publication of journal pages and production of a data base of articles, the author's institution is requested to pay a *page charge* of \$45 per page (with a one-page minimum) and an *article charge* of \$20 per article. The page charge (if honored) entitles the author to 100 free reprints. For **Errata** the minimum page charge is \$10, with no article charge and no free reprints. Nonpayment of the publication charge may lead to delays in publication.

All mathematical expressions and formulas, insofar as possible, should be typed, with unavailable Greek letters or symbols inserted neatly in ink. Distinguish between capital and small letters. Avoid complicated superscripts and subscripts. Avoid repetition of a complicated expression by representing it as a symbol. Identify in the margin handwritten Greek letters and unusual symbols. Use fractional exponents instead of root signs.

References should appear as consecutively numbered footnotes. Literature citations of technical journals should be in the form indicated in the *AIP Style Manual* (price \$7.50 prepaid from American Institute of Physics, Dept. BN, 335 East 45th Street, New York, NY 10017).

Tables may be typewritten on sheets separate from the running text. Each table must have a caption that will make the data in the table intelligible without reference to the text. Avoid complicated column headings.

Figures should, whenever practicable, be planned for reproduction in one-column width (8 cm). Line drawings should be in India ink on white paper or high-quality tracing cloth. The original drawing or a high-quality glossy print should be submitted. To facilitate mailing and handling, original drawings should not exceed 22 by 28 cm in size. Lettering, preferably drawn with a mechanical set, should be of a size so that when reduced the smallest lower-case letters will not be less than about 1.5 mm. Avoid gross disparities in lettering size on a drawing. Consult the *AIP Style Manual* for further discussion of figures. Type figure captions on a separate sheet of paper. Number figures consecutively. Identify each original drawing or photograph with the figure number and authors' names, written where they will not be reproduced.

AIP's **Physics Auxiliary Publication Service (PAPS)** is a low-cost depository for material that is part of and supplementary to a published paper, but is too long to be included in the journal; inquire of the Editor.

Proofs and all correspondence concerning papers in the process of publication should be addressed to: Editorial Supervisor, *The Journal of Chemical Physics*, American Institute of Physics, 335 East 45th Street, New York, NY 10017. In all correspondence, reference should be made to title, author, journal, and scheduled date of issue. A limited number of **alterations in proof** are unavoidable, but the cost of making extensive alterations after the article has been set in type will be charged to the author.

Copyright 1986, American Institute of Physics. Individual teachers, students, researchers, and libraries acting for them are permitted to make copies of articles in this journal for their own use in research or teaching, including multiple copies for classroom or library reserve use, provided such copies are not sold. Copying for sale is subject to payment of copying fees. (See "Copying Fees" paragraph elsewhere in this journal.) Permission is granted to quote from this journal with the customary acknowledgment of the source. To reprint a figure, table, or other excerpt requires in addition the consent of one of the original authors and notification to AIP. Reproduction for advertising or promotional purposes, or republication in any form, is permitted only under license from AIP, which will normally require that the permission of one of the authors also be obtained. Direct inquiries to Office of Rights and Permissions, American Institute of Physics, 335 East 45th Street, New York, NY 10017.

Spectroscopy and Light Scattering

Radio frequency–infrared double-resonance and multiphoton Lamb dips in a dressed molecule E. Arimondo, A. Sasso, and M. Allegrini	2439
Polarization sensitive resonance CARS spectroscopy R. Brakel, V. Mudogo, and F. W. Schneider	2451
The 2A_1–2E electronic spectrum of methoxy, CH_3O: Vibrational progressions, and spin-orbit and Jahn–Teller couplings S. D. Brossard, P. G. Carrick, E. L. Chappell, S. C. Hulegaard, and P. C. Engelking	2459
Critical effects in the infrared spectrum of hydrogen M. J. Clouter and A. R. W. McKellar	2466
The rotational spectra of NH_3–CO and NH_3–N_2 G. T. Fraser, D. D. Nelson, Jr., K. I. Peterson, and W. Klemperer	2472
Rotationally cold spectrum of the $\tilde{B} \ ^2\Pi$–$\tilde{X} \ ^2\Pi$ system of ClCN^+ Fred J. Grieman, Andrew McIlroy, and Jonathan Perkins	2481
Measurement of the rotational spectra of OH^+ and OD^+ by laser magnetic resonance M. H. W. Gruebele, R. P. Müller, and R. J. Saykally	2489
Temperature-dependent resonance Raman profiles of β-carotene in carbon disulfide S. A. Lee, C. K. Chan, J. B. Page, and C. T. Walker	2497
Pressure narrowing and the Ornstein–Uhlenbeck process John Courtenay Lewis	2503
Electron paramagnetic resonance study of the phase transition in Cu^{2+}-doped $\text{CaCd}(\text{CH}_3\text{COO})_4 \cdot 6\text{H}_2\text{O}$ Sushil K. Misra and Krishan Kumar	2514
Laser photoelectron spectroscopy of the formyl anion Kermit K. Murray, Thomas M. Miller, Doreen G. Leopold, and W. C. Lineberger	2520
Spectroscopic and kinetic studies of a dye laser pumped $\text{Br}_2 B \ ^3\Pi(0_2^+)$ \rightarrow $X \ ^1\Sigma_g^+$ laser G. P. Perram and S. J. Davis	2526
The electronic spectrum of the amino acid tryptophan in the gas phase Thomas R. Rizzo, Young D. Park, Linda A. Peteanu, and Donald H. Levy	2534

(Continued)

Subscription Prices (1986)	U.S.A.	Foreign	Optional air freight	
	& Poss.	(incl. Can. & Mex.)	Europe, Mideast, N. Africa	Asia and Oceania
Members (affiliated & member societies)	\$100.00	\$165.00	\$233.00	\$ 335.00
All other	\$835.00	\$900.00	\$968.00	\$1070.00

Back number prices: Single copies: \$35.00.

The Journal of Chemical Physics (ISSN: 0021-9606) is published semimonthly by the American Institute of Physics. Second-class postage rates paid at Woodbury, NY and at additional mailing offices.

Subscriptions, renewals, address changes, and single-copy orders should be addressed to *AIP Subscription Fulfillment Division, 335 East 45th St., New York, NY 10017*. Allow at least six weeks advance notice. For address changes please send both old and new addresses and, if possible, include a mailing label from the wrapper of a recent issue. For your convenience a **change of address form is included in every issue of *Physics Today*; please use it**. Requests from subscribers for missing journal issues will be honored without charge only if received within six months of the issue's actual date of publication; otherwise, the issue may be purchased at the single-copy price. (AIP Headquarters are located at 335 East 45th St., New York, NY 10017; Subscription Fulfillment offices are located at 500 Sunnyside Blvd., Woodbury, NY 11797.)

Reprints of individual articles in this journal may be ordered singly at \$10.00 per article copy (postage included) for articles up to 20 pages. Beyond 20 pages there is a surcharge of \$0.20 per page. Air mail delivery available. Orders are filled in 24 hours. Send orders to the American Institute of Physics, *Current Physics Reprints*, 335 East 45th St., New York, NY 10017.

Copying Fees: The code that appears on the first page of articles in this journal gives the fee for each copy of the article made beyond the free copying permitted by AIP. (See statement under "Copyright" elsewhere in this journal.) If no code appears, no fee applies. The fee for pre-1978 articles is \$0.25 per copy. With the exception of copying for advertising and promotional purposes, the express permission of AIP is not required provided the fee is paid through the *Copyright Clearance Center, Inc. (CCC), 21 Congress Street, Salem, MA 01970*. Contact the CCC for information on how to report copying and remit payment.

Microfilm editions of back volumes of *The Journal of Chemical Physics* are available on 16 mm and 35 mm. Special discounts for the complete backfile of journals published by AIP are also available. *The Journal of Chemical Physics* appears on a monthly basis in *Current Physics Microform (CPM)* along with 26 other journals published by the American Institute of Physics and its member societies. A *Microfilm Catalog* is available on request. *The Journal of Chemical Physics* is indexed quarterly in *Current Physics Index*, a subject and author index (with abstracts) to all journals published by AIP and its member societies.