

REVIEW OF SCIENTIFIC INSTRUMENTS

ISSN: 0034-6748
CODEN: RSINAK

Editor: Thomas H. Braid, Argonne National Laboratory
Consulting Editor: Simon Foner, National Magnet Lab., MIT
Editor Emeritus: J.B. Horner Kuper, Brookhaven National Laboratory
Associate Editor for New Instruments: Joshua Stern, 2703 Ross Road, Chevy Chase, MD 20015
Associate Editor for New Materials and Components: Barry L. Farmer, Washington State University

Editorial Board

Term ending 31 December 1987

E. Dwight Adams (Univ. Florida)
Patricia M. Dehmer (ANL)
Wulf B. Kunkel (Lawrence Berkeley Lab.)
John S. Leigh (Univ. Pennsylvania)
Judah Levine (JILA, NBS)
James R. Matey (RCA Lab.)
Daniel T. Pierce (NBS)

Term ending 31 December 1988

Paul A. Bottomley (General Electric)
Robert J. Erdman (Keithley Instruments)
Eric D. Jones (Sandia National Lab.)
Enrico Gratton (Univ. of Illinois)
Sydney S. Medley (Princeton Plasma Lab.)
Toshio Sakurai (Univ. of Tokyo)
Raymond E. Taylor (Purdue Univ)

Term ending 31 December 1989

Bernardo Juduszliwer (Aerospace Corporation)
Erhard Kisker (KFA/Jülich, West Germany)
Terry A. Miller (Ohio State Univ.)
Harvey M. Rarback (NSLS/BNL)
Richard J. Saykally (Univ. California, Berkeley)
John T. Trauger (JPL)
Samuel J. Williamson (NYU)

Assistant to the Editor: Lynn Welsh

Editorial Assistants at AIP: Janis Bennett, Managing Editor; Jodi L. Kepke-Schinz, Chief Copy Editor; Lynette Newlands, Senior Copy Editor

The **Review of Scientific Instruments** is a monthly journal published by the American Institute of Physics (AIP) and devoted to scientific instruments, apparatus, and techniques. Its contents include original and review articles on instruments in physics, chemistry, and the life sciences, book reviews, and sections on new instruments and new materials. One volume is published annually.

Submit manuscripts to Thomas H. Braid, Editor, *Review of Scientific Instruments*, Argonne National Laboratory, P.O. Box 8293, Argonne, IL 60439-8293. 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 also 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.

Manuscripts should be submitted in DUPLICATE and TYPED DOUBLE SPACE throughout [see the "Information for Manuscript Preparation" printed in the January issue of the journal (page iii)]. Figures must be of camera-ready quality, and should be identified on the back by the journal, the authors name, and figure number. Authors should also consult the *AIP Style Manual*, available from American Institute of Physics, Dept. BN, 335 East 45th Street, New York, NY 10017 for \$7.50 prepaid.

Material for the New Instruments and New Materials and Components sections should be submitted, respectively, to Associate Editors Joshua Stern, 2703 Ross Road, Chevy Chase, MD 20015 and Barry L. Farmer, Dept. of Materials Science and Engineering, Washington State University, Pullman, WA 99164.

Reprints: There is no publication charge. Reprints may be ordered at current rates from Publication Sales—Reprints Section, 335 East

45th Street, New York, NY 10017; minimum order of 100 is required.

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 accepted for publication should be addressed to: Managing Editor, *Review of Scientific Instruments*, 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.

Advertising rates will be supplied on request. Orders, advertising copy, and offset negatives should be sent to: Advertising Department, American Institute of Physics, 335 East 45th Street, New York, NY 10017, 212-661-9404 x361.

Copyright 1987, 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.

REVIEW OF SCIENTIFIC INSTRUMENTS

Volume 58, January–December 1987

Editor: **Thomas H. Braid**
Consulting Editor: **Simon Foner**
Editor Emeritus: **J. B. Horner Kuper**

Associate Editor for New Instruments: **Joshua Stern**
Associate Editor for New Materials and Components: **Barry L. Farmer**

Term ending 31 December 1987

**E. Dwight Adams, Patricia M. Dehmer, Wulf B. Kunkel,
John S. Leigh, Judah Levine, James R. Matey, Daniel T. Pierce**

Term ending 31 December 1988

**Paul A. Bottomley, Robert J. Erdman, Eric D. Jones,
Enrico Gratton, Sydney S. Medley, Toshio Sakurai,
Raymond E. Taylor**

Term ending 31 December 1989

**Bernardo Jadaszilwer, Erhard Kisker, Terry A. Miller,
Harvey M. Rarback, Richard K. Saykally, John T. Trauger,
Samuel J. Williamson**

a publication of the American Institute of Physics