



IEEE TRANSACTIONS ON NUCLEAR SCIENCE

The IEEE Nuclear and Plasma Sciences Society is an organization, within the framework of the IEEE, with principal professional interest in the field of nuclear science and nuclear instrumentation. All members of the IEEE are eligible for membership in the Society and will receive this Transactions upon payment of the annual Society membership fee of \$5.00. For information on joining write to the IEEE at the address below.

ADMINISTRATIVE COMMITTEE

H. W. VanNess, <i>Vice President</i>		J. A. Martin, <i>President</i>		R. F. Pruett, <i>Treasurer</i>	
		J. A. Coleman, <i>Secretary</i>			
Terms Expiring: 1974	Terms Expiring: 1975	Terms Expiring: 1976	Terms Expiring: 1977		
R. L. Butenhoff	F. A. Kirsten	S. E. Harrison	J. P. Blewett		
R. S. Larsen	H. A. Thomas	Q. A. Kerns	R. S. Caldwell		
J. A. Martin	H. W. Van Ness	C. B. Wharton	I. L. Fowler		
			J. R. Roth		

IEEE TRANSACTIONS® ON NUCLEAR SCIENCE

R. F. Shea, *Editor*
 J. A. Coleman, *Associate Editor*
 T. J. Higgins, *Book Review Editor*

Technical Committee Chairmen*

J. P. Blewett, *Particle Accelerator Science & Technology*
 H. A. Thomas, *Reactor Instrumentation and Control*
 Robert E. McCoskey, *Radiation Effects*
 Sanford Wagner, *Nuclear Instruments and Detectors*
 J. L. Shohet, *Plasma Sciences & Applications*
 R. G. Mills, *Fusion Technology*

* Ex-officio with vote
 ** Ex-officio without vote

Functional (Standing) Committee Chairmen**

R. F. Shea, *Publications & Editor-in-Chief*
 J. F. Osborn, *Newsletter*
 W. W. Managan, *Membership*
 A. J. Stripieka, *Awards*
 L. Costrell, *Annual Meetings*
 A. W. Snyder/L. Shohet, *Nominating*
 R. F. Pruett, *Finance*
 H. W. VanNess, *Alternate TAB Representative*
 R. S. Larsen, *Member Education & Continued Professional Development*
 W. E. Price, *Chapter Developments*
 J. B. Kuper, *Fellows*
 J. Forster, *Standards Liaison Representative*

Ex-Officio (with vote)
 Technical Committee Chairmen
 Past Chairman—A. W. Snyder

Ex-Officio (without vote)
 Standing Committee Chairmen
 Chapter Chairmen

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

Officers

JOHN J. GUARRERA, <i>President</i>	FRANK S. BARNES, <i>Vice President, Publication Activities</i>
JOHN D. RYDER, <i>Vice President</i>	SEYMOUR CAMBIAS, JR., <i>Secretary</i>
ARTHUR P. STERN, <i>Vice President, Regional Activities</i>	JOSEPH K. DILLARD, <i>Treasurer</i>
ROBERT F. COTELLESA, <i>Vice President, Technical Activities</i>	

Headquarters Staff

Donald G. Fink, <i>Executive Director</i>	Betty J. Stillman, <i>Executive Assistant to the Executive Director</i>
Elwood K. Gannett, <i>Director, Publishing Services</i>	Richard M. Emberson, <i>Director, Technical Services</i>
William J. Keyes, <i>Director, Administrative Services</i>	Edwin D. MacDonald, <i>Conference Services</i>
John M. Kinn, <i>Director, Educational Services</i>	Sava I. Sherr, <i>Standards</i>
Charles F. Stewart, Jr., <i>Director, Member & Field Services</i>	

Editorial Department

H. James Carter, *Manager, Editorial Services*
 Senior Editors: Nancy B. Budde, Ann H. Burgmeyer,Carolyn Elenowitz, Gail S. Ferenc, Nela Rybowicz
 Associate Editors: Clara Feger, Helen S. Goldman, Trumbull Rogers
 Special Publications Supervisor: Eleanor Maul

IEEE TRANSACTIONS ON NUCLEAR SCIENCE is published bimonthly by The Institute of Electrical and Electronics Engineers, Inc., 345 East 47 Street, New York, N.Y. 10017. Responsibility for the contents rests upon the authors and not upon the IEEE, the Society, or its members. This journal is available in either microfiche or printed form. Individual copies may be purchased at \$12.00 (first copy only) by IEEE members and \$24.00 per copy by nonmembers. Annual subscription price: IEEE members, dues plus Society fee. Price for nonmembers available on request. Abstracting is permitted with mention of source. All rights, including translation, are reserved by the IEEE. Requests for republication permission should be addressed to the IEEE Editorial Department, 345 East 47 Street, New York, N.Y. 10017. Copyright © 1974 by The Institute of Electrical and Electronics Engineers, Inc. Printed in U.S.A. Second-class postage paid at New York, N.Y., and at additional mailing offices.