About the Materials Research Society

The Materials Research Society (MRS), a not-forprofit scientific association founded in 1973, promotes interdisciplinary goal-oriented basic research on materials of technological importance. Membership in the Society includes over 14,000 scientists, engineers, and research managers from industrial, government, and university research laboratories in the United States and close to 70 countries.

The Society's interdisciplinary approach differs from that of single-discipline professional societies because it promotes information exchange across the many technical fields touching materials development. MRS sponsors two major international annual meetings encompassing approximately 70 topical symposia, and also sponsors numerous single-topic scientific meetings. The Society recognizes professional and technical excellence and fosters technical interaction in local geographic regions through Sections and University Chapters.

MRS participates in the international arena of materials research through the International Union of Materials Research Societies (IUMRS). MRS is a member of ASTRA and is an affiliate of the American Institute of Physics.

MRS publishes symposium proceedings, MRS Bulletin, Journal of Materials Research, and other publications related to current research activities.

MRS Bulletin (ISSN: 0883-7694) is published 12 times a year by the Materials Research Society, 506 Keystone Drive, Warrendale, PA 15086-7573. Copyright ©2007, Materials Research Society. Permission required to reproduce content. Periodical postage paid at Warrendale, PA, and at additional mailing offices. POSTMASTER: Send address changes to MRS Bulletin in care of the Materials Research Society, at the address listed; tel. 724-779-3003; fax 724-779-8313. Printed in the U.S.A.

Membership in MRS is \$105 annually for regular members, \$30 for students. Dues include an allocation of \$29 (\$17 for students) to a subscription to MRS Bulletin. Individual member subscriptions are for personal use only. Non-member subscription rates are \$245 for one calendar year (12 issues) within the U.S.A. and \$305 elsewhere. Single copies may be purchased for \$40 each. 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.

MRS Bulletin is included in Current Contents®/ Engineering, Computing, and Technology; Current Contents®/Physical, Chemical, and Earth Sciences, the SciSearch® online database, Research Alert®, Science Citation Index®, and the Materials Science Citation Index™. Back volumes of MRS Bulletin are available on microfiche through University Microfilms Inc., 300 North Zeeb Road, Ann Arbor, MI 48106, USA.

Send Letters to the Editor to:

MRS Bulletin **Materials Research Society** 506 Keystone Drive Warrendale, PA 15086-7573 USA Fax 724-779-8313 Bulletin@mrs.org

Letters must include your name, affiliation, and full contact information.

MRS BULLETII

Editorial Office • 506 Keystone Drive • Warrendale, PA 15086-7573 USA Tel. 724-779-3004 ext. 522; fax 724-779-8313; Bulletin@mrs.org; http://www.mrs.org/

Editor

E.L. Fleischer

Managing Editor

.I Meiksin

Technical Editor

A. Bertram Wilson

Editorial Assistants

T.M.B. Miller and B. Moriarty

Associate Technical Editor

T. Palucka

Circulation S. Forrest

Guest Editors

B.M. Foxman and M.D. Ward

Special Contributors

J.T. Abiade, J.J. Carvajal, S. Chattopadhyay, A. Feldman, M.J. Mayo, C. McCormick, S.S. Sosa,

and S. Trohalaki

Special Consultant

B. Chalamala

Design/Production

S. Franklin, K. Bruiany, and D. Miller

Advertising

M.E. Kaufold and D.L. Watterson

Book Review Board

J.H. Westbrook (Chair), C. Batich, R.J. Matyi, L. Olafsen, S. Sant, and

.L-C 7han

Visiting Scientist

V.S. Arunachalam Center for Study of Science, Technology & Policy Bangalore, India

MRS Office of Public Affairs

499 South Capitol Street SW, Suite 600

Washington, DC 20003

EDITORIAL BOARD

P.S. Drzaic, Chair Alien Technology Corp. Morgan Hill, CA

V.S. Arunachalam Center for Study of Science, Technology & Policy Bangalore, India

M.-I. Baraton University of Limoges Limoges, France

R.C. Cammarata Johns Hopkins University Baltimore, MD

L. Fornaro University of Uruguay Montevideo, Uruguay

S.C. Moss Aerospace Corporation Los Angeles, CA

D.N. Seidman Northwestern University Evanston, IL

J.R. Weertman Northwestern University Evanston, IL

F Werwa Washington, DC

J.H. Westbrook Brookline Technologies Ballston Spa. NY

S.M. Yalisove University of Michigan Ann Arbor, MI

VOLUME ORGANIZERS .

2006

P.A. Midgley University of Cambridge UK

C.A. Orme Lawrence Livermore National Laboratory J.A. Rogers University of Illinois at Urbana-Champaign

J.-C. Zhao GE Global Research Center

2007

2008 Y.-T. Cheng

T.F. Kuech University of Wisconsin-Madison

Purdue University

T.E. Mallouk Pennsylvania State University

J.A. Nucci Max Planck Institute for Metals Research

R.A. Register Princeton University

Germany

R.S. Goldman University of Michigan

Secretary

D.S. Ginley

R. Krishnamoorti University of Houston A. Sellinger Institute of Materials Research and Engineering

2007 MRS OFFICERS

National Renewable Energy Laboratory

President A.J. Hurd

C.A. Volkert

Forschungszentrum Karlsruhe

Los Alamos National Laboratory

Vice President and President-Elect

Treasurer

Sandia National Laboratories

Immediate Past President P.F. Green

University of Michigan

Executive Director Materials Research Society

J.B. Ballance

INTERNATIONAL UNION OF MATERIALS RESEARCH SOCIETIES

First Vice President President G M Crean H Katz Tyndall Natl. Inst.

Johns Hopkins University Cork, Ireland Baltimore, MD, USA

Second Vice President B V B Chowdari National University of Singapore Singapore

Secretary J.E.E. Baglin IBM Almaden Research Center San Jose, CA, USA

Treasurer H Yamamoto Nihon Univ. Chiba, Japan

Immediate Past President I 7hou NIN Xian, Shaanxi, China

General Secretary R.P.H. Chang Northwestern University Evanston, IL, USA

IUMRS ADHERING BODIES

Australian Materials Research Society (A-MRS) J.S. Williams, Australian National University Brazil Materials Research Society (B-MRS) E. Longo, UFSCar

Chinese Materials Research Society (C-MRS) L. Zhou, NW Institute for Nonferrous Metal Research

European Materials Research Society (E-MRS) J. P. Massue, E-MRS

Materials Research Society (MRS) A.J. Hurd, Los Alamos National Laboratory Materials Research Society of Argentina (MRS-Argentina) J. Ovejero García, CNEA

Materials Research Society of India (MRS-I) R.A. Mashelkar, Council of Scientific & Industrial Research

Materials Research Society of Japan (MRS-J) O. Takai, Nagoya University

Materials Research Society of Korea (MRS-K) J.-W. Park, Hanyang University

Materials Research Society of Russia (MRS-Russia) N.Z. Lyakhov, Russian Academy of Sciences

Materials Research Society of Singapore (MRS-S) B.V.R. Chowdari, National University of Singapore

Materials Research Society of Taiwan (MRS-T) J.-M. Liu. ITRI

Mexican Materials Research Society (Mexican-MRS) P.H. Hernández Tejeda, Benemérita Universidad Autónoma de Puebla