

About the Materials Research Society

The Materials Research Society (MRS), a not-for-profit scientific association founded in 1973, promotes interdisciplinary goal-oriented basic research on materials of technological importance. Membership in the Society includes almost 16,000 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 90 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, print; ISSN 1938-1425, online) is published monthly by the Materials Research Society, 506 Keystone Drive, Warrendale, PA 15086-7573. Copyright ©2010, 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 \$115 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 \$300 for one calendar year (12 issues) within the U.S.A. and \$360 elsewhere. Single copies may be purchased for \$55 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 BULLETIN

Editorial Office • 506 Keystone Drive • Warrendale, PA 15086-7573 USA
Tel. 724-779-2747; fax 724-779-8313; Bulletin@mrs.org; http://www.mrs.org/

Editor
E.L. Fleischer

Managing Editor
J. Meiksin

Technical Editor
L. Wilson

Associate Technical Editor
T. Palucka

Editorial Assistant
B. Moriarty

Guest Editors
N.A.J.M. Sommerdijk and H. Cölfen

Special Contributors
D.G. Barrett, J.J. Carvajal, R. Khanna,
K.L. Niece, R. Serna, S. Trohalaki, and
T.D. Ziebell

Special Consultants
S.M. Haile, L. Merhari, and
A. Sellinger

InterFaces
C. Trager-Cowan (Chair), Y.-T. Cheng,
and U. Ramamurty

MRS Office of Public Affairs
R. Kelley
499 South Capitol Street SW,
Suite 600, Washington, DC 20003

Art Director
K. Bruniany

Production/Design
Franklin Design and
SPI Technologies, Inc.

Advertising
M.E. Kaufold and D.L. Watterson

Circulation
M. Judt

EDITORIAL BOARD

P.S. Drzaic, Chair
Drzaic Consulting Services
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

H.-U. Habermeier
Max Planck Institute
Stuttgart, Germany

S.C. Moss
Aerospace Corp.
Los Angeles, CA

J.A. Nucci
Cornell University
Ithaca, NY

L.J. Olafsen
Baylor University
Waco, TX

D.N. Seidman
Northwestern University
Evanston, IL

J.R. Weertman
Northwestern University
Evanston, IL

E. Werwa
Washington, DC

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

VOLUME ORGANIZERS

2009

A. Misra
Los Alamos National Laboratory

R. O'Hayre
Colorado School of Mines

K. Shull
Northwestern University

S. Stemmer
University of California,
Santa Barbara

2010

T.J. Balk
University of Kentucky

D. Cahen
Weizmann Institute of
Science

F. Meldrum
University of Leeds

S. Streiffer
Argonne National
Laboratory

2011

K.-S. Choi
Purdue University

R.T. Collins
Colorado School of Mines

G. Redmond
University College Dublin

S.E. Shaheen
University of Denver

2010 MRS OFFICERS

President
D.S. Ginley
National Renewable Energy Laboratory

Secretary
B.J.H. Stadler
University of Minnesota

Immediate Past President
S.P. Baker
Cornell University

Vice President and President-Elect
J.J. De Yoreo
Lawrence Berkeley National Laboratory

Treasurer
M. Fitzsimmons
Los Alamos National Laboratory

Executive Director
Materials Research Society
T. Osman

INTERNATIONAL UNION OF MATERIALS RESEARCH SOCIETIES

President	First Vice President	Second Vice President	Secretary	Treasurer	Immediate Past President	General Secretary
H. Katz Johns Hopkins University Baltimore, MD, USA	B.V.R. Chowdari Natl. Univ. of Singapore Singapore	O. Takai Nagoya University Japan	Q. Feng University of Science and Technology Beijing, China	Y. Han Inst. of Aeronautical Materials Beijing, China	G.M. Crean Atomic Energy Commission Grenoble, France	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)
F. Lázaro Freire Jr., PUC-Rio

Chinese Materials Research Society (C-MRS)
X. Peng, Beijing, China

European Materials Research Society (E-MRS)
F. Priolo, INFN

Materials Research Society (MRS)
D.S. Ginley, National Renewable Energy Laboratory

Materials Research Society of Argentina (MRS-Argentina)
J. Ovejero García, CNEA

Materials Research Society of India (MRS-I)
T. Ramasami, Ministry of Science and Technology

Materials Research Society of Japan (MRS-J)
N. Kishimoto, National Institute for Materials Science

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)
T.P. Perng, Yuan Ze University

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