

A Strong Foundation for the Future:

2013 ANNUAL REPORT

TMMIS

The Minerals, Metals & Materials Society



A Letter from the TMS Leadership



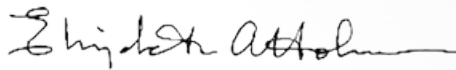
Dear TMS Members and Stakeholders,

In 2013, TMS took a number of steps to build a strong foundation for the future. But what does that phrase mean? In the context of TMS in 2013, “A Strong Foundation for the Future” can be read in one of two ways.

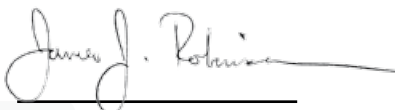
In a figurative sense, we did, through our actions and initiatives, build a strong foundation and construct a framework for future success—both for ourselves as a professional society and for the minerals, metals, and materials professions as a whole. We took steps to encourage greater diversity in our profession, to equip young professionals with the tools to succeed—and lead—in their fields, and to enable technical advances in areas such as integrated computational materials engineering and energy-related materials. Many of these efforts were influenced by the strategic goals (listed on this page) that the society implemented in 2012.

But we also, quite literally, worked to build a stronger Foundation—the TMS Foundation, that is. The charitable arm of our organization, the TMS Foundation strives to support the development of professionals in the minerals, metals, and materials community within the context of our global society. In 2013, we expanded the reach of several TMS Foundation programs and brought into the spotlight the good work that the Foundation has been quietly performing since 1993.

Read on to learn how the work we did in 2013 helped to build a better society for our members, a better workforce for our profession, and a better world for us all.



Elizabeth Holm
2013 TMS President



James J. Robinson
TMS Executive Director

TMS 2015 Strategic Goals

1. Enhance our status as a volunteer-centric society
2. Be the destination society for young professionals: technically, professionally and socially
3. Sustain and grow our core as The Minerals, Metals & Materials Society
4. Advance materials solutions for energy and environmental challenges
5. Be the recognized home for and advocate of materials and manufacturing innovation

OFFICERS

President

Elizabeth A. Holm

Professor Materials Science & Engineering,
Carnegie Mellon University

Vice President

Hani Henein

Professor and Director of the Advanced Materials and
Processing Laboratory, University of Alberta

Past President

Wolfgang A. Schneider

Head of Research & Development Center, Hydro
Aluminium Rolled Products GmbH

Financial Planning Officer

Robert W. Hyers

Chief Technology Officer,
Boston Electrometallurgical Corporation

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Programming

Neville R. Moody

Manager, Sandia National Laboratories

Professional Development

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Program Officer, Office of Naval Research

Content Development and Dissemination

Carl M. Cady

Technical Staff, Los Alamos National Laboratory

William J. Ready

Principal Research Engineer & Adjunct Professor,
Georgia Tech Research Institute

Public and Governmental Affairs

Edward D. Herderick

Director of R&D, Rapid Prototype + Manufacturing (rp+m)

TECHNICAL DIVISION DIRECTORS

Electronic, Magnetic & Photonic Materials
Division (changed to Functional Materials
Division in 2014)

Srinivas Chada

Component Packaging Engineer, Schlumberger HFE

Extraction & Processing Division

Adrian C. Deneys

Business Development Manager, Praxair Inc

Light Metals Division

David H. DeYoung

Director, GPP Business Technology, Alcoa Inc.

Materials Processing & Manufacturing Division

James C. Foley

R&D Manager, Los Alamos National Laboratory

Structural Materials Division

Rajiv S. Mishra

Professor, University of North Texas



Members of the TMS 2013 Board of Directors and other leadership at the TMS 2014 Annual Meeting & Exhibition: From left to right, James Robinson, Hani Henein, Adrian Deneys, Edward Herderick, Patrice Turchi, William Ready, Jeffrey Fergus, Alan Luo, Carl Cady, James Foley, Elizabeth Holm, Roger Narayan, Robert Hyers, David Shifler, Mark Schlesinger, Srinivas Chada, Rajiv Mishra, Neville Moody, David Bahr, Eric Brown, and Wolfgang Schneider.

Supporting the Next Generation

Through the TMS Foundation, the society funds scholarships for undergraduate and graduate students. Once those students graduate with science and engineering degrees, TMS Foundation programs equip them with the skills necessary to succeed and to become leaders in the minerals, metals, and materials fields.

30

The number of young professionals who benefited from TMS Foundation programs in 2013

Young Professionals

In 2013, TMS created ample opportunities for early career professionals by increasing the number of people benefitting from these existing programs:

- **Young Leaders Professional Development Award:** Funded travel and registration costs for 20 awardees (up from 10 in previous years) to attend the TMS 2013 Annual Meeting & Exhibition. The program further expanded for 2014.

5

The number of winners at the inaugural TMS Technical Division Young Professional Poster Contest, held at the TMS 2013 Annual Meeting & Exhibition

TMS Membership: Who We Were in 2013

As we work to build the society's future, it's helpful to know who we are now. Here is a brief look at who made up The Minerals, Metals & Materials Society in 2013.

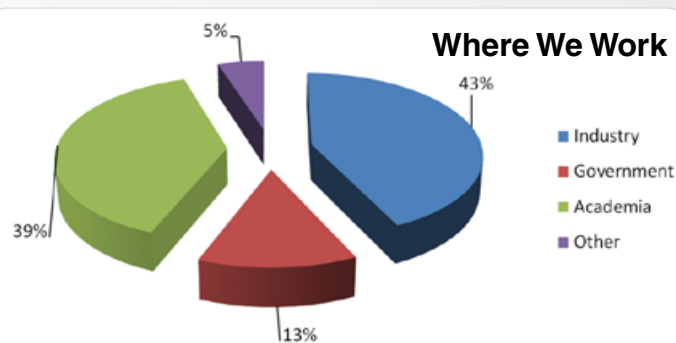
1,062

The number of members we have grown by in the past five years, from 11,217 members in 2009 to 12,279 in 2013

\$44,911

Amount of scholarship money awarded to undergraduate and graduate students in 2013

- **Emerging Leaders Alliance Conference:** Funded registration for eight young professionals (up from five in previous years) to attend this leadership skills development conference for early-career professionals.
- **Young Leaders International Scholar Program:** Funded travel and registration costs for two young professionals to travel to international conferences and present their work. For the first time in 2013, TMS selected an international scholar to attend the Federation of European Materials Societies (FEMS) Conference in September. A second scholar was selected to attend a meeting of the Japan Institute of Metals.



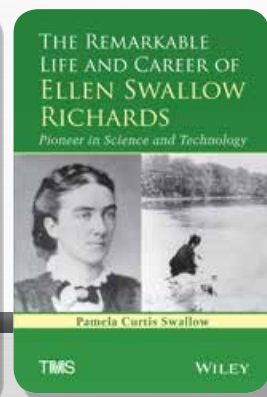
Building a More Diverse Profession

In 2013, work began on the **First TMS Summit on Creating and Sustaining Diversity in the Minerals, Metals, and Materials Professions (DMMM1)**—an event designed to break new ground in diversity training by drawing on the experience of attendees and equipping them with tools that they could take back to their workplaces. Organizers designed an event with sessions specific to those working in industry, academia, and government at every stage of their career, from young professionals to senior leaders. DMMM1 was planned for July 29-31, 2014, at the National Academy of Sciences Building in Washington, D.C.

In conjunction with the meeting, the TMS Foundation established the **Ellen Swallow Richards Diversity Award** to recognize an individual who reflects the remarkable pioneering spirit of Ellen Swallow Richards, who, in 1873, became the first female student to earn a degree from the Massachusetts Institute of Technology (in chemistry). The award honors those who have overcome personal, professional, educational, cultural, or institutional adversity to pursue a career in minerals, metals, and/or materials or those who have helped others to overcome such challenges to pursue such a career.



Viola L. Acoff, professor and head of the Metallurgical and Materials Engineering Department, University of Alabama, was selected as the inaugural recipient of the new TMS diversity award.



Articles in 2013 issues of *JOM* and a new book, *The Remarkable Life and Career of Ellen Swallow Richards: Pioneer in Science and Technology*, scheduled for release in 2014, round out some of TMS's recent efforts to promote diversity in our community.

“Study after study shows that the diverse workplace is the most resilient, flexible, and productive.” - 2013 TMS President Elizabeth Holm, *JOM*

Where We Live



89 Countries throughout the world

Top 10 Countries

	Total	Percentage
United States	4,213	58.74%
Canada	420	5.86%
Japan	335	4.67%
Germany	264	3.68%
Australia	199	2.77%
China	180	2.51%
Great Britain	151	2.11%
South Korea	147	2.05%
France	129	1.80%
India	111	1.55%

Laying the Groundwork for ICME

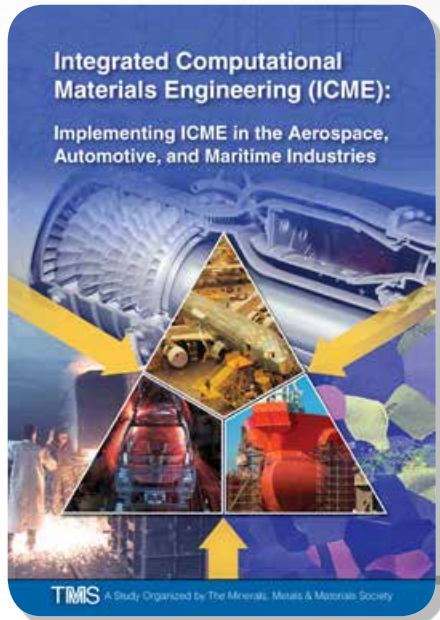
The ICME Implementation Study

In 2013, TMS released *Implementing ICME in the Aerospace, Automotive, and Maritime Industries*, a 120-page report that provides detailed, practical guidance to implementing integrated computational materials engineering (ICME). This resource compiles the insights, knowledge, and experience of nearly 50 recognized technical experts in ICME and its allied fields.

The report was released at the 2nd World Congress on ICME, held in July 2013. It built on the broad recommendations of a 2008 U.S. National Academies Report, *Integrated Computational Materials Engineering: A Transformational Discipline for Improved*

Competitiveness and National Security. This National Academies report first defined ICME as a new sub-discipline in materials science with enormous power to revolutionize materials-intensive product development cycles.

This study was sponsored by the U.S. Department of Defense Office of Naval Research and Air Force Research Laboratory, the U.S. Department of Energy (Energy Efficiency and Renewable Energy—Vehicle Technologies Office), and the U.S. National Science Foundation (Division of Civil, Mechanical and Manufacturing Innovation) under a grant to TMS.



Who has read the report?

800 Hardcopies distributed

974 Reports downloaded

1,774 Total distribution

TMS Publications: What We Read in 2013



JOM was redesigned for the 2014 volume year to update the member journal's look and to provide a distinct divide between the journal's technical contents (*JOM: The Journal*) and its general-interest feature articles (*JOM: The Magazine*).

1,100+

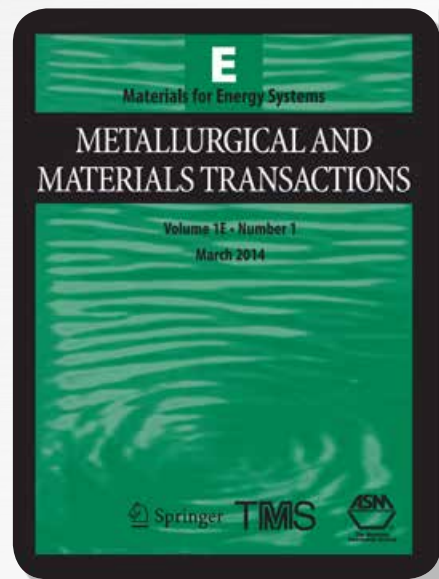
Number of articles contained in the TMS Member Library, an easy-to-search collection of technical articles made available at no charge to TMS members in 2013 as a benefit of membership

Providing a Forum for Energy Technologies

Metallurgical and Materials Transactions E

A new journal has joined the highly respected, peer-reviewed family of *Metallurgical and Materials Transactions* publications: *Metallurgical and Materials Transactions E: Materials for Energy Systems* was launched in 2013 as a new quarterly journal that publishes peer-reviewed, original research and review articles focused on the science of materials applied to or being investigated to address unique aspects of current and emerging energy technologies.

Metallurgical and Materials Transactions E opened for paper submissions in 2013, with the first issues of the journal being published in 2014. The journal's content was made available to all TMS members as a benefit of membership.



Top Downloads from TMS Journals in 2013

JOM

2,689 Downloads:

“United In Our Differences:
Changing The Face Of MSE”

Integrating Materials and Manufacturing Innovation

2,249 Downloads:

“Phase-Field Modelling of Microstructure Evolution During Processing of Cold-Rolled Dual Phase Steels”

Metallurgical and Materials Transactions A

1,902 Downloads:

“Precipitation and Hardening in Magnesium Alloys”

Metallurgical and Materials Transactions B

1,254 Downloads:

“Solidification Processing”

Journal of Electronic Materials

935 Downloads:

“Thermal Behavior of Silver Nanoparticles for Low-Temperature Interconnect Applications”

Uniting the Global Community

Advances in science and technology are often achieved through collaboration and inspired by the work of peers. In 2013, TMS provided broad, interdisciplinary events and intimate, focused forums to encourage the kind of face-to-face interaction that enables scientific advances.

TMS 2013 Annual Meeting & Exhibition

TMS held the 142nd installment of its annual meeting in San Antonio, Texas, March 3-7, 2013.



TMS2013

80 Technical Symposia
388 Technical Sessions
2,945 Abstracts Presented



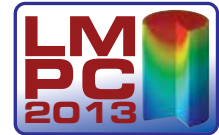
6,000+

Number of abstracts delivered at TMS meetings in 2013

Other TMS Events

The TMS Annual Meeting & Exhibition is the largest and most comprehensive of the society's gatherings, but in 2013 TMS sponsored or co-sponsored a total of ten meetings, events, and courses:

TMS2013
142nd Annual Meeting & Exhibition



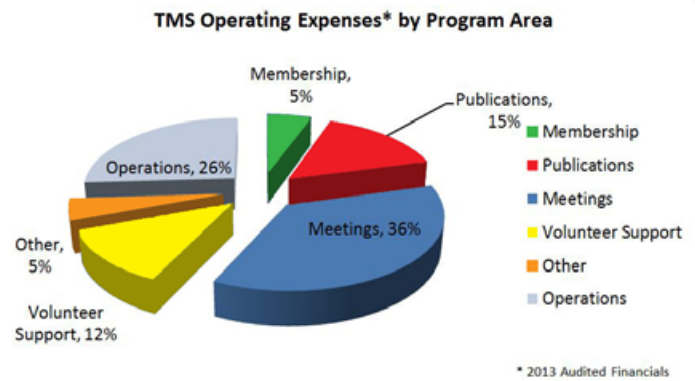
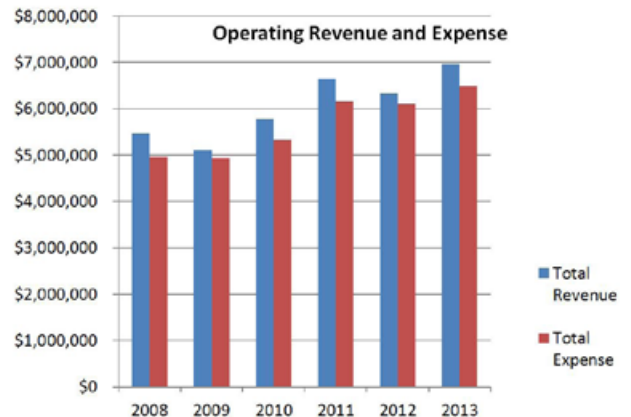
MS&T'13

162

Number of people who have attended ten or more consecutive TMS Annual Meetings and who were invited to a Repeat Attendee reception at TMS2013

Creating a Stable Financial Base

Thanks to the dedication of volunteers and staff, TMS enjoyed another year of financial success in 2013. The tables on this page present the 2013 audited financial results from TMS operations, by major category, and 2012 results for comparative purposes. The pie charts show the distribution of revenue and expense by major business area in 2013, and the graph depicts five-year operational revenue and expense trends. TMS financial records are audited annually by an independent auditing firm.



Summary of Operations Revenues and Expenses Years ending December 31, 2013 and 2012

REVENUES	2013	2012
Membership	\$530,580	\$543,777
Editorial, Content & Communications	\$2,384,078	\$2,307,727
Events, Programs & Sales	\$3,619,786	\$3,048,868
Contracts & Grants	\$225,000	\$243,837
Volunteer Support	\$45,517	\$39,648
Executive/Operations	\$156,476	\$145,879
TOTAL REVENUES	\$6,961,437	\$6,329,736

EXPENSES	2013	2012
Membership	\$352,551	\$378,228
Editorial, Content & Communications	\$998,217	\$926,453
Events, Programs & Sales	\$2,356,757	\$1,927,376
Contracts & Grants	\$113,936	\$155,422
Volunteer Support	\$795,147	\$791,134
Executive/Operations	\$1,879,283	\$1,926,323
TOTAL EXPENSES	\$6,495,891	\$6,104,936

	2013	2012
EXCESS OPERATIONS REVENUE	\$465,546	\$224,800

Revitalizing the TMS Foundation



In 2013, significant work began to revitalize the TMS Foundation—the charitable arm of The Minerals, Metals & Materials Society. In addition to administrative changes, like the installation of new Foundation leaders and the development of a new website, this year saw some dramatic program expansions, as well—most notably the growth of the TMS Young Leaders Professional Development Award program.

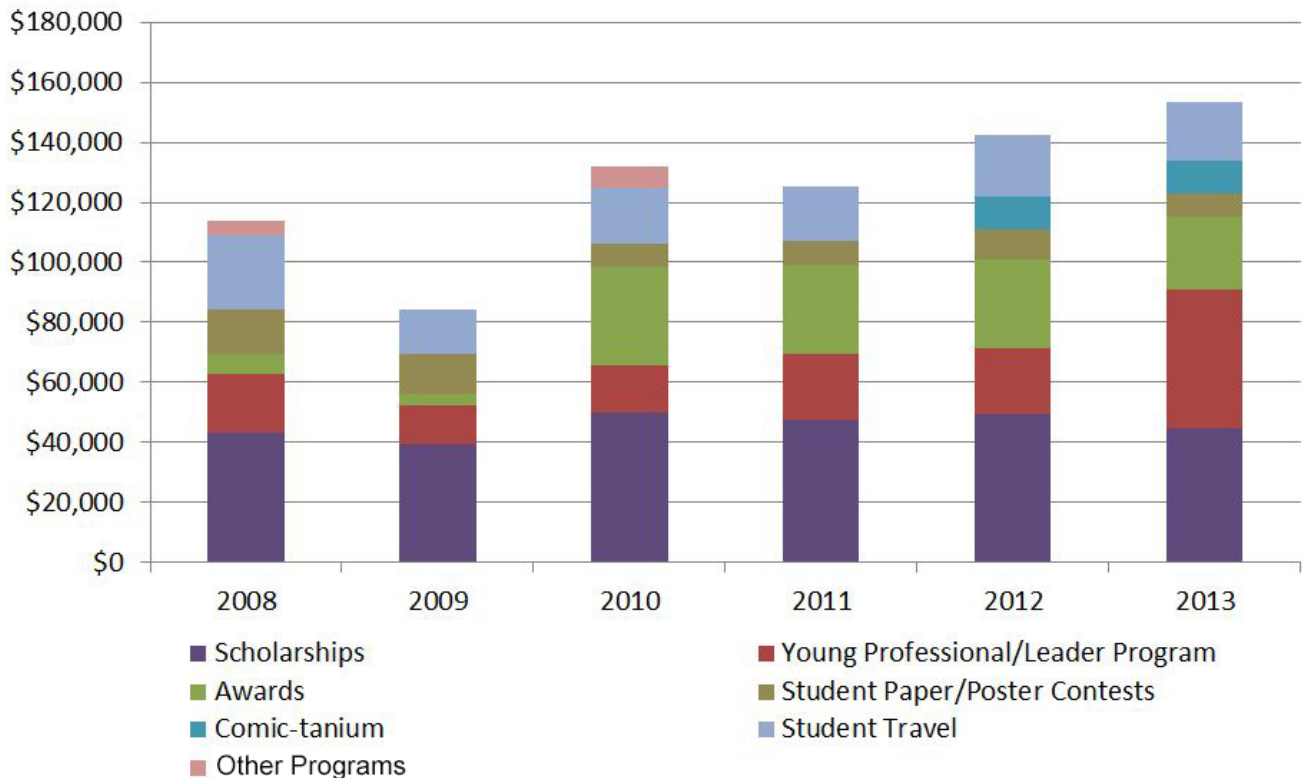


More than 100 individuals benefit annually from TMS Foundation programs, such as awards, scholarships, travel grants, contests, and leadership programs for students and young professionals. For 2014, that number will increase dramatically with the launch of the *Comic-tanium*TM project, which will reach countless students with its goal of inspiring young people to pursue careers in the science and engineering professions. The TMS Foundation provided start-up funds for this traveling, nonprofit educational exhibit.



*Comic-tanium*TM connects the real world of materials science and the fictional worlds of well-known comic book characters, like Iron Man, Captain America, Spider-Man, and Batman.

TMS Foundation Funding by Program



2013 TMS Foundation Donors

Diamond Society

Lifetime Contributions

Totaling \$100,000 or more

Martin and Lucinda Glicksman

Gold Society

Lifetime Contributions

Totaling \$20,000 or more

Diran and Seta Apelian

Om P. Arora

Dr. and Mrs. Jeffrey Wadsworth

Rob and Robyn Wagoner

Garry W. Warren

Silver Society

Lifetime Contributions

Totaling \$5,000 or more

Gordon H. Geiger

Elizabeth A. Holm

Stanley M. Howard

Lionel and Linda Kimerling

Kenneth R. Kinsman

King-Ning Tu

Frank E. Wagstaff

Robert B. Wagstaff

William G. Wagstaff

Foundation Leaders

Donation of \$2,500 or more in 2013

Diran Apelian

Om P. Arora

Cynthia A. Bognar

Elizabeth A. Holm

Kenneth R. Kinsman

Dr. and Mrs. Jeffrey Wadsworth

Rob and Robyn Wagoner

Garry W. Warren

(in Memory of Milton E. Wadsworth)

Foundation Founders

Donation of \$1,000 to \$2,499 in 2013

Stanley M. Howard

Phillip J. Mackey

Harold W. Paxton

Alexander Scott

David Shifler

(in Memory of Robert B. Pond Sr.)

King-Ning Tu

Foundation Builders

Donation of \$500 to \$999 in 2013

Carl M. Cady

Raymond F. Decker

J. Wayne Jones

Alan Lawley

James and Lynne Robinson

Robert D. Shull

George and Kathy Spanos

William G. Wagstaff

Foundation Providers

Donation of \$250 to \$499 in 2013

Ellen K. Cerreta

David H. DeYoung

James C. Foley

Karl A. Gschneidner, Jr.

Carolyn M. Hansson

Ray D. Peterson

David G. Robertson

Vincent M. Eannace

Foundation Ambassadors

Donation of \$100 to \$249 in 2013

John E. Allison

Anonymous Donor

Anonymous Donor

Paul G. Campbell, Jr.

Jeffrey W. Ferguson

Hani Henein

Edward D. Herderick

John P. Hirth

John E. Litz

Christina Elizabeth Meskers

Rajiv S. Mishra

Thomas W. Montemarano

Neville R. Moody

Roger Jagdish Narayan

Robert A. Rapp

William J. Ready

Ramana G. Reddy

Wolfgang A. Schneider

James W. Sears

Carlos Enrique Suarez, Sr.

Arthur P. Turner

Foundation Patron

Donation of \$25 to \$99 in 2013

Adewunmi Lekan Adegoke

David F. Bahr

Dean Baker

Robert Bakish

George J. Binczewski

Louis Bouchard

Eric N. Brown

Finlay Campbell

Ronald C. Campbell

Alexander J. Castle

Krisman Chu

Harold R. Clark

Theresa Coetsee

Tim Darling

Cleto Maues De Azevedo Jr.

Jan De Bakker

Marcelo Miranda De Castro

Rajiv Dhameja

George J. Dormer

Jaroslav W. Drelich

James W. Evans

John W. Fernihough

Jose Juarez Borges Filho

John E. Flinn

Stephen M. Foiles

George D. Fulford

Anthony F. Giamel

Douglas E. Gobeski

Ivan L. Gorup

John A.S. Green

Dean Gregurek

Vernon Griffiths

Cody P. Heitman

Wm. H. Herrnstein

Lee E. Hoffman

Warren H. Hunt, Jr.

Sun-Moo Hur

Robert W. Hyers

William P. Imrie

Mihaiela Isac

Steven G. Jansto

Tomoyuki Kakeshita

Axel E. Kranzmann

Pierre Le Brun

Jason Leszczewicz

John J. Lewandowski

Lorentz Petter Lossius

W. Stuart Lyman

William D. MacDonald

Satish Manaktala

Thomas F. Marinis, Jr.

Sandy Martinez

Rocky Martino

Koichiro Mashio

Jan W. Matousek

Alexander McLean

Terry R. McNeley

John E. Morral

Tetsuichi Motegi

Norbert L. Piret

Adam C. Powell, IV

Yue Qi

Raul B. Rebak

Lothar H. Reh

Herman S. Rosenbaum

Joseph M. Rua

Takuo Sakon

Juergen Schmidl

Yoshitaka Shibuya

Enio Laubyer Ferreir Silva

Eugene A. Silva

Malcolm Stocks

Shoji Taniguchi

John M. Tartaglia

Jacques P. Thiriar

Jomar T. Thonstad

Guy VanDoren

Tadao Watanabe

David O. Welch

Harovel Wheat

Bhaskar Yalamanchili

Charles Fred Yolton

About TMS

The Minerals, Metals & Materials Society (TMS) is a member-driven international professional society dedicated to fostering the exchange of learning and ideas across the entire range of minerals, metals, and materials science and engineering, from minerals processing and primary metals production, to basic research and the advanced applications of materials. Included among its more than 12,000 professional and student members are metallurgical and materials engineers, scientists, researchers, educators, and administrators from 89 countries on six continents. For more information on TMS, visit www.tms.org.

TMS

The Minerals, Metals & Materials Society

184 Thorn Hill Road
Warrendale, PA 15086

Telephone: 1-800-759-4867 (in the United States) or (724) 776-9000 (elsewhere)

Fax: (724) 776-3770

E-mail: president@tms.org