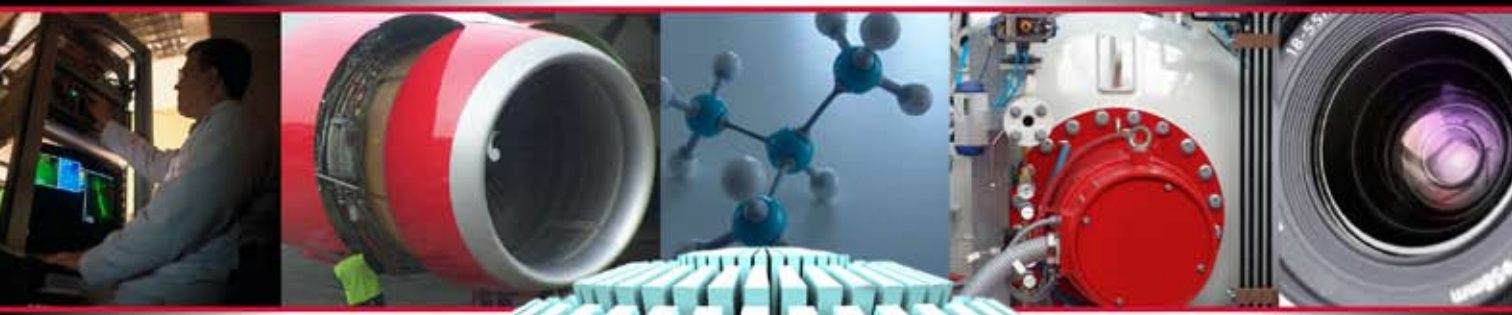
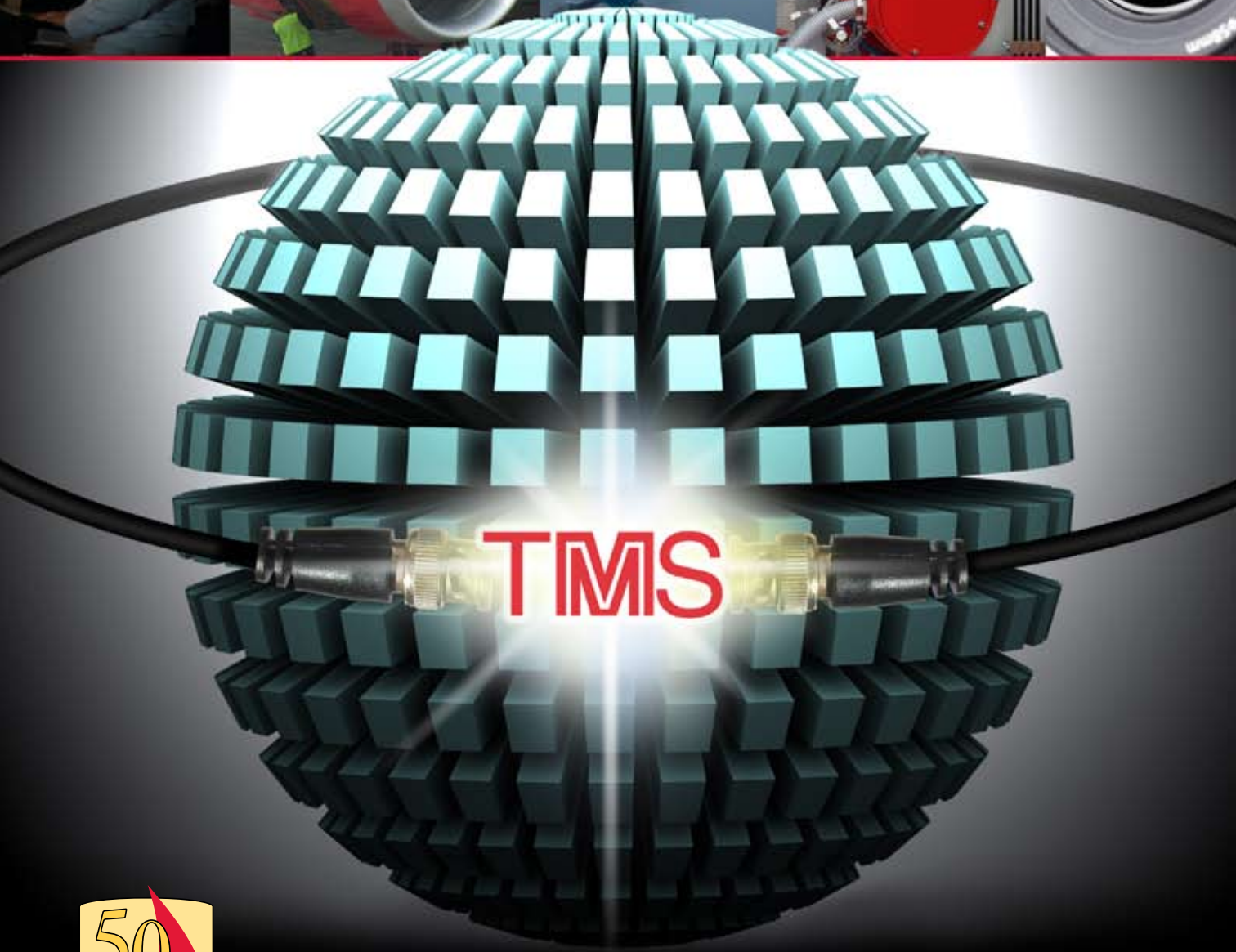
Linking Science and Technology for Global Solutions

TMS2007

136th Annual Meeting & Exhibition





Celebrating 50 Years as a Member Society of AIME

February 25 - March 1, 2007

Walt Disney World Swan and Dolphin Resort

Orlando, Florida, USA

TMS2007

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Linking Science and Technology for Global Solutions

Benefit from this unique networking experience which links the worlds of industry, government and academia

for an outstanding exchange of authoritative research, technical applications, and novel solutions in the minerals, metals and materials fields.

Through presentations of scientific research, plenary sessions, programmed as well as impromptu discussions,

and an exhibition of today's latest product and service solutions,

you will gain useful knowledge and valuable contacts to advance your work.

Register online at www.tms.org/annualmeeting.html or use the form on page 22

before January 29 and save by paying the advance registration fee.

3,500+ attendees

2,500+ presentations (record-breaking!)

6 short courses, workshops and tutorials

3 proceedings CD-ROMs

6 Lectures

Daily Networking Events

150+ exhibitors

Table of Contents **Page**

JOM Presents the Ten Greatest Materials Moments • Feb. 26

This top ten countdown crosses the millennia and identifies pivotal historical events that led to paradigm shifts in humanity's understanding and use of materials and their associated technologies. Each "moment" will be introduced by a past president of TMS. The top ten is being determined through voting by TMS members, the materials community at large and the general public.

To cast your vote, visit www.materialmoments.org before Dec. 31!

TMS 50th Anniversary Plenary Breakfast Series

The Future of Materials Science and Engineering
Feb. 26
by Anniversary Laureate - Professor Diran Apelian
Howmet Professor of Engineering / Director Metal Processing Institute
Worcester Polytechnic Institute

Light Metals: 50 Years of Technological Progress
Feb. 27
by Anniversary Laureate - Professor James Evans
University of California, Berkeley

Structural Materials: 50 Years of Technological Progress
Feb. 27
by Anniversary Laureate - Dr. Jeffrey Wadsworth
Oak Ridge National Laboratory

Extraction & Processing: 50 Years of Technological Progress
Feb. 27
by Anniversary Laureate - Dr. Michael King, Falconbridge Ltd.

Materials Processing & Manufacturing: 50 Years of Technological Progress
Feb. 28
by Anniversary Laureate - Dr. Alan Taub, General Motors Corporation

Electronic, Magnetic & Photonic Materials: 50 Years of Technological Progress
Feb. 28
by Anniversary Laureate - Dr. Stan Williams, Hewlett Packard

Evolution of the Profession and the Professional
Feb. 28
by Anniversary Laureate - Professor Julia Weertman
Walter P. Murphy Professor Emerita in Service, Northwestern University

Visit with the TMS Anniversary Laureates in the *JOM* booth in the Exhibit Hall between 11 a.m. and 1 p.m. on the days of their presentations.

The TMS 2007 technical program provides 50 symposia to choose from, organized into the topical areas of light metals; extraction, processing, structure and properties; and emerging materials.

You will also find related short courses, workshops, tutorials and lectures conveniently located at the end of each symposia section.

Technical sessions will be held daily beginning at 9 a.m. in the Dolphin Hotel, Monday, Feb. 26 through Thursday, March 1.

Abstracts are available online at www.tms.org/annualmeeting.html

Recycling and Waste Processing

…recycling of engineered materials today

Sessions:

- Aluminum
- Electronic Materials
- Materials Recovery From Wastes
- Metals Recycling Then and Now
- Precious Metals Recovery

Alumina and Bauxite

…mining and refining of raw materials for aluminum production

Sessions:

- Alumina Refinery Design and Development
- Alumina Refinery Safety and Integrity
- Bauxite and Digestion
- Precipitation

Advanced Metallic Composites and Alloys for High Performance Applications

…recent developments and advances in metallic materials for advanced applications

Sessions:

- Advanced Metallics
- Al Alloys and Composites
- Fe and Ni Alloys and Composites
- Metallic Composites
- Refractory Alloys and Composites
- Ti Alloys and Composites

Aluminum Reduction Technology

…conversion of alumina to aluminum

Sessions:

- Alternative Processes
- Anode Design and Operation
- Cell Fundamentals and Phenomena
- Environmental and Plant Improvements
- Process Control Developments

Cast Shop Technology

…melting and metal treatment of aluminum

Sessions:

- Cast House Operations and Melting
- Cast Shop Safety
- Casting, Solidification and Microstructures
- Metal Treatment

Advances in Computational Materials Science and Engineering Methods

…materials engineering across size scales and disciplines

Sessions:

- Dedicated Computational Methods
- Finite Element Method
- Methods at the Atom Scale
- Phase Field Methods

Aluminum Alloys for Transportation, Packaging, Aerospace and Other Applications

…advancements in aluminum for today's marketplace

Sessions:

- Alloy Characterization
- Alloy Development
- Aluminum Products and Their Applications

Degradation of Light Weight Alloys

…environmental effects on performance of light weight alloys

Sessions:

- Environmental Effects on Aluminum
- Environmental Effects on Magnesium
- Evaluation, Modeling and Design

Electrode Technology
…anodes and cathodes used in aluminum reduction
Sessions:
- Anode Baking Furnace Technology
- Anode Technology and Production
- Cathode Wear
- Cell Construction and Use
- Inert Anode Materials

Friction Stir Welding and Processing IV
...advancements in processes and properties of friction stir welds
Sessions:
- Friction Stir Welding of Traditional and Advanced Metals
- Characterization
- Process Development and Modeling
- Microstructures and Properties

Innovations in Electrometallurgy
…advances in electrometallurgical processes
Sessions:
- Electrowinning
- Halide Electrolytes
- Performance

Innovations in Titanium Technology
…advances in alloy development and titanium processing
Sessions:
- Alloy Development
- Low Cost Processing
- Novel Processes

Integrated Computational Materials Engineering: Lessons From Many Fields
…transfer of established methodologies to materials science
Sessions:
- ICME in Other Fields
- ICME in Materials Science

Intellectual Property in Materials Science: Patents, Tech Transfer and Licensing
…IP case studies for materials science and emerging materials
Sessions:
- Technology Transfer
- Commercialization
- Patents

Internet and Other Electronic Resources for Materials Education
…materials education resources
- Development of Digital Resource Libraries
- Transport Phenomena Resources
- Internet-Based Resources for the Classroom

Magnesium Technology 2007
…all aspects of magnesium production, properties and application
Sessions:
- Primary Production
- Alloy Development
- Performance
- Global Market

Materials Processing Fundamentals
…processing fundamentals for materials production
Sessions:
- Smelting and Refining
- Process Modeling
- Powders and Composites

Outreach Programs in Materials Science and Engineering
…expanding and promoting materials science in science and engineering curricula
- Materials Modules for Secondary Education
- University Programs
- Industry and Government Laboratory Initiatives

Shape Casting: 2nd International Symposium
…development of novel shape casting techniques
Sessions:
- Solidification
- Process Modeling
- Property Development
- Application of Novel Processes

Aluminum Recycling Industry: Global Challenges and Opportunities
…plenary discussion
- Historical Perspectives
- Case Studies
- Recovery Systems
- Environmental Impact
- Separation Technologies

Make the most of your learning and networking experience at TMS 2007 - attend a short course, workshop, tutorial or lecture!

See pages 10 and 13 for other continuing education offerings.

Register on page 22.

Short Course
Feb. 24 and 25
"Principles and Elements of Aluminum Cell Design and Magnetics"

Instructors:
Alton Tabereaux, *Alcoa*
Halvor Kvande, *Hydro Aluminium*
Vinko Potocnik, *Consultant*

Today's modern high amperage aluminum reduction cells require the latest technological advancements in cell design to provide long-term, economically competitive performance with negligible impact on the environment.

Who Should Attend
Technology beginners, professionals and other technical representatives in the aluminum smelting industry

Learn About
- Specifics of individual design and elements necessary in modern day high amperage aluminum reduction cell
- Magnetohydrodynamics (magnetics) and its impact in the design of aluminum reduction cells as well as the integration of other pertinent cell components
- Historical advancement, critical issues and the latest developments in high amperage reduction cell technology including components

Light Metals Division Luncheon
Feb. 28
"FreedomCAR Automotive Lightweighting Materials"

Speaker: Joseph A. Carpenter Jr., *U.S. Department of Energy*

Major federal research and development in automotive lightweighting is FreedomCAR Automotive Lightweighting Materials. Commercial applications of some of the technologies have already been made, and this is an excellent example of government-industry cooperation.

Workshop
Feb. 26, 27, 28
Furnace Systems Technology

Gain practical knowledge from this comprehensive review of combustion technology and equipment used in aluminum cast houses to improve your existing systems. Learn from industry leaders as they showcase techniques to:
- Increase productivity
- Minimize energy consumption
- Lower overall plant emissions

Presenting Companies
Air Liquide
Bloom Engineering
EMP Technologies/Pyrotek
Harbison Walker Refractories
Hauck Manufacturing
Maerz-Gautschi Industrieofenanlagen
Mechatherm International
Praxair
Seco Warwick
Thermcon Ovens B.V./Junkers
Thorpe Technologies

Topics
- Combustion Process
- Melters and Holders
- Process Furnaces
- Additional Furnace Considerations

To read more about this lecture and Dr. Carpenter, visit www.tms.org/annualmeeting.html.

Recycling and Waste Processing
…recycling of engineered materials today
Sessions:
- Aluminum
- Electronic Materials
- Materials Recovery From Wastes
- Metals Recycling Then and Now
- Precious Metals Recovery

8th Global Innovations Symposium: Trends in Materials and Manufacturing Technologies for Energy Production
…plenary discussion
- Energy and Security
- Nuclear Materials
- Fuel Cells
- Materials for Alternative Energy Applications

Advanced Metallic Composites and Alloys for High Performance Applications
…recent developments and advances in metallic materials for advanced applications
Sessions:
- Advanced Metallics
- Al Alloys and Composites
- Fe and Ni Alloys and Composites
- Metallic Composites
- Refractory Alloys and Composites
- Ti Alloys and Composites

Advanced Metallizations and Interconnect Technologies, in Honor of Professor K.N. Tu's 70th Birthday
…challenges and novel solutions for metallization and interconnect technologies
Sessions:
- Advanced Metallizations
- Interconnect Technology

Advances in Computational Materials Science and Engineering Methods
…materials engineering across size scales and disciplines
Sessions:
- Dedicated Computational Methods
- Finite Element Method
- Methods at the Atom Scale
- Phase Field Methods

Advances in Microstructure-Based Modeling and Characterization of Deformation Microstructures
…development and application of microstructural deformation models
Sessions:
- Characterization of Deformed Structures
- Modeling of Deformed Structures

Aluminum Alloys for Transportation, Packaging, Aerospace and Other Applications
…advancements in aluminum for today's marketplace
Sessions:
- Alloy Characterization
- Alloy Development
- Aluminum Products and Their Applications

Characterization of Minerals, Metals and Materials
…techniques for characterizing materials across a broad spectrum of systems and processes
Sessions:
- Characterization of Mechanical and Physical Properties of Materials
- Characterization of Processing of Materials
- Characterization of Structure Across Length Scales

Computational Thermodynamics and Phase Transformations
…fundamental modeling methods and their application for materials structures
Sessions:
- First Principles and Atomistic Calculations of Phase and Alloy Thermodynamics
- Microstructure Properties and Evolution
- Modeling of Phase Transformations
- Nanomaterials and Confined Systems

Degradation of Light Weight Alloys
…environmental effects on performance of light weight alloys
Sessions:
- Environmental Effects on Aluminum
- Environmental Effects on Magnesium
- Evaluation, Modeling and Design

Diffusion in Advanced Materials and Processing
…diffusion measurement and modeling for modern materials
Sessions:
- Atomistic and Multiscale Simulations
- Energy Technology
- Interfaces, Surfaces and Nanostructures
- Intermetallics and Glasses

Celebrate Professor Tu's accomplishments at his honorary luncheon. See the registration form on page 22.

Dynamic Behavior of Materials
…deformation and fracture of materials under dynamic conditions
Sessions:
- Deformation Processes
- Fracture Mechanisms
- Mechanical Properties

Friction Stir Welding and Processing IV
…advancements in processes and properties of friction stir welds
Sessions:
- Friction Stir Welding of Traditional and Advanced Metals
- Characterization
- Process Development and Modeling
- Microstructures and Properties

Frontiers in Solidification Science
…fundamentals of solidification processing
Sessions:
- Solidification on the Atomic Scale
- Nucleation and Crystal Growth
- Microstructural Development

Fundamentals of Shape Memory and Related Transitions
…science and application of shape memory materials
Sessions:
- Mechanisms
- Mechanical Behavior
- Modeling and Applications

Hume-Rothery Symposium: Scattering Studies and Fundamental Properties of Materials
…current progress in characterization and understanding of material structures
Sessions:
- Neutron and X-ray Scattering
- Nanostructures
- Structure Development in Materials
- Characterization Techniques

Innovations in Electrometallurgy
…advances in electrometallurgical processes
Sessions:
- Electrowinning
- Halide Electrolytes
- Performance

Innovations in Measurement Science to Assess Performance of New Materials in the Real World
…advances in characterization of material performance
Sessions:
- Measurement Techniques
- Advance Materials
- High Strain Rate Deformation

Innovations in Titanium Technology
…advances in alloy development and titanium processing
Sessions:
- Alloy Development
- Low Cost Processing
- Novel Processes

Integrated Computational Materials Engineering: Lessons From Many Fields
…transfer of established methodologies to materials science
Sessions:
- ICME in Other Fields
- ICME in Materials Science

Intellectual Property in Materials Science: Patents, Tech Transfer and Licensing
…IP case studies for materials science and emerging materials
Sessions:
- Technology Transfer
- Commercialization
- Patent

Internet and Other Electronic Resources for Materials Education
…materials education resources
- Development of Digital Resource Libraries
- Transport Phenomena Resources
- Internet-Based Resources for the Classroom

Materials Processing Fundamentals
…processing fundamentals for materials production
Sessions:
- Smelting and Refining
- Process Modeling
- Powders and Composites

Materials Processing Under the Influence of External Fields
…processing of materials with external fields
Sessions:
- Electromagnetic Processing
- Magnetic Processing
- Microwave and Ultrasonic Processing

Mechanics and Materials Modeling and Materials Design Methodologies, in Honor of Dr. Craig Hartley's 40 Years of Contributions to Mechanics and Materials Science
…advancements and challenges for materials design
Sessions:
- Constitutive Behavior
- Materials Design
- Nanostructures

Metrologies for Advanced Materials and Devices: Characterization, Measurement and Testing Science
…advanced measurement and characterization techniques
Sessions:
- Metrology of Microstructures
- Metrology of Nanostructures

Outreach Programs in Materials Science and Engineering
…expanding and promoting materials science in science and engineering curricula
- Materials Modules for Secondary Education
- University Programs
- Industry and Government Laboratory Initiatives

Phase Stability, Phase Transformations and Reactive Phase Formation in Electronic Materials VI
…thermodynamics and kinetics for phase stability electronic materials
Sessions:
- Phase Evolution and Stability
- Electro- and Thermo-migration
- Solder Interfacial Reactions

Plasticity From the Atomic Scale to Constitutive Laws
…simulation and prediction of plastic deformation
Sessions:
- Atomistic Simulations
- Dislocation – Microstructure Interactions
- Constitutive Modeling

Properties and Performance of High Temperature Alloys and Coatings
…alloys and coatings for high temperature applications
Sessions:
- Coatings and Oxidation
- Mechanical Response
- Single Crystal Developments
- Superalloy Development and Performance

Recent Developments in Semiconductor, Electro Optic and Radio Frequency Materials
…advances in semiconductor optoelectronic technologies
Sessions:
- Development and Design
- Performance of Advanced Materials and Devices

Refractory Metals 2007
…processing and performance
Sessions:
- Oxidation and Thin Films
- Processing and Mechanical Deformation

Shape Casting: 2nd International Symposium
…development of novel shape casting techniques
Sessions:
- Solidification
- Process Modeling
- Property Development
- Application of Novel Processes

Mechanical Behavior of Nanostructured Materials, in Honor of Carl Koch
…processing and behavior of nanomaterials
Sessions:
- Deformation and Strengthening at Small Length Scales
- Nanostructure Mechanical Behavior
- Microstructural Stability

Microstructural Processes in Irradiated Materials
...effects of radiation on materials and microstructure
Sessions:
- Reactor Pressure Vessel Steels
- Radiation Effects on Ceramics
- Deformation and Fracture
- Modeling and Performance

Materials Issues for Advanced Nuclear Systems
...materials issues for nuclear power and nuclear systems
Sessions:
- Materials Issues for Energy Generation
- Materials Issues in Waste Storage and Disposal
- Materials Characterization
- Performance of Materials in Nuclear Systems

Celebrate the accomplishments of Dr. Hartley and Dr. Koch at their honorary dinners. See the registration form on page 22.

Short Course Feb. 25
"New Approaches in Materials and Manufacturing Education"

Instructor:
Professor Mike Ashby, *University of Cambridge and Granta Design*

Who Should Attend
Professors, lecturers and researchers in areas including:
- General, mechanical and aerospace engineering
- Materials science and engineering
- Industrial and product design
- Polymer science and engineering
- Eco-engineering
- Architecture and civil engineering

Learn About
- Recent advances in materials and process selection with specific emphasis on their use in education
- Solutions for class teaching, student projects and research

Attendees will have hands-on use of the revolutionary CES EduPack software.

Register for this course on page 22.

Tutorial Feb. 25
Neutron Scattering 101 for Structural Materials Researchers

1 to 5 p.m.

Instructors:
Dr. Ian Anderson, *Oak Ridge National Lab.*
Dr. Mark Bourke, *Los Alamos National Lab.*
Dr. Ronald Rogge, *National Research Council*
Dr. Peter Liaw, *University of Tennessee*

Learn About
- Fundamentals of Neutron Scattering Studies
- Industrial Problems and Case Studies
- Neutron Scattering at ORNL
- Materials Science at LANSCE
- Combined Neutron and Mechanical Behavior Studies

Register for this tutorial on page 22.

Institute of Metals/Robert Franklin Mehl Lecture Feb. 26
"Inverse Nanostructuration in Complex Metallic Alloys"

Speaker: Jean-Marie Dubois, *Director, Institut Jean Lamour*

Dr. Dubois will focus on a few examples of atypical behavior of complex metallic alloys, including quasicrystals as the ultimate state of structural complexity in a crystal made of metals. All examples show the same trend, namely apparent localization of electronic states, loss of conductivity, opening of gaps, and softening with no work hardening.

Hume-Rothery Award Lecture Feb. 26
"How Big is an Atom?"

Speaker: Simon C. Moss, *Professor, University of Houston*

Professor Moss will discuss atom size in material and its determination, along with standard crystallography, through diffuse scattering at the national synchrotron and neutron scattering facilities, and at his in-house x-ray lab. The topics cover metallic alloys, semiconductor III-V films and multilayers, oxides, and glasses, where local size plays an often nonintuitive role.

Extraction & Processing Division Luncheon Feb. 27
"The Thinking to Knowledge Chain in Extractive Metallurgy"

Speaker: Tony Eltringham, *V.P., BHP Billiton*

Why don't "best practices" travel better across the silos in industries or companies? What has happened to the concept of Knowledge Management of the '90s? Mr. Eltringham addresses these questions and others.

Register for this luncheon on page 22.

Extraction & Processing Division Distinguished Lecture Feb. 27
"Solution Processing of Advanced Materials – What Can Hydrometallurgy Offer?"

Speaker: Fiona M. Doyle, *Professor, University of California, Berkeley*

Challenges limiting solution processing to produce advanced materials have many parallels with those overcome in hydrometallurgy. Hydrometallurgists can play a key role in bringing competitively priced advanced materials to market.

To read more about any of these lectures or speakers, visit www.tms.org/annualmeeting.html

2007 Nanomaterials: Materials and Processing for Functional Applications

…development and application of functional nanomaterials

Sessions:

- Functional Applications
- Nanostructure Characterization and Manufacture
- Carbon Nanostructures
- Magnetic and Electronic Properties of Nanostructured Materials

8th Global Innovations Symposium: Trends in Materials and Manufacturing Technologies for Energy Production

…plenary discussion

- Energy and Security
- Nuclear Materials
- Fuel Cells
- Materials for Alternative Energy Applications

Advanced Metallic Composites and Alloys for High Performance Applications

…recent developments and advances in metallic materials for advanced applications

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…materials engineering across size scales and disciplines

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- Phase Field Methods

Biological Materials Science

…development of biological materials and biomaterial devices

Sessions:

- Alloy Characterization
- Alloy Development
- Aluminum Products and Their Applications

Bulk Metallic Glasses IV

…processing and behavior of emerging materials systems

Sessions:

- Alloy Development and Glass Forming
- Processing and Mechanical Properties
- Super-Cooled Liquids and Crystallization

Innovations in Measurement Science to Assess Performance of New Materials in the Real World

…advances in characterization of material performance

Sessions:

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Integrated Computational Materials Engineering: Lessons From Many Fields

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Intellectual Property in Materials Science: Patents, Tech Transfer and Licensing

…IP case studies for materials science and emerging materials

Sessions:

- Technology Transfer
- Commercialization
- Patent

Internet and Other Electronic Resources for Materials Education

…materials education resources

- Development of Digital Resource Libraries
- Transport Phenomena Resources
- Internet-Based Resources for the Classroom

Materials in Clean Power Systems 2: Fuel Cells, Solar and Hydrogen-Based Technologies

…production and use of hydrogen and other clean power systems

Sessions:

- Hydrogen Storage
- Solar Systems
- IGCC Power Generation and Gas Separation
- Solid Oxide Fuel Cells

Metal Powders for Energy Production and Storage Applications
…powder metals for energy applications
Sessions:
- Synthesis and Processing
- Hydrogen Generation and Storage

Metrologies for Advanced Materials and Devices: Characterization, Measurement and Testing Science
…advanced measurement and characterization techniques
Sessions:
- Metrology of Microstructures
- Metrology of Nanostructures

Outreach Programs in Materials Science and Engineering
…expanding and promoting materials science in science and engineering curricula
Sessions:
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- University Programs
- Industry and Government Laboratory Initiatives

Phase Stability, Phase Transformations and Reactive Phase Formation in Electronic Materials VI
...thermodynamics and kinetics for phase stability electronic materials
Sessions:
- Phase Evolution and Stability
- Electro- and Thermo-migration
- Solder Interfacial Reactions

Pb-Free Electronic Solders: Alloy Design, Characterization and Service Reliability
…advanced measurement and characterization techniques
Sessions:
- Interfaces
- Microstructures and Characterization
- Processing and Reliability Issues
- Whisker Growth, Design and Modeling

Recent Developments in Semiconductor, Electro Optic and Radio Frequency Materials
…advances in semiconductor optoelectronic technologies
Sessions:
- Development and Design
- Performance of Advanced Materials and Devices

Mechanical Behavior of Nanostructured Materials, in Honor of Carl Koch
…processing and behavior of nanomaterials
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- Deformation and Strengthening at Small Length Scales
- Nanostructure Mechanical Behavior
- Microstructural Stability

Towards Functional Nanomaterials: Synthesis, Characterization and Applications
…development and application of functional nanomaterials
Sessions:
- Directed Nanofabrication
- Nanomagnetism, Ferroelectric and Mechanics
- Nanowires and Nanotubes
- Quantum Dots

Wide Band-Gap Semiconductor Nanostructures
…development and application of nanostructured semiconductors
Sessions:
- Opportunities and Challenges
- Processing
- Characterization
- Performance

Microstructural Processes in Irradiated Materials
...effects of radiation on materials and microstructure
Sessions:
- Reactor Pressure Vessel Steels
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Materials Issues for Advanced Nuclear Systems
...materials issues for nuclear power and nuclear systems
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- Materials Issues in Waste Storage and Disposal
- Materials Characterization
- Performance of Materials in Nuclear Systems

Workshop Feb. 25
8 a.m. to 6 p.m.
State-of-the-Art Lead-Free Solder Technology

With demand in electronics trending towards faster, smaller and cheaper products built with ROHS compliant lead-free solders, this workshop will include up-to-date technology reviews and identify gaps for future needs for emerging Pb-free technology.

Session 1: Pb-Free BGA Interconnect Scaling Effects

Learn About:
- Second level Pb-free interconnects and prediction of benefits, limitations, technology gaps, and reliability risks as packages are getting smaller
- Newly designed Pb-free solders that could potentially meet emerging technology needs

Session 2: Scaling of Flip Chip Interconnects

High performance of electronics demands low "K" dielectrics used in the die to reduce cross talk. Integration of low "K" into the package is still a challenge. Smaller joints and higher current density also set flip chip joints under very complicated stress condition.

Learn About:
Mechanical stress, electrical current and chemical interactions, and their effects on reliability prediction

Breakfast Lecture
Feb. 26 • 7 a.m.
Women in Science

Speaker will be announced online at www.tms.org/annualmeeting.html.

Tutorial, Feb. 25
Biology for Materials Scientists and Engineers

Organizers:
R.O. Ritchie, *University of California, Berkeley*
M.A. Meyers, *University of California, San Diego*
Andrea Hodge, *Lawrence Livermore National Laboratory*

This tutorial precedes the three-day symposium on biological materials science and is meant to bridge the gap between biology and materials. These two disciplines have evolved separately with minimal intercommunication over the past 50 years. This tutorial will assist materials scientists and engineers to absorb the most significant concepts from biology and incorporate them into their own research.

Topics
- Basic Building Blocks/Molecular Units
- Structures
- Biomineralization
- Hierarchy and Synergy in Biological Systems
- Mechanical Properties
- Fracture and Fatigue of Biological Materials
- Genetic Engineering
- Experimental Techniques
- Experimental Techniques in Single Cells and Molecular Biomechanics
- Lessons from Biology

Young Leaders Tutorial
Luncheon Lecture
Feb. 26 • Noon to 1:30 p.m.
"Materials Research in Multidisciplinary, Application-Driven Technology"

Speaker: Ryan K. Roeder, *Assistant Professor, Aerospace and Mechanical Engineering, University of Notre Dame*

Topics
- Critical and Independent Thinking
- Communication
- Collaboration and Teamwork
- Vision Transcending Narrow Disciplines

For other short courses, workshops, tutorials and lectures, see pages 6 and 10.

Register on page 22.

Brajendra Mishra
2006 President

Robert D. Shull
2007 President

Robert (Bob) Shull is the group leader of the Magnetic Materials Group at the National Institute of Standards & Technology where he has devoted more than 25 years of his career. Among his accomplishments, Dr. Shull was a founding member of the subcommittee that drafted the original National Nanotechnology Initiative in 2001; he discovered the magnetocaloric effect in nanocomposites and was the first to explain the novel attractable levitation found in some high-TC materials; he was part of the collaboration that prepared the first thin films of a high-TC superconductor by the laser ablation process and initially set up the rapid solidification facility that led to the discovery of quasi-crystals in 1980. Early in his career, Dr. Shull discovered the reversed Curie temperature phenomenon in Fe70A130, which was instrumental in his recent discovery of spin density waves in the same alloy system (a phenomenon predicted to exist 40 years ago but never found). Dr. Shull received his doctorate from the University of Illinois at Urbana-Champaign, has written more than 140 publications, won several awards and been a TMS member for 30 years. During that time, he served as a committee member and chair, and division chair. In his spare time, Dr. Shull leads a six-month pre-high school science program.

136th TMS & AIME Dinner and Awards Presentation

With Installation of 2007 TMS President

Feb. 27

Join us as we salute the 2007 award recipients and welcome the new TMS president!

Award Recipients

TMS Fellow Class of 2007
- William Boettinger, *National Institute of Standards & Technology*
- Roger D. Doherty, *Drexel University*
- Armen G. Khachaturyan, *Rutgers University*
- Stephen J. Pearton, *University of Florida*
- Erland M. Schulson, *Dartmouth College*

Application to Practice Award
Frederick S. Pettit,
University of Pittsburgh

John Bardeen Award
Sungho Jin,
University of California

Bruce Chalmers Award
David R. Poirier,
University of Arizona

Distinguished Service Award
Dan J. Thoma,
Los Alamos National Laboratory

Early Career Faculty Fellow
Ryan K. Roder,
University of Notre Dame

Educator Award
Lawrence E. Murr,
University of Texas

Robert Lansing Hardy Award
David F. Bahr,
Washington State University

William Hume-Rothery Award
Simon C. Moss,
University of Houston

Institute of Metals/Robert Franklin Mehl Award
Jean-Marie Dubois,
Ecole Nationale Superieure des Mines

Champion H. Mathewson Award
Brian D. Kernan,
The Ex One Company

TMS Foundation Shri Ram Arora Award
C. Sudha,
Indira Gandhi Centre for Atomic Research

Electronic, Magnetic & Photonic Materials Division

Distinguished Service Award
Darrel Frear,
Freescale Semiconductor

Distinguished Materials Scientist/ Engineer Award
King-Ning Tu,
University of California

Extraction & Processing Division

Distinguished Lecturer
Fiona M. Doyle,
University of California

Distinguished Service Award
Philip J. Mackey,
Falconbridge Technology

Science Award
Hong Yong Sohn,
University of Utah

Technology Award
- José R. Parga,
  Institute Technology of Saltillo
- David L. Cocke,
  Lamar University
- Jesus L. Valenzuela,
  University of Sonora
- Mehmet Kesmez,
  Lamar University
- Jewel A.G. Gomes,
  Lamar University
- Hector A. Moreno,
  Lamar University
- Ventura Valverde,
  Institute Technology of Saltillo

Light Metals Division

Distinguished Service Award
Alton Tabereaux,
Alcoa Inc.

Technology Award
Bob R. Powell,
General Motors Corporation

Light Metals Award
- Detlef Maiwald,
  Innovatherm GmbH
- Wolfgang Leisenberg,
  Innovatherm GmbH

Materials Processing & Manufacturing Division

Distinguished Service Award
Richard N. Wright,
Idaho National Laboratory

Distinguished Scientist/Engineer Award
S. Lee Semiatin,
U.S. Air Force Research Laboratory

Structural Materials Division

Distinguished Service Award
Ramgopal Darolia,
General Electric Company

Distinguished Scientist/ Engineer Award
Peter K. Liaw,
University of Tennessee

Other Awards

AIME Honorary Member
Alan Lawley,
Drexel University

AIME Distinguished Service Award
Robert H. Wagoner,
The Ohio State University

AIME James Douglas Gold Medal Award
John P. Hager,
Colorado School of Mines

ACTA Materialia Inc. J. Herbert Holloman Award
Diran Apelian,
Worcester Polytechnic Institute

J. Keith Brimacombe Prize
Diran Apelian,
Worcester Polytechnic Institute

Order your tickets on the registration form on page 22.

Visit the exhibition in Atlantic Halls A, B, and C in the Dolphin Hotel during these hours:

Feb. 26
noon to 6 p.m.

Feb. 27
9:30 a.m. to 5:30 p.m.

Feb. 28
9:30 a.m. to 3 p.m.

Plus, join us for these special events in the exhibit hall:

Furnace Technology Workshop
Feb. 26, 27, 28
(See page 6 for details.)

Hosted Grand Opening Reception
Feb. 26
5 to 6 p.m.

Snack
Feb. 28
12:15 to 2 p.m.

Looking for practical solutions to production, processing and research challenges?

You'll find them at the TMS 2007 Exhibition!

More than 150 companies will be on-site with products and services available to assist you. Some of the industries represented include:

Light Metals Production and Processing

As the pre-eminent North American annual light metals exhibition, this show brings you -

- **Cast shop technology**: combustion and furnace technology; grain refiners/ hardeners; molten metal filtration and pumps; and refractory and insulation products.
- **Industrial process control and automation, sensors**
- **Primary production equipment and services**: carbon technology and supplies; combustion and furnace technology; HF measurement systems; and industrial gases.

Materials Research and Development

In the growing research and development (R&D) part of the show, attendees will find -

- **Characterization equipment**: analysis; instrumentation; measurement; microscopy; and x-ray fluorescence.
- **Emerging materials**: biomaterials; fuel cells; and nanomaterials.
- **Materials for R&D**: alloys; rare earths; precious metals; minerals; and chemicals.
- **Surface processes**: coatings; thin films; and surface modification.

Products and Services for the Materials Science and Engineering Profession

Intent on providing materials scientists and engineers with the tools needed to advance their work, the TMS exhibition also provides connections to -

- **Professional services**: consulting; contracting; engineering; and R&D.
- **Publishers**: journals and reference publications.
- **Software Vendors**: design; modeling; process simulation; thermodynamics; and phase diagrams.
- **Technology resources**: collaborative programs and centers; national laboratories; and nongovernmental organizations.

To become an exhibitor or sponsor an event, contact:
TMS Exhibit Sales
(724) 776-9000, ext. 231 / (800) 759-4TMS
E-mail: exhibits@tms.org

Exhibiting Companies as of Oct. 25, 2006

	Booth #
ABB Inc.	506
Advanced Dynamics Corporation	622
Alcan Group	331
Aleastur	535
Almeq Norway AS	401
ALTECH SMV Ltd.	230
Aluminium International Today	445
Aluminium Times	627
Aluminum Corporation of China	217
AUMUND Fordertechnik GmbH	234
B&P Process Equipment Systems LLC	410
Benchmark Automation	103
Blasch Precision Ceramics	138
Bloom Engineering Co. Inc.	313
Boreal Laser	625
Brochot	439
Buehler Ltd.	123
Buss ChemTech AG	312
CANMET, Natural Resources Canada	540
C.A. Picard Intl.	608
Carl Zeiss MicroImaging	139
Ceradyne Inc.	440
Chongqing Runji Alloy Co. Ltd.	127
Claudius Peters Projects GmbH	314
CMI Novacast, Inc.	340
CompuTherm LLC	447
CSA	629
Cytec Industries Inc.	104
Dantherm Filtration Inc.	324
DMC Clad Metal Division	338
ECL	412
EDAX Inc.	516
Eirich Machines Inc.	223
Elkem AS Materials, Ceramite Products	108
Erico Inc.	600
FEI Company	624
FFE Minerals	225
GE Advanced Materials, Quartz	206
GE Energy	208
GE Water & Process Technologies	202
Gillespie & Powers, Inc.	618
GLAMA Maschinenbau GmbH	222
Gouda Vuurvast N.V.	218
Graphite Engineering & Sales	526
Graphite Mining Inc.	444
Hamilton Research & Technology Pvt. Ltd.	135
Hauck Manufacturing Co.	518
Heggset Engineering	112
Hencon BV	522
Hereaus Electro-Nite Co.	517
Hertwich Engineering	209
HMR Group AS	431
HRV Engineering Group	231
Hysitron	419
Industrial Heating Magazine	240
Industries 3R Inc.	416
innovatherm 3R+Co. KG	312
Jayne Industries	101
Jervis B. Webb Co.	425
JOM	124
Kabert Industries Inc.	512
KB Alloys Inc.	319
KBM Affilips B.V.	119
Kempe International	523
Kuttner LLC	317
LAEIS GmbH	312
Light Metal Age	614
L.P. Royer Inc.	438
LTB Lufttechnik Bayreuth GmbH & Co. KG	630
Maerz-Gautschi Industrieofenanlagen GmbH	633
Master Alloys Co.	427
McAllister Mills, Inc.	339
MECFOR Inc.	431
Mechatherm International Ltd.	107
Metallurg Aluminium	408
MEXTRA Eng. Extrativa de Metals	514
Mid-Mountain Materials Inc.	239
MINTEQ International Inc.	116
Murlin Chemical Inc.	207
Nalco Company	306
National Electrical Carbon	131
National Energy Technology Laboratory	133
National Filter Media	538
NKM Noell Special Cranes GmbH	330
North American Manufacturing Co. Ltd.	213
Novelis	501
Olympus Micro Imaging Division	634
Opsis AB	226
Outokumpu Technology Ltd.	323
Parker Hannifin	539
Pipeline Systems Inc.	637
Pyrotek Inc.	301
Rex Materials Inc.	505
Riedhammer GmbH	531
SELEE Corporation	500
SenTech Precimeter Inc.	513
Setaram Engineering	235
SMV AS	232
Solios Group	201
STAS	507
Stellar Materials Inc.	413
SUAL Group	113
SYRALCO	215
Taylor & Francis Group/CRC Press	621
Techmo Car s.p.a.	318
Thermal Ceramics	407
Thermcon Ovens B.V.	612
Thermo-Calc Software	125
Thermo Electron Corporation	105
Thermo Electron Niton Analyzers	238
Thorpe Technologies Inc.	309
Tri-State Refractories	233
Wagstaff Inc.	200
Xothermic Inc.	616
ZIRCAR Ceramics Inc.	601

Activities • Feb. 25

2 to 3 p.m.
Student Attendee Orientation

Get questions answered about activities and meet other students with similar interests.

3:30 to 5 p.m.
Career Forum

Representatives from key materials industries will provide personal insights on career preparation strategies, offer tips on how to develop and foster rewarding careers, and answer questions asked from the audience.

5 to 6 p.m.
Career Tips Session

Find out what human resource representatives are looking for when reviewing resumes and interviewing candidates.

8:30 to 9 p.m.
Materials Bowl Championship

9 to 11 p.m.
TMS Networking Mixer

This networking mixer provides a relaxed, casual and fun atmosphere for students, faculty members, and government and industry representatives to make connections and share experiences of professional growth. Refreshments (beer*, soft drinks, snacks) and music will be provided.

Sponsored by TMS Member & Student Development Committee

*In accordance with Florida law, alcoholic beverages will be served only to attendees 21 years of age or older; proper photo I.D. with birth date must be presented upon entry.

Gain technical information, pursue career possibilities, and network with students and professionals in the field at TMS 2007 Annual Meeting & Exhibition.

Are You a Student Member?
Student members may attend the technical sessions, lectures and the exhibition at no charge. Registration cost for students who are not members is $25, which includes a free year of membership in 2007 in the Material Advantage Student Program.

Student Contests

New!

TMS 2007 Anniversary Materials Bowl • Feb. 25

In celebration of TMS' 50th anniversary in 2007 as a member society of AIME, $3,500 in prize money will be awarded in the Materials Bowl, a "Jeopardy"-style knowledge and trivia competition. Each Material Advantage chapter is invited to select a team of chapter members to represent its school. Teams will compete in elimination rounds beginning at 1:30 p.m., a semi-final match, and championship game to culminate at the TMS Networking Mixer. Each chapter may enter one team of four students. For complete details, official rules, and to register your chapter, go to: www.tms.org/Students/AwardsPrograms/OtherContests.html. Team registration deadline is December 15, 2006.

TMS Technical Division Student Poster Contest
Feb. 26, 5 to 6:30 p.m.

Both undergraduate and graduate students are encouraged to participate in this dynamic and interactive event. Each of the technical divisions will award $500 to the best undergraduate poster and $500 to the best graduate poster. A top prize of $2,500 will be awarded by TMS for the "Best of Show" poster.

In addition, two student authors will be chosen from among the award winners to receive the TMS Ambassador Award and represent TMS at PRICM-6, the Sixth Pacific Rim International Conference on Advanced Materials and Processing, Nov. 6-9, 2007, in Jeju Island, Korea!

New Feature!

In celebration of 50 years as a member society of AIME in 2007, TMS will present a special award of $2,500 for the TMS 50th Anniversary Student Essay Contest. All undergraduate and graduate poster participants are invited to submit essays with their poster abstracts.

Details concerning the poster contest, essay, and how to apply can be found at www.tms.org/Students/AwardsPrograms/OtherContests.html. Deadline to apply is December 15.

Chapter Requests

Donate a Door Prize

Student chapter members are asked to donate school logo items to the cache of items TMS will be donating. The more prizes donated, the better your chances to win! Let TMS know what you plan to donate by e-mailing Chris McKelvey at cmckelvey@tms.org.

Student Chapter Activity Photos

Each chapter is invited to submit up to seven electronic photographs of its activities and a jpeg image of the school logo to be included in a video presentation during the Networking Mixer. E-mail photos and logo by Jan. 15, 2007, to cmckelvey@tms.org and type "Chapter Photos" in the subject line.

Material Advantage Chapter Travel Reimbursement

Each Material Advantage chapter is eligible to receive $500 per calendar year in travel reimbursement for members to attend the TMS annual meeting. The travel reimbursement form, located at www.tms.org/Students/StuChptrTravel RmbrsmntForm.pdf, must be submitted with original receipts by March 16, 2007.

Deadline for TMS 2007 Anniversary Materials Bowl: Dec. 15, 2006

Deadline for TMS Technical Division Student Poster Contest: Dec. 15, 2006

Books for all your technical needs will also be available for purchase in the TMS Publications Sales area in the first floor lobby of the Dolphin Hotel.

Collected Proceedings CD-ROMs

To provide added value for attendees, those registering in the following categories receive a *free* CD-ROM of their choosing:

- Member
- Nonmember Author
- Nonmember
- TMS Senior Member
- Exhibitor Full Conference

Please be certain to select your CD-ROM on the registration form on page 22.

Three different CD-ROMs containing multiple symposia based on the topical area are available:

- Light Metals
- Extraction, Processing, Structure and Properties
- Emerging Materials

The CD-ROMs will include:

- Multiple symposia proceedings in the topical area
- Keynote presentations
- Links to additional resource information
- Featured presentations
- Table of contents

Each symposium will be presented as an individual publication on the CD-ROM, with its own table of contents, standard publication reference numbers and copyright information.

All three CD-ROMs will also be available for purchase but **only** in advance on the registration form or on-site during the annual meeting. The cost per CD-ROM is $150; student price is $75.

Printed Proceedings

For those interested in purchasing printed copies of individual symposia, arrangements can be made before, during and after the annual meeting. To order in advance or after the meeting, contact TMS Customer Service:

(724) 776-9000, ext. 256 / (800) 759-4TMS
cmiller@tms.org

Arrangements may also be made at the meeting by visiting the TMS Publications Sales area.

Advance Registration Deadline: Jan. 29, 2007

Save $100 by registering in advance. Two ways to register:

1. Online at www.tms.org/annualmeeting.html
2. Complete the form on the next page.

Your Value-Packed Registration Includes:

- Technical Sessions
- Plenary Breakfast Series
- Lead-Free Technology Workshop
- Institute of Metals/Robert Franklin Mehl Lecture
- Extraction & Processing Division Distinguished Lecture
- Hume-Rothery Award Lecture
- Student Poster Contest
- Exhibition
- Hosted Grand Opening Reception
- Snack Break
- Collected Proceedings CD-ROM

Location

All conference events, including registration, technical sessions and the exhibition, will take place at the Dolphin Hotel; all committee meetings will be held at the adjacent Swan Hotel.

Advance registrants should pick up registration packets in Atlantic Hall C during registration hours.

At-Meeting Registration Hours • Atlantic Hall C

Feb. 25	11 a.m. to 6 p.m.
Feb. 26	7 a.m. to 6 p.m.
Feb. 27	7 a.m. to 5:30 p.m.
Feb. 28	7 a.m. to 5 p.m.
March 1	7 to 10 a.m.

Questions About Advance Registration? Contact TMS Meeting Services:
(724) 776-9000, ext. 243 / (800) 759-4TMS
mtgserv@tms.org

Policies

Registration Policy

All attendees and meeting participants (authors, exhibitors, etc.) must register for the meeting. Badges must be worn for admission to technical sessions, the exhibition and social functions.

Americans With Disabilities Act

TMS strongly supports the federal Americans with Disabilities Act (ADA) which prohibits discrimination against, and promotes public accessibility for, those with disabilities. In support of, and in compliance with, ADA, we ask those requiring specific equipment or services to contact TMS Meeting Services in advance.

Audio/Video Recording Policy

TMS reserves the right to all audio and video reproductions of presentations at TMS sponsored meetings. Recording of sessions (audio, video, still photography, etc.) intended for personal use, distribution, publication, or copyright without the express written consent of TMS and the individual authors is strictly prohibited. Contact TMS Technical Programming at (724) 776-9000, ext. 212, to obtain a copy of the waiver release form.

Photography Notice

By registering for the meeting, all attendees acknowledge that they may be photographed by TMS personnel while at events, and that those photos may be used for promotional purposes.

TMS2007

February 25 - March 1, 2007 • Orlando, FL

AM07-ADV

ADVANCE REGISTRATION FORM

Advance Registration Deadline: January 29, 2007

Payment must accompany form.
Forms received past this date will be processed at the on-site fee.

WEB **www.tms.org/AnnualMeeting.html**
Web registration requires credit card payment.

FAX **USA: (724) 776-3770**
Fax registration requires credit card payment.

MAIL **Return with payment to:** TMS Meeting Services, 184 Thorn Hill Road, Warrendale, PA 15086

1. Member of: ☐ TMS ☐ AIST ☐ SME ☐ SPE Member Number:_____

☐ Dr. ☐ Prof.
☐ Mr. ☐ Mrs. ☐ Ms. _____
Last Name First Name Middle Initial

Informal First Name to Appear on Badge:_____ Date of Birth:_____
mm / dd / yyyy

Employer/Affiliation:_____ Title:_____

Address: ☐ Business ☐ Home _____

City:_____ State/Province:_____ Zip/Postal Code:_____ Country:_____

Telephone:_____ Fax:_____ E-mail:_____

2. Registration Fees:

	Advance Fees Through 1/29/07		On-Site Fees After 1/29/07	
☐ Member	$555	M	$655	ML
☐ Nonmember Author *	$645	NMA	$745	NMAL
☐ Nonmember *	$705	NM	$805	NML
☐ Student Member ##	$0	STU	$25	STUL
☐ Student Nonmember ## *	$25	STUN	$50	STUNL
☐ TMS Senior Member	$395	RM	$495	RML
☐ Exhibitor Full Conference	$555	E	$555	EL
☐ Exhibit Only	$50	EO	$50	EOL

Registration TOTAL $ _____

If you register at the member, nonmember author, nonmember, TMS senior member or exhibitor full conference level, select your FREE CD-ROM in section 3-Publications.

** Includes TMS membership for 2007*
Students must attach a copy of school student identification card.

3. Publications/Collected Proceedings:

If you register at the member, nonmember author, nonmember, TMS senior member or exhibitor full conference level, select your FREE CD-ROM below; you may also purchase additional CD-ROMs below. ***Note:*** *CD-ROMs will not be available after the meeting. They must be picked up at the meeting; none will be shipped.*

As part of my registration, I choose the CD marked below:

☐ Light Metals 07-6530-CD-C
☐ Extraction, Processing, Structure and Properties 07-6547-CD-C
☐ Emerging Materials 07-6554-CD-C

I also wish to purchase:	Attendee	Student	Quantity
☐ Light Metals 07-6530-CD-P	$150	$75	_____
☐ Extraction, Processing, Structure and Properties 07-6547-CD-P	$150	$75	_____
☐ Emerging Materials 07-6554-CD-P	$150	$75	_____

Publications TOTAL $ _____

Visit the Publications Sales area at the meeting to purchase CD-ROMs or print volumes of selected symposia proceedings. After the meeting, individual symposia proceedings volumes may be purchased online at the TMS Document Center, http://doc.tms.org.

4. Continuing Education:

	Advance Fees Through 1/29/07 Member	Nonmember
Short Courses		
☐ Principles and Elements of Aluminum Cell Design (Sat./Sun.)*	$645	$735
☐ New Approaches in Materials and Manufacturing Education (Sun.)*	$325	$345
Workshops		
☐ Lead-Free Technology (Sun.)	$0**	$50**
☐ Furnace Systems Technology (Mon./Tues./Wed.)	$200	$250
Tutorials		
☐ Biology for Materials Scientists and Engineers (Sun.)*	$175	$225
☐ Neutron Scattering 101 (Sun. afternoon)	$100	$125

Continuing Education TOTAL $ _____

* Includes meals
** Free to full meeting registrants only; $50 for nonregistrants

5. Social Function Tickets:

		Fee	Quantity	Total	
Mon. 2/26/07	Carl Koch Honorary Dinner	$65	_____	$_____	KD
	Richard Fields Dinner	$65	_____	$_____	FD
	"Women in Science" Breakfast	$0	_____	$_____	SB
Tues. 2/27/07	King-Ning Tu Honorary Luncheon	$45	_____	$_____	TL
	TMS-AIME Banquet	$70	_____	$_____	AD
	Tables of 8	$560	_____	$_____	AD8
	Table Sign to Read _____				
	Extraction & Processing Division Luncheon	$45	_____	$_____	EP
	Tables of 8	$360	_____	$_____	EP8
	Table Sign to Read _____				
Wed. 2/28/07	Light Metals Division Luncheon	$45	_____	$_____	LM
	Tables of 8	$360	_____	$_____	LM8
	Table Sign to Read _____				
	Craig Hartley Honorary Dinner	$65	_____	$_____	HD

Social Function TOTAL $ _____

For any special dietary needs, please contact Meeting Services at (724) 776-9000, ext. 243.

6. Tutorial Luncheon Tickets:

Monday 2/26/07	Fee	Quantity	Total
The Young Leaders Tutorial Lecture is free.			
You may purchase the optional box lunch for	$35	_____	$_____ EM

7. 2007 Membership Renewal: *For current TMS members only*

☐ Professional Member $105 FM
☐ Recent Graduate (2005 or 2004) $52.50 JM
☐ (ACerS/AIST/ASM/TMS) Material Advantage Student Member $25 ST

8. Payment Enclosed:

☐ Check, Bank Draft, Money Order

Make checks payable to TMS. Payment must be made in U.S. dollars drawn on a U.S. bank.

☐ Credit Card Expiration Date _____
Card No. _____
☐ Visa ☐ MasterCard ☐ Diners Club ☐ American Express
Cardholder Name _____
Signature _____

9. TOTAL FEES PAID $_____

Refund Policy: Written requests must be mailed to TMS, post-marked no later than January 29, 2007. A $75 processing fee is charged for all cancellations. **No refunds will be processed after January 29, 2007.**

Hotel Reservation Deadline: Jan. 15, 2007

Receive a special reduced rate by reserving your hotel before the deadline. Two ways to reserve your hotel:

- Visit www.tms.org/annualmeeting.html and follow the link to Travel Planners Inc.
- Use the form on the next page.

Reservations are processed on a first-come, first-served basis.

About the Swan and Dolphin Resort

The Swan and Dolphin hotels are ideally located in the heart of the Walt Disney World Resort, between Epcot and MGM Studios, with the Magic Kingdom and Disney's Animal Kingdom theme parks nearby. You are within walking distance of both Epcot and MGM Studios, or you may embark on one of the water taxis. Catch complimentary shuttle bus transportation to many other Walt Disney World resort locations just minutes away.

Guest Hospitality

A special guest hospitality area will be hosted each day from 7 to 9:30 a.m. in the Swan Hotel. TMS will sponsor a continental breakfast for the convenience of guests of meeting attendees.

Shuttle Service

Shuttle service will be provided from the Disney Animal Kingdom Lodge and Disney All-Star Sports Resort to the Swan and Dolphin Resort.

Disney's Magical Express Service

If you are staying at either the Disney Animal Kingdom Lodge or the Disney All-Star Sports Resort, you can take advantage of Disney's Magical Express. This exclusive complimentary shuttle and luggage delivery service conveniently takes you from the airport directly to your Walt Disney World® Resort hotel. For more information, visit http://disneymeetings.disney.go.com/dwm/services/detail?name=DMEAttendeesDetailPage

For Your Convenience

TMS has contracted a block of rooms at the Swan and Dolphin Resort, Disney Animal Kingdom Lodge, and Disney All-Star Sports Resort, to ensure attendees are able to obtain housing at reduced rates. Therefore, TMS has assumed a financial liability for any and all rooms in the block that are not reserved. TMS asks that you reserve your room at one of the hotels listed in order to limit financial liability for the overall success of the meeting. Thank you for your cooperation.

TMS2007

136th Annual Meeting & Exhibition
February 25 - March 1, 2007
Walt Disney World Swan and Dolphin Resort

HOUSING RESERVATION FORM

Mail or fax this housing form to:
Travel Planners, Inc., 381 Park Ave. South, New York, NY 10016
FAX: (212) 779-6128 • PHONE: (800) 221-3531
In local New York City area or international, call (212) 532-1660.
(CHOOSE ONLY ONE OPTION.)

Making a reservation is easier than ever through Travel Planners' real-time Internet reservation system! Just log on to **www.tms.org/AnnualMeeting.html**, and follow the link to Travel Planners. View actual availability, learn about hotel features and services, and obtain local city and sightseeing information. Most importantly, receive instant confirmation of your reservation!

Reservations must be received at Travel Planners by: Monday, January 15, 2007

Arrival Date _____ Departure Date _____

Last Name _____ First Name _____ MI _____

Company _____

Street _____ Address _____

City _____ State/County _____ Zip/Postal Code _____ Country _____

Daytime Phone _____ Fax _____

Additional Room Occupants _____

E-mail _____ (Confirmation will be sent via e-mail if address is provided.)

Non-Smoking Room Requested _____ Special Needs _____

Indicate 1st, 2nd, and 3rd hotel choice:

1. _____
2. _____
3. _____

Type of Accommodations: (check one)
☐ Single 1 person/1bed ☐ Double 2 people/1bed ☐ Twin 2 people/2 beds
☐ Triple 3 people/2 beds ☐ Quad 4 people/2 beds

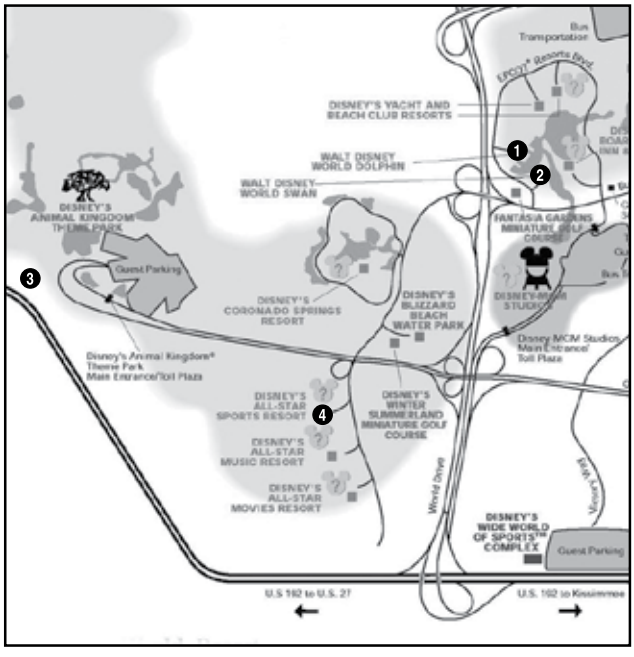
If all three requested hotels are unavailable, please process this reservation according to: (check one) ☐ ROOM RATE ☐ LOCATION

❶ **HEADQUARTERS**
Walt Disney World Dolphin Hotel
$218 single/double

❷ **Walt Disney World Swan Hotel**
$218 single/double

❸ **Disney Animal Kingdom Lodge**
$169 single/double

❹ **Disney All-Star Sports Resort**
$116 single/double



In order to ensure that rooms are available for attendees, TMS has contracted a block of rooms at the headquarters hotel, Walt Disney World Swan and Dolphin Resort, along with each of the hotels listed. TMS assumes financial liability for any and all rooms that are not reserved in the blocks. Therefore, attendees are strongly encouraged to reserve rooms at the hotels listed. This will help to limit undue expenses and secure the success of TMS 2007. Thank you.

Confirmations: A confirmation is e-mailed, faxed or mailed from Travel Planners Inc. once the reservation has been secured with a deposit or credit card. The hotels do not send confirmations. If you do not receive a confirmation within seven days, please call Travel Planners Inc.

Changes/Cancellations: All changes and cancellations in hotel reservations must be made with Travel Planners Inc. until five business days prior to arrival and are subject to the individual hotel's cancellation policies. Cancellations and changes within five days of arrival MUST be made with the hotel directly. Many hotels impose fees for early departure. This rate is set by each hotel and may vary accordingly. Please reconfirm your departure date at the time of check-in.

Reservations/Deposits: All reservations are being coordinated by Travel Planners Inc. Arrangements for housing must be made through Travel Planners Inc. and NOT with the hotel directly. Reservations via Internet, phone or fax are accepted with a major credit card only. Housing forms and written requests are accepted with a major credit card or deposit of one night's room and tax payable to Travel Planners Inc. Check must be drawn in U.S. funds on a U.S. bank. No wire transfers are accepted. Deposit policies are set by each hotel and are outlined on the hotel confirmation.

Please read all hotel information prior to completing and submitting this form to Travel Planners Inc. Keep a copy of this form. Use one form per room required. Make additional copies if needed.

Deposit Payment: ☐ Check ☐ American Express ☐ MasterCard ☐ VISA ☐ Discover ☐ Diners

Account Number _____ Expiration Date _____

Cardholder Name _____ Authorized Signature _____

ATTRACTION TICKET ORDER FORM

TMS2007
136th Annual Meeting & Exhibition

Orlando, Florida
02/25/2007 – 03/1/2007
Tickets Shipped 10 Days after DEADLINE DATE of 2/04/07

	TICKET VALUE AT GATE	SELL PRICE (tax inclusive)	NUMBER OF TICKETS	TOTAL COST
WALT DISNEY WORLD *(Walt Disney World tickets valid for 14 days after first day of use.)*				
5 Day Park Hopper (Adult)	**$267.32**	$251.00	x _____ =	$_____
5 Day Park Hopper (Child 3-9)	**$227.91**	$215.00	x _____ =	$_____
(includes one admission to Pleasure Island)				
4 Day Park Hopper (Adult)	**$263.06**	$247.00	x _____ =	$_____
4 Day Park Hopper (Child 3-9)	**$226.85**	$213.00	x _____ =	$_____
(includes one admission to Pleasure Island)				
3 Day Park Hopper (Adult)	**$252.41**	$239.00	x _____ =	$_____
3 Day Park Hopper (Child 3-9)	**$218.33**	$205.00	x _____ =	$_____
(includes one admission to Pleasure Island)				
2 Day Park Hopper (Adult)	**$188.51**	$178.00	x _____ =	$_____
2 Day Park Hopper (Child 3-9)	**$165.08**	$153.00	x _____ =	$_____
(includes one admission to Pleasure Island)				
1 Day After 2:00pm (not a hopper)	**Not Sold at Gate**	$ 53.00	x _____ =	$_____
2 Day After 2:00pm (not a hopper)	**Not Sold at Gate**	$ 91.00	x _____ =	$_____
DisneyQuest (Adult)	**$38.34**	$ 32.00	x _____ =	$_____
DisneyQuest (Child 3-9)	**$31.95**	$ 25.00	x _____ =	$_____
Pleasure Island	**$23.38**	$ 18.00	x _____ =	$_____
THEME PARKS				
2 Day Universal Park to Park Pass (Adult)	**$122.43**	$116.00	x _____ =	$_____
2 Day Universal Park to Park Pass (Child 3-9)	**$111.78**	$103.00	x _____ =	$_____
(includes two admissions to Universal CityWalk)				
1 Day Universal Studios (Adult)	**$71.36**	$ 68.00	x _____ =	$_____
1 Day Universal Studios (Child 3-9)	**$59.64**	$ 56.00	x _____ =	$_____
1 Day Universal Park to Park Pass (Adult)	**$82.01**	$ 77.00	x _____ =	$_____
1 Day Universal Park to Park Pass (Child 3-9)	**$71.36**	$ 67.00	x _____ =	$_____
Universal After 2:00pm	**Not Sold at Gate**	$ 48.00	x _____ =	$_____
SeaWorld (Adult)	**$65.98**	$ 62.00	x _____ =	$_____
SeaWorld (Child 3-9)	**$53.20**	$ 50.00	x _____ =	$_____
SeaWorld After 12:00pm (Adult)	**Not Sold at Gate**	$ 45.00	x _____ =	$_____
SeaWorld After 12:00pm (Child 3-9)	**Not Sold at Gate**	$ 33.00	x _____ =	$_____
DINNER SHOWS				
Arabian Nights (Adult)	**$59.06**	$ 39.00	x _____ =	$_____
Arabian Nights (Child 3-11)	**$30.89**	$ 29.00	x _____ =	$_____
Medieval Times (Adult)	**$52.38**	$ 39.00	x _____ =	$_____
Medieval Times (Child 3-11)	**$35.26**	$ 29.00	x _____ =	$_____
Sleuth's (Adult)	**$51.07**	$ 39.00	x _____ =	$_____
Sleuth's (Child 3-11)	**$25.51**	$ 22.00	x _____ =	$_____
Dolly Parton's Dixie Stampede (Adult)	**$52.17**	$ 39.00	x _____ =	$_____
Dolly Parton's Dixie Stampede (Child 4-11)	**$23.42**	$ 19.00	x _____ =	$_____

>Incomplete order forms cannot be processed. NO phone orders will be taken.
>Tickets are shipped no later than 10 days via DHL after 2/04/07.
>If you miss the deadline, the above tickets will also be available on-site at the Hello Florida! Attraction Ticket Sales Desk near convention registration. All attraction tickets may be sold on-site at a higher price.
>**Tickets mailed to business street addresses only. No P.O. Box or home addresses will be accepted.**
>Hello Florida! is unable to contact individuals upon receipt of order; no confirmations will be faxed or mailed.
>Hello Florida! is not responsible for lost or stolen tickets once received by guest.

Shipping and Handling Fee: $22.00
(DHL International Express)

Shipping and Handling Fee: $ 9.50
(Two Day DHL Continental U.S.)

TOTAL ENCLOSED $_____

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MAKE CHECKS PAYABLE TO HELLO FLORIDA! INC.
MAIL TO: Hello Florida! Inc. 4205 Vineland Road, Suite L-3, Orlando, FL 32811
***OR* FAX ORDER TO:** 407-425-8910; **Phone:** 407-425-6132, Ext. 300

ATTRACTION INFORMATION

WALT DISNEY WORLD
4 OR 5 DAYS - 4 PARKS
Enjoy the best Disney World has to offer. Four or Five Day Park Hopper to all **FOUR** Disney Parks: Animal Kingdom, Magic Kingdom, EPCOT Center, and Disney/MGM Studios theme park. **PLUS** One admission to Pleasure Island.

WALT DISNEY WORLD
2 OR 3 DAYS - 4 PARKS
A Two or Three Day Park Hopper pass to all **FOUR** Disney Parks: Animal Kingdom, Magic Kingdom, EPCOT Center and Disney/MGM Studios, **PLUS** One admission to Pleasure Island.

WALT DISNEY WORLD
1 OR 2 DAY AFTER 2:00PM
A one or two day after 2:00pm admission ticket to **ONE** of the Disney Parks. This ticket is **NOT** a park hopper.

DISNEYQUEST
Experience the ultimate interactive adventure at DisneyQuest! Shoot the rapids in a virtual prehistoric world, buckle into a motion simulator and ride a roller coaster of your own design! The adventures await guests at DisneyQuest, a breakthrough concept in entertainment at the West End in Downtown Disney.

PLEASURE ISLAND AT WDW
Have the time of your life at Pleasure Island. Seven completely different nightclubs, incredible stage shows, outstanding live outdoor concerts and a nightly New Years Eve Party!

SEAWORLD FULL DAY / AFTER 12PM
Plunge through unexpected thrills on the incredible Journey to Atlantis water-coaster ride. Take off on a daring rip-roaring jetcopter ride to the Wild Arctic. Ride the highest, fastest, longest, and wildest coaster in Orlando. It's the monster of all Coasters: **KRAKEN**.

ARABIAN NIGHTS DINNER SHOW
Arabian Nights brings a fairy tale to life on horseback. A majestic display of breathtaking horses and colorful costumes create a celebration of the relationship between horses and riders. Menu features: Delicious Dinner & Dessert; Complimentary Beer, Wine & Soft Drinks.

MEDIEVAL TIMES DINNER SHOW
While feasting on a four-course meal served by the castle wenches, guests can cheer their very own knight to victory. Competitions consist of jousting matches, sword fights, medieval games on horseback and more. Menu features: Delicious Dinner & Dessert; Complimentary Beer, Iced Tea, Coffee & Soft Drinks.

SLEUTH'S MYSTERY DINNER SHOW
Step into the world of mystery and intrigue. Mingle with the unusual characters. Watch for clues. The action is fast and laughter is contagious. You will be kept on the edge of your seat as you try to solve an exciting who-dunnit. Each show features: Audience Participation; Delicious Dinner & Dessert; Unlimited Beer, Wine & Soft Drinks; Award Winning Actors; Prizes for Successful Sleuths.

DOLLY PARTON'S DIXIE STAMPEDE
Welcome to the most fun place to eat in Orlando. Your evening begins in the Carriage Room with the spectacular pre-show and continues with a fun-filled reenactment of patriotic America. Watch as you witness a tribute to the North and a tribute to the South complete with a buffalo stampede, pig racing, ostrich riding and more. Menu includes Delicious Dinner & dessert and unlimited soft drinks, coffee, or tea.

PARK TO PARK PASS
You can Ride the Movies at Universal Studios Florida theme park, or explore epic adventures at the all-new Islands of Adventure theme park. With the Universal Orlando Park to Park Pass, you buy one ticket that allows unlimited park to park access for 1 or 2 days - visit both parks in the same day!

UNIVERSAL STUDIOS FLORIDA (USF)
At USF, instead of just watching the movies, you get to live them. With more than 40 incredible rides, shows, movie sets and attractions, it's the only place on earth where you can Ride the Movies. It's only at Universal Studios Florida!

UNIVERSAL STUDIOS ISLANDS OF ADVENTURE (USIOA)
USIOA brings together the most unforgettable encounters of all time and challenges you to *Live the Adventure* by exploring all five islands: Seuss Landing, The Lost Continent, Toon Lagoon, Jurassic Park and Marvel Super Hero Island.

UNIVERSAL AFTER 2PM
A One Day pass, which allows admission after 2:00pm to either Universal Islands of Adventure **or** Universal Studios Florida. This ticket is NOT a Park Hopper.

UNIVERSAL CITYWALK
The new entertainment core of Orlando. An eclectic mix of live entertainment spots, fun & fine dining establishments, specialty shops and state-of-the-art cinemas, it's entertainment... with distinct attitude!

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About TMS

Who We Are

The Minerals, Metals & Materials Society (TMS) is the professional organization encompassing the entire range of materials science and engineering, from minerals processing and primary metals production to basic research and the advanced applications of materials. The Society's broad technical focus covers light metals; electronic, magnetic and photonic materials; extraction and processing; structural materials; and materials processing and manufacturing.

Our Members

Included among TMS professional members are metallurgical and materials engineers, scientists, researchers, educators and administrators who work in industry, government and academia, as well as students. They hail from more than 70 countries on six continents.

Our Mission

The mission of TMS is to promote the global science and engineering professions concerned with minerals, metals and materials. The Society works to accomplish its mission by providing technical learning and networking opportunities through interdisciplinary and specialty meetings; short courses; publications, including four journals and proceedings; and its Web site.
To learn more, visit www.tms.org.

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