

St. Louis, Missouri, U.S.A.

# TMS

## Fall Meeting 2000

October 8–12, 2000  
Regal Riverfront Hotel



For-up-to-the minute information, visit the  
TMS Fall Meeting 2000 Web site at  
<http://www.tms.org/Meetings/Fall2000/Fall2000.html>

All TMS Fall Meeting registrants may attend the  
ASM Materials Solutions Conference & Show, and the  
20th Heat Treating Society Conference & Show  
at no extra fee!

*Details Inside. . .*

**Registration and Housing  
Forms Enclosed!**

*Your  
Gateway  
to  
Materials  
Research  
and  
Innovation*

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The Minerals, Metals & Materials  
Society (TMS)

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TMS Electronic, Magnetic  
& Photonic  
Materials Division

TMS Materials Processing  
& Manufacturing Division

TMS Structural Materials Division

ASM International:  
Materials Science Critical  
Technology Sector

TMS Education Committee

# TMS

Minerals • Metals • Materials

# Meet Me in St. Louie...

St. Louis, Missouri is referred to as the "Gateway to the West," because of its historic role in the western expansion of the United States. The 630 foot tall, stainless steel Gateway Arch stands as a monument along the St. Louis waterfront and just across the street from the Regal Riverfront Hotel.



In the shadow of the Gateway Arch, you will experience a dynamic expansion of your materials science knowledge base at TMS Fall Meeting 2000. An innovative and quality program will address current research and development in:

- ❖ Advances in Interconnect & Packing Materials
- ❖ Coating and Joining of Refractory Materials—Current Issues
- ❖ Electron Backscatter Diffraction
- ❖ Fatigue and Fracture Behavior of High Temperature Materials
- ❖ Interfacial Dislocations: Symposium in Honor of J.H. Van der Merwe on the 50<sup>th</sup> Anniversary of His Discovery
- ❖ Materials Issues in Nuclear Waste Management
- ❖ Metastability in Bulk and Thin Film Materials
- ❖ Microcharacterization and Microtexture
- ❖ Powder Metallurgy Alloys and Particulate Materials for Industrial Applications
- ❖ Rate Processes in Plastic Deformation II: Towards a Unified Constitutive Theory of Deformation
- ❖ State of the Art in Cast MMC's
- ❖ Testing, Characterization and Standards for Composite Materials
- ❖ The Mechanisms of the Massive Transformation
- ❖ The Science of Alloys for the 21<sup>st</sup> Century: A Hume-Rothery Symposium Celebration
- ❖ General Abstracts

In addition, your registration fee gains you access to informative tutorials, the ASM/TMS distinguished lecture, complimentary receptions, a full student program, and unlimited opportunity to network and connect with colleagues.

You may also attend the ASM Materials Solutions Conference and Exposition and the 20th Heat Treating Society Conference & Exposition at no extra fee. Details on page 7.

*Make the  
TMS Fall Meeting 2000  
your gateway to a century  
of technological innovation  
and growth.*

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**2000 TMS Fall Meeting  
October 8-12, 2000**

		Monday-October 9		Tuesday-October 10		Wednesday-October 11		Thursday-Oct. 12
		AM	PM	AM	PM	AM	PM	AM
Mississippi		Mechanisms of the Massive Transformation I	Mechanisms of the Massive Transformation II	Mechanisms of the Massive Transformation III	Mechanisms of the Massive Transformation IV	Mechanisms of the Massive Transformation V	Fatigue & Fracture Behavior of High Temp Matls I	Fatigue & Fracture Behavior of High Temp Matls II
	Missouri	Science of Alloys for the 21st Century: Hume Rothery I	Science of Alloys for the 21st Century: Hume Rothery II	Science of Alloys for the 21st Century: Hume Rothery III	Science of Alloys for the 21st Century: Hume-Rothery IV	Interfacial Dislocation: J Van der Merwe Anniversary I	Interfacial Dislocation: J Van der Merwe Anniversary II	Interfacial Dislocation: J Van der Merwe Anniversary III
Meramac		A Crystallography & Diffraction Tutorial	Electron Backscatter Diffraction I	Electron Backscatter Diffraction II	Electron Backscatter Diffraction III	Electron Backscatter Diffraction IV	Microcharacterization & Microtexture I	Microcharacterization & Microtexture II
Lewis		Rate Processes in Plastic Deformation I	Rate Processes in Plastic Deformation II	Rate Processes in Plastic Deformation III	Rate Processes in Plastic Deformation IV	Testing Characterization & Standards for Comp Matls I	Testing Characterization & Standards for Comp Matls II	
Clark		Materials Issues in Nuclear Waste Management I	Coating & Joining of Refractory Metals & Materials I	Materials Issues in Nuclear Waste Management II	Powder Metallurgy Alloys & Particulate Matls for Industrial Appls I	Powder Metallurgy Alloys & Particulate Matls for Industrial Appls II	Powder Metallurgy Alloys & Particulate Matls for Industrial Appls III	Powder Metallurgy Alloys & Particulate Matls for Industrial Appls IV
Field		Advances in Interconnect Matls Proc & Integration I	Advances in Interconnect Matls Proc & Integration II	Advances in Interconnect Matls Proc & Integration III	Metastability in Bulk & Thin Film Materials I	Metastability in Bulk & Thin Film Materials II	GA: Ferrous Metallurgy	
Laclade		State of the Art in Cast MMC's I	State of the Art in Cast MMC's II	State of the Art in Cast MMC's III				
Jefferson A		GA: Non-Ferrous & Powder Metallurgy	GA: Mechanical Metallurgy & Composite Materials	GA: Chemistry & Physics of Materials	GA: Corrosion & Environmental Effects	GA: High Temperature Alloys	GA: Alloy Phases	

# Symposia Highlights

An extensive line-up of technical sessions, programmed by the TMS Electronic, Magnetic and Photonic Materials Division (EMPMD); Materials Processing & Manufacturing Division (MPMD); Structural Materials Division (SMD); TMS Education Committee; and the Materials Science Critical Technologies Sector (MSCTS of ASM International), will update metallurgists and materials scientists with the latest scientific and technical developments.

The entire TMS Fall Meeting 2000 program, including abstracts, may be viewed by accessing the TMS Conference Management System (CMS) on the World Wide Web at <http://cms.tms.org> and online in PDF format at [http://www.tms.org/Meetings/Fall\\_2000/Fall2000.html](http://www.tms.org/Meetings/Fall_2000/Fall2000.html). If you do not have access to the World Wide Web, contact TMS Customer Service for a copy of the technical session abstracts. The abstracts will also be printed in the final program distributed at the meeting.

## **Advances in Interconnect & Packaging Materials**

This symposium will address the materials processing and integration issues for on-wafer and chip-to-package interconnects. Topics of interest include:

Low-k and high-k dielectric materials processing technologies including CVD, PVD, spin-coating etc.; Cu, Al and Ag metallization processing including CVD, PVD and Electroplating; Silicide materials; Barrier layer materials; Dielectric and metal CMP processes; Polymer/metal interfacial reactions, chemistry and reliability; Interfacial adhesion and reliability; Processing modeling; Underfill/encapsulant materials; Flip chip UBM metallurgies; Isotropic and anisotropic conducting adhesives; Materials characterization techniques; Size and thickness-dependent materials properties.

## **Coating and Joining of Refractory Materials - Current Issues**

This symposium is intended to help document current advances in coating and joining of refractory metals and materials for advanced applications. In the coating area, talks which focus on advanced coating deposition, novel coating systems, and performance of coating systems are solicited. Talks in the joining section are solicited in the areas of brazing, welding and alternative joining techniques for both refractory metals and ceramics, along with studies which focus on properties obtained with established joining processes. This symposium will be run in a "presentations only" format. Authors who would like to publish their results will be encouraged to contribute to the JOM focus issue on Refractory Materials.

## **Electron Backscatter Diffraction**

Automated Electron Backscatter Diffraction: Automated electron backscattered diffraction (EBSD) or orientation imaging microscopy has become a powerful experimental technique since becoming a commercially available research tool in the past decade. One of the many advantages of this technique is the ability to obtain statistically significant microtexture and orientation information at the sub-micron scale and correlate these data to specific microstructural features. The objective of this symposium is to highlight the current theory and applications of EBSD. The emphasis in this forum thus will be dual-natured: to cover theory and crystallography, as well as applications and current status of instrumentation. Contributions are solicited for topics such as grain boundary analysis and phase identification theory in addition to applications such as microtexture determination, deformation microstructures, recrystallization, superconductivity and other areas as applied to the ferrous, non-ferrous, ceramic, and electronics industries.

## **Fatigue and Fracture Behavior of High Temperature Materials**

The objective of this symposium is to provide a forum for exchanging information about the latest developments in the field of fatigue and fracture behaviors of high temperature materials. Fatigue and fracture behaviors include low-cycle

and high-cycle fatigue, corrosion fatigue, and fatigue crack initiation and propagation. High temperature materials include superalloys, intermetallics, ceramics and composites. Topic areas: 1) high-cycle; low-cycle and corrosion fatigue behavior; 2) influence of microstructure and temperature on fatigue and fracture behavior; 3) mechanistic understanding of fatigue crack initiation and propagation; 4) techniques on conducting high-cycle, low-cycle, and corrosion fatigue tests; 5) methods on detection and measurement of dislocations, slip bands, and fatigue crack initiation sites; 6) fatigue damage evaluation and life prediction methods; 7) micromechanics and theoretical modeling of fatigue crack initiation and propagation behavior.

### **Interfacial Dislocations: Symposium in Honor of J.H. Van der Merwe on the 50th Anniversary of His Discovery**

This symposium will focus on the contributions of interfacial dislocations, to the understanding of epitaxy and to the understanding of coherent-incoherent transitions in phase transformations. The pioneering work of J.H. van der Merwe in providing analytical expressions for the energy of arrays of interfacial dislocations has found its way into many aspects of epitaxy and descriptions of interphase boundaries. The three sessions in this symposium of all invited talks starts with a 50 year overview by Van der Merwe of the development of interfacial energy of dislocation arrays and explores the application of these ideas primarily to epitaxy. Additional talks explore various aspects of the dislocation arrays, such as nucleation and obstacles to misfit dislocation generation and their kinetics.

### **Materials Issues in Nuclear Waste Management**

This symposium addresses materials issues as they relate to the storage, treatment and disposition of spent nuclear fuel elements, surplus weapons materials, radioactive wastes, and structural materials with induced radioactivity. Abstracts from industry, universities, and government laboratories dealing with such topics as the encapsulation and stabilization of waste, transmutation of waste in a particle beam accelerator, treatment by thermal, chemical or physical means, and storage issues for spent nuclear fuels and high level radioactive wastes are encouraged. This symposium will provide a forum for discussing theory, modeling, and experimental studies of the materials issues surrounding nuclear waste management.

### **Metastability in Bulk and Thin Film Materials**

Metastable materials, ranging from epitaxial, strained semiconductor thin films to bulk metallic glasses, comprise a rapidly expanding area of materials research and development. These materials are likely to become increasingly important in the future, owing to the unique properties they offer that may be exploited for materials design. While the underlying principles governing metastability are not materials-specific, interaction among researchers in this area is largely restricted to within the traditional materials classes (i.e., metals, electronic materials, and ceramics). The intent

of this symposium is to bring together researchers from these traditionally separate disciplines to discuss materials metastability as a general phenomenon. The symposium will focus on the fundamental physical factors that promote metastability (chemical thermodynamics, kinetics, strain/mechanical energy, interfacial/surface energy, etc.). It will also address processing techniques, materials characterization and applications of metastable materials in both the bulk and thin film forms.

### **Microcharacterization and Microtexture**

Microtexture determination by use of Kikuchi diffraction in electron microscopy is an increasingly available tool. Due to the high quality, reliability, and improving spatial resolution of such microtexture data, it is important to better relate these data to local chemistry and micromechanics. This session intends to bring together experts from the areas of microtexture determination, micromechanical characterization, and microchemical characterization. We encourage everyone in this field, theorists and experimentalists, to contribute to this session and focus particularly on the conjunction of these various characterization methods.

### **Powder Metallurgy Alloys and Particulate Materials for Industrial Applications**

Traditionally, powder metallurgy has been thought of as a low cost method to produce large volumes of components for consumer and automotive applications. However, powder processing offers advantages for producing materials with unique microstructures and properties, such as composites for wear resistant applications and controlled porosity materials for filter applications. This symposium will focus on powder metallurgy alloys and particulate materials (metals, ceramics, composites and coatings) developed for industrial (e.g., earthmoving, mining, agricultural, chemical processing, materials processing, energy production and pollution prevention) applications. Topic areas include (but are not limited to): (i) ferrous and non-ferrous p/m wear resistant materials; (ii) controlled porosity materials; and (iii) coatings or bulk materials produced from plasma or thermal spraying of powders. Contributions are solicited on the processing, properties and applications of such materials.

### **Rate Processes in Plastic Deformation II: Towards a Unified Constitutive Theory of Deformation**

This symposium is proposed as a follow-up to an earlier conference held in 1971 as the John Dorn Memorial Symposium. Since then, new substructure-based deformation models have been developed using composite mechanics and dislocation patterning simulation techniques. These models have been applied to both cyclic and uniaxial deformation at high and low temperatures. The remarkable similarities in these models irrespective of the deformation mode, coupled with the fact that dislocations are the fundamental units of plastic flow, suggest that it may be possible to develop a unified model for deformation based on a close correspondence between the microstructure and

the macroscopic stress states. The symposium will review the current status of thermally activated flow processes in metals, intermetallic alloys, ceramics and geological materials. The overall goal of the symposium will be to identify the similarities and differences between the models proposed for different deformation modes. The role of substructure on deformation processes will be examined. It is hoped that the conference will provide sufficient insights and guidance to both experimentalists and theoreticians on how current models for cyclic and uniaxial deformation can be further combined into a generalized unifying theory of deformation. The tentative plan is to divide the sessions under different topics: a) low temperature uniaxial deformation mechanisms; b) high temperature uniaxial deformation mechanisms; c) cyclic deformation mechanisms; d) advances in substructure-based deformation modeling and patterning techniques; e) rate processes in fracture; and f) the role of flow processes in materials design, application of deformation mechanisms in forming processes. A proceedings is planned.

### **State of the Art in Cast MMC's**

The symposium on metal matrix composites will have sessions on (1) processing of metal matrix composites; (2) microstructure, interface, and bonding between reinforcements and matrix (3) structure property relationship (4) application of metal matrix composites. Although submissions in other relative areas are encouraged, the processing, structure, properties, and applications of metal matrix composites are the focus.

### **Testing, Characterization and Standards for Composite Materials**

Composite materials are generating considerable interest in a variety of applications. This presents a particular challenge to engineers tasked with characterizing, testing, and qualifying these materials. While their tailorability and superior properties can be a powerful tool for materials designers, these same attributes can make them unsuitable for mechanical and physical characterization using existing methods developed for their monolithic counterparts. For example, modified testing procedures, data analysis methods, and test sample geometries are often needed to quantify the mechanical properties of composite materials. Other issues include microstructural characterization (e.g. standards of homogeneity), or standards for heat treatment. The objective of this symposium is to assess the current status and explore future directions in standards, characterization, and testing of composite materials. Contributions are solicited in any of the three major classes of composites: metal, ceramic, or polymer matrix composites, with continuous or discontinuous reinforcements.

### **The Mechanisms of the Massive Transformation**

This symposium will emphasize two long-standing problems in the fundamental mechanisms of the massive transformation, namely, the structure of massive: matrix boundaries, and whether the upper temperature limit of this transformation is the  $T_c$  or the solvus temperature. Four sessions of invited papers on these topics have already been programmed. However, papers on these and other basic aspects of this transformation will be welcome. A general discussion session is also planned. The proceedings of the symposium will be published in *Met. Trans.*

### **The Science of Alloys for the 21st Century: A Hume-Rothery Symposium Celebration**

The purpose of this two-day symposium is to provide, at the turn of the next millennium, an expert assessment of our current understanding of the science of alloys in the spirit of the inspiring work of William Hume-Rothery. Since the creation of the William Hume-Rothery Award in 1974, tremendous progress has been made in understanding and predicting properties of materials with definite impact on the design and the processing of new classes of materials. This is a special opportunity for the TMS community at large to be given a clear and concise summary of these advances, and also of current ideas and future prospects in the alloy field. The past recipients of the William Hume-Rothery Award responded positively to the invitation, among them: J. Friedel (1977), K. A. Gschneidner, Jr. (1978), T. B. Massalski (1980), L. Brewer (1983), H. Ehrenreich (1984), R. E. Watson (1985), D. Turnbull (1986), Y. A. Chang (1989), B. C. Giessen (1990), E. Parthé (1991), J. C. Phillips (1992), O. J. Kleppa (1994), D. G. Pettifor (1995), W. L. Johnson (1996), B. Predel (1997), R. Kikuchi (1998), M. H. Hillert (1999), and A. G. Khachatryan (2000). The subjects to be discussed include, but are not limited to, the impact of atomistic studies on the understanding and the prediction of alloy behavior, the advances in the knowledge of amorphous materials and the prediction of their properties, and finally the statics, kinetics, and dynamics modeling of alloy phase transformation and evolution.

## General Abstracts:

The TMS Fall Meeting Program Committee invites you to attend the scheduled general abstract sessions. In an effort to present a more comprehensive view of current work being carried on in materials science research, particularly new and emerging technologies and techniques, TMS has scheduled presentations on the following topical areas:

- ❖ Alloy Phases
- ❖ Chemistry & Physics of Materials
- ❖ Composite Materials
- ❖ Corrosion & Environmental Effects
- ❖ Ferrous Metallurgy
- ❖ High Temperature Alloys
- ❖ Mechanical Metallurgy
- ❖ New & Emerging Technologies
- ❖ Non-Ferrous Metals
- ❖ Powder Metallurgy
- ❖ Shaping & Forming
- ❖ Solidification
- ❖ Surface Engineering
- ❖ Thin Films & Interfaces

## Planned Proceedings

Visit the Publication Sales Area during the meeting or contact TMS at 724-776-9000, ext. 256, or [publications@tms.org](mailto:publications@tms.org) for more information on these proceedings.

The following proceedings from the 2000 TMS Fall Meeting are approved and planned for concurrent publication.

### Fatigue and Fracture Behavior of High Temperature Materials

*P.K. Liaw and M. Huang, editors*

Approx. 240 pp., illus., index, portable document format

This proceedings volume will be published only in an electronic format. The proceedings will help students, researchers, and practicing engineers develop a fundamental understanding of fatigue and fracture behavior of high-temperature materials including superalloys, intermetallics, ceramics, and composites. Papers will be published individually and as a group in portable document format, viewable using the free Acrobat Reader program.

### Materials Issues in Nuclear Waste Management

*Thad M. Adams, Robert Sindeler, and Patrick Taylor, editors*

Approx. 289 pp., index, hardcover

This symposium will cover materials issues as they relate to the storage, treatment, and disposition of spent nuclear fuel elements, surplus weapons materials, radioactive wastes, and structural materials with induced radioactivity.

### Powder Metallurgy Alloys and Particulate Materials for Industrial Application

*David E. Alman and Joseph W. Newkirk, editors*

Approx. 244 pp., illus., index

Contributed and invited papers will describe the material requirement for a variety of industrial applications, such as processing various materials, manufacturing, energy production, and pollution control, as well as how powder metallurgy materials can meet the performance needs for these applications.

### The Science of Alloys for the 21<sup>st</sup> Century: A Hume Rothery Symposium Celebration

*Patrice E.A. Turchi, Robert D. Shull, and Antonio Gonis, editors*

Approx. 331 pp., index, hardcover

Intended to serve as a roadmap to the study of alloys, previous TMS Hume-Rothery Award recipients will review advances made in understanding and predicting properties of materials, assess the current understanding of the science of alloys, and summarize future prospects.

### State of the Art in Cast MMCs

*Pradeep K. Rohatgi, editor*

Approx. 374 pp., illus., index, hardcover

This book will bring together basic researchers with those developing industrial applications of metal matrix composites. Coverage includes processing of metal matrix composites, structure-property relationships in cast metal matrix composites, and applications.



# General Information

The TMS Fall Meeting 2000 is being held concurrently with the ASM Materials Solutions Conference & Show and the 20<sup>th</sup> ASM Heat Treating Society Conference & Show.

By choosing the **full conference registration** option on the enclosed registration form, you will be entitled to attend each of these events for a single fee.

## Location

The TMS Fall Meeting 2000 will be headquartered in the Regal Riverfront Hotel, St. Louis, Missouri. All technical sessions and events will take place in the hotel.

The ASM Materials Solutions Conference and the 20<sup>th</sup> Heat Treating Society Conference will be located in the America's Center. Shuttle service will be available between the Regal Riverfront Hotel and the America's Center.

## Advance Registration

Advance registration is strongly recommended to avoid delays in attending the technical sessions. An advance registration form may be found on page 19 of this brochure. Payment MUST accompany the form.

**Advance Registration Deadline: September 11, 2000**

## Registration Fees

TMS / AIME Member Full Conference .....	\$450
Non-member Full Conference .....	\$575
Student Member Full Conference .....	\$0
Non-member Student Full Conference .....	\$25

## Three Ways to Register

1. Mail your completed form to:  
Geo. E. Fern Company  
1100 Gest Street, Cincinnati, OH 45203
2. Fax with credit card information to 513-621-4439
3. Via the World Wide Web at  
[www.asm-intl.org/event00](http://www.asm-intl.org/event00)

**Badges will be mailed two weeks prior to the event. For our international registrants, badges can be picked up starting Sunday, October 8, at 2:00 pm at the registration area in the main lobby of the America's Center.**

**If you do not bring your badge with you, there will be a \$5 processing fee for reprinting a new badge. All badge changes will be made at the America's Center.**

**Full payment of registration fees and social function tickets must accompany the completed advance registration form. Any questions should be directed to:**

**Geo. E. Fern Company  
1100 Gest Street, Cincinnati, OH 45203  
Telephone: 513-621-6111; Fax: 513-621-4439**

**A confirmation card will be mailed to you within the two-month period preceding the event. If your registration is received by the Geo. E. Fern Company after September 9, your registration will not be processed. You must register on site.**

## On-Site Registration

All on-site registration will take place at the America's Center.

## Registration Hours

Sunday, October 8 .....	2:00 pm–7:00 pm
Monday, October 9 .....	7:00 am–5:00 pm
Tuesday, October 10 .....	7:00 am–5:00 pm
Wednesday, October 11 .....	7:00 am–5:00 pm
Thursday, October 12 .....	7:30 am–1:30 pm

## Cancellation Policy

Registration fees will be refunded after the close of the event if a written request is received before September 25, 2000. No refunds will be given on-site. Please send written requests to:

ASM International  
Customer Service Center  
Materials Park, OH 44073-0002  
Fax: 440-338-4634

## Tax Deduction

An income-tax deduction is allowed for expenses for education (including registration fees, travel, meals and lodging) undertaken to maintain and improve professional skills (see Treas. Reg. 1.162-5) (U.S. registrants only).

## Audio/Visual Recording Policy

The Minerals, Metals & Materials Society (TMS) reserves the rights to any audio and video reproduction of all presentations at every TMS-sponsored meeting. Recording of session (audio, video, still-photography, etc...) intended for personal use, distribution, publications or copyright without the express written consent of TMS and the individual authors is strictly prohibited. Contact the TMS Programming Department to obtain a copy of the waiver release form.

## Technical Sessions

Technical sessions will begin on Monday morning, October 9, 2000, and end on Thursday, October 12, 2000. All technical sessions will be held at the Regal Riverfront Hotel. **Abstracts will be available by accessing the TMS Conference Management System (CMS) on the World Wide Web at <http://www.cms.tms.org> or in PDF format via TMS OnLine, also on the World Wide Web at <http://www.tms.org/Meetings/Fall2000/Fall2000.html>.**

If you do not have access to the World Wide Web, contact TMS Customer Service for a copy of the technical session abstracts.

The abstracts will also be published in the final program distributed at the meeting.

## Poster Session

A poster session will be held in conjunction with the 2000 Fall Meeting. Presentations will be displayed on 4'x8' poster boards, no formal oral presentation is required. The poster session will begin on Monday, October 9 and remain in place through Wednesday, October 11, 2000. Abstracts of 150 words or less must be submitted to TMS by September 8, 2000. Abstracts may be submitted through the TMS Conference Management System (CMS) via the World Wide Web at <http://cms.tms.org> or E-mail abstracts to [weissp@tms.org](mailto:weissp@tms.org), or send to Peggy Weiss, TMS, 184 Thorn Hill Road, Warrendale, PA 15086, Fax: 724-776-3770.

## Authors' Coffee

The TMS Authors' Coffee will be held each morning at the Regal Riverfront Hotel for authors, chairs and organizers. Authors are asked to attend the Authors' Coffee only on the morning of their presentation. The coffee will run from 7:15 am – 8:15 am in the Exhibit Hall.

## Publication Sales

Concurrent proceedings volumes from TMS Fall Meeting 2000 along with other TMS publications, will be on sale in the Lower Level Lobby at the Regal Riverfront Hotel.

## Americans with Disability Act



TMS strongly supports the federal Americans with Disability Act (ADA), which prohibits discrimination against, and promotes public accessibility for those with disabilities. In support of and compliance with this Act, we ask that those requiring specific equipment or services as an attendee of the TMS Fall Meeting 2000, contact the TMS Meeting Services Department, at telephone 724-776-9000, ext. 243, and advise of any specific requirements in advance.

## Hotel Information

Hotel reservations must be made directly with the Regal Riverfront Hotel by using the Housing Reservation Form included in this brochure.

**Mail your completed form to:** Regal Riverfront Hotel,  
200 S. Fourth Street,  
St. Louis, MO 63102

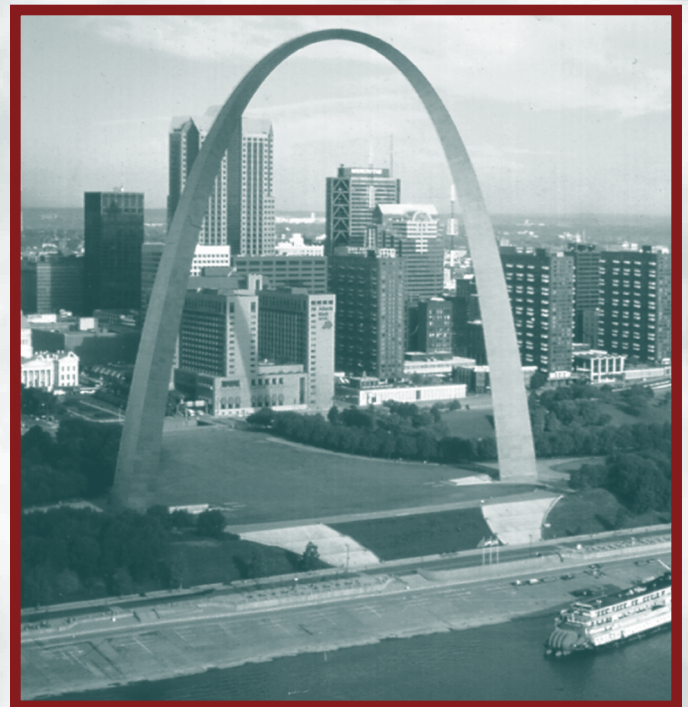
**Fax your completed form to:** 314-241-9601 or  
**Call your reservation in:** 800-325-7353 or 314-241-9500

**Guest room rates:** The Regal Riverfront Hotel will extend the following rates:

- \$126 Single accommodations
- \$126 Double accommodations

Please note that these rates are subject to state and local taxes, which are currently 14.776%.

In order to qualify for the rates listed above, you must identify your affiliation at the time reservations are made and the form needs to be received by the Regal Riverfront Hotel no later than September 7, 2000.



# Travel Information



## Transportation:

The greater St. Louis area is easily reached via the four major interstate highways (70-44-55-64), the Lambert St. Louis International Airport, and Amtrak trains.

The Lambert St. Louis International Airport is located west of St. Louis. Taxi services are available for approximate \$18-20 each way and can be shared by up to 5 people. Alternatively, St. Louis's MetroLink light rail train will take approximately 30 minutes to the downtown area and costs \$1.00.

An AMTRAK station is also conveniently located in the downtown St. Louis area. For schedules and reservation information visit <http://www.amtrak.com>.



## U·S AIRWAYS

...Official Carrier for the  
2000 TMS Fall Meeting

### Special Airfare

US Airways has been designated as the official carrier for the attendees of The Minerals, Metals & Materials Society 2000 Fall Meeting, October 8-12, 2000 in St. Louis, Missouri, and agrees to offer exclusive low fares for the attendees.

This special fare will offer a 5% discount off First or Envoy Class and any published US Airways promotional round trip fare. A 10% discount off unrestricted coach fares will apply with seven day advance reservation and ticketing required. Plan ahead and receive an additional discount by ticketing 60 days or more prior to departure. These discounts are valid provided all rules and restrictions are met and are applicable for travel from all points on US Airways route system.

The above discounts are not combinable with other discounts or promotions, and are valid October 5-15, 2000. Additional restrictions may apply on international travel.

To obtain these discounts, you or your professional travel consultant must call US Airways' Meeting and Convention Reservation Office at 800-334-8644; 8:00 AM – 9:30 PM, Eastern Time. Select option "1" when making the call.

**REFER TO GOLD FILE NO. 22631205**

## Hertz Rent-a-Car system

Has been selected as the official car rental company for the 2000 TMS Fall Meeting, October 8-12, 2000, in St. Louis, Missouri.

Meeting rates listed below, with free unlimited mileage, are guaranteed one week before, through one week after, the actual meeting dates and are subject to car availability. Rates are available from all Missouri locations.

Advance reservations may be made by calling the Hertz Reservations number (US: 1-800-654-2240; Canada: 1-800-263-0600; International: contact your nearest Hertz reservation center) and identify yourself as an attendee of the TMS Fall Meeting and reference the CV number which follows:

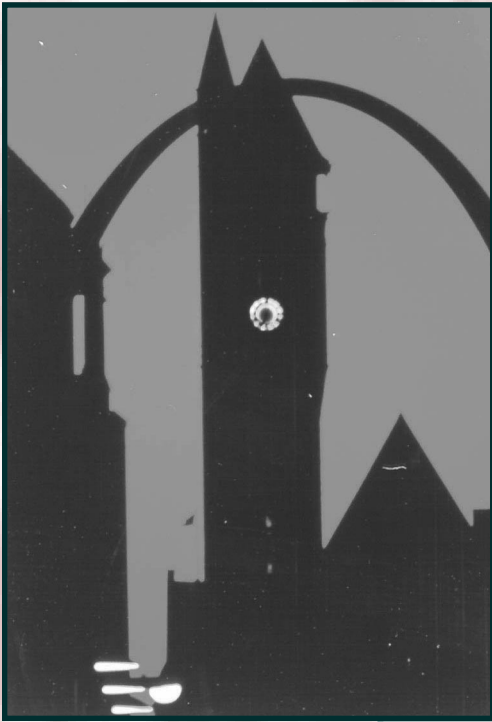
**You must give the reservations agent the  
Hertz CV #010P002**

## Terms and Conditions:

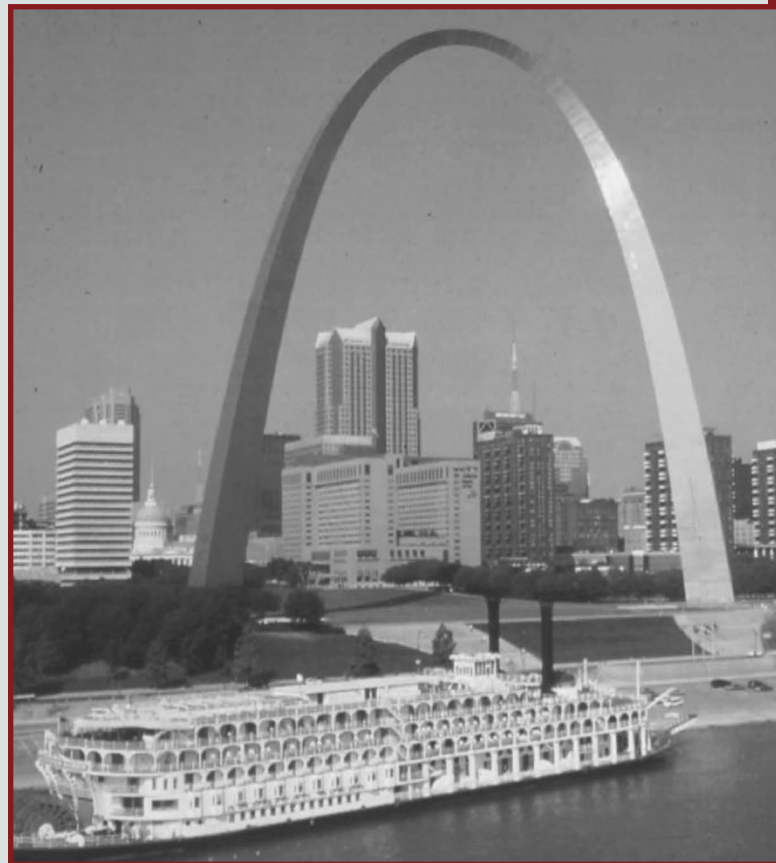
- ❖ UNLIMITED MILEAGE ALLOWANCE ON ABOVE RATES.
- ❖ One-way service fee will apply when cars are not returned to renting location.
- ❖ Additional daily charges for optional coverage (Loss Damage Waiver, Effect Protection, refueling and state tax) are not included in the above rates.
- ❖ Drivers must meet standard Hertz age, driver and credit requirements.
- ❖ Hertz is a frequent flyer partner with US Airways, Delta, Northwest, United and American Airlines. Frequent flyer information may be requested at time of car booking.

## Rates

Car Class	DAILY	WEEKEND	WEEKLY
	Per Day	Per Day	5-7 Day
A Economy 2DR	\$34.99	\$21.99	\$129.99
B Compact 4DR	\$37.99	\$23.99	\$144.99
C Midsize 2/4DR	\$40.99	\$25.99	\$159.99
D Sporty 2DR	\$43.99	\$30.99	\$174.99
F Fullsize 4DR	\$47.99	\$32.99	\$189.99
I Luxury	\$65.99	\$62.99	\$294.99
L 4Wheel Drive	\$65.99	\$62.99	\$274.99
R Minivan	\$65.99	\$62.99	\$274.99



The clock tower of the historic St. Louis Union Station is framed by the Civil Courts Building and the Gateway Arch.  
© Lewis Portnoy



St. Louis and the Mississippi River — From the settlement's founding on the river bank in 1764 through the "impossible" feat of the Eads bridge construction in 1874, the history of St. Louis and the Mississippi have been inseparable. Today St. Louis is one of the nation's busiest inland ports thanks to the Mighty Mississippi. Watch the St. Louis Skyline drift by aboard a sight-seeing cruise down the Mississippi River on a nostalgic paddlewheel.



St. Louis Skyline — The love of the past combined with the excitement of the future is evident in St. Louis' architecture. Visitors find historic buildings, churches and homes standing shoulder to shoulder with towering skyscrapers. © Gail Mooney

The impressive St. Louis Gateway Arch, Busch Stadium, river boat gaming on the Mississippi river, Laclede's Landing, and excellent dining opportunities await you in downtown St. Louis. The Regal Riverfront Hotel is located conveniently in the middle of all attractions and is just minutes away from the Cervantes Convention Center at America's Center. The Regal Riverfront Hotel features 780 guest rooms and suites; three restaurants; two lounges; seasonal indoor and outdoor pools; fitness center; high-tech business center; and 63,000 sq. feet of function space.

# St. Louis

While in St. Louis take some time to explore:

- ❖ The magnificent Gateway Arch – a memorial to Thomas Jefferson’s dream of the continental United States. The Gateway Arch stands an impressive 630 feet tall and has a total steel weight of 5,199 tons (4,622 metric tons). The TMS Fall Meeting headquarter hotel – Regal Riverfront Hotel – offers a spectacular view of the arch.
- ❖ Forest Park – home of the Saint Louis Art Museum, the Missouri History Museum, the Science Center, and the St. Louis Zoo. The St. Louis Zoo is one of the few remaining free zoos.
- ❖ Laumeier Sculpture Park – rolling acreage of modern art displays.
- ❖ National Museum of Transport – the country’s largest collection of trains, automobiles, and streetcars.
- ❖ Missouri Botanical Garden – the country’s largest Japanese garden.
- ❖ Busch Stadium – home of St. Louis’s famed baseball and football teams, the Cardinals and the Rams.
- ❖ Riverboats on the Mississippi River.

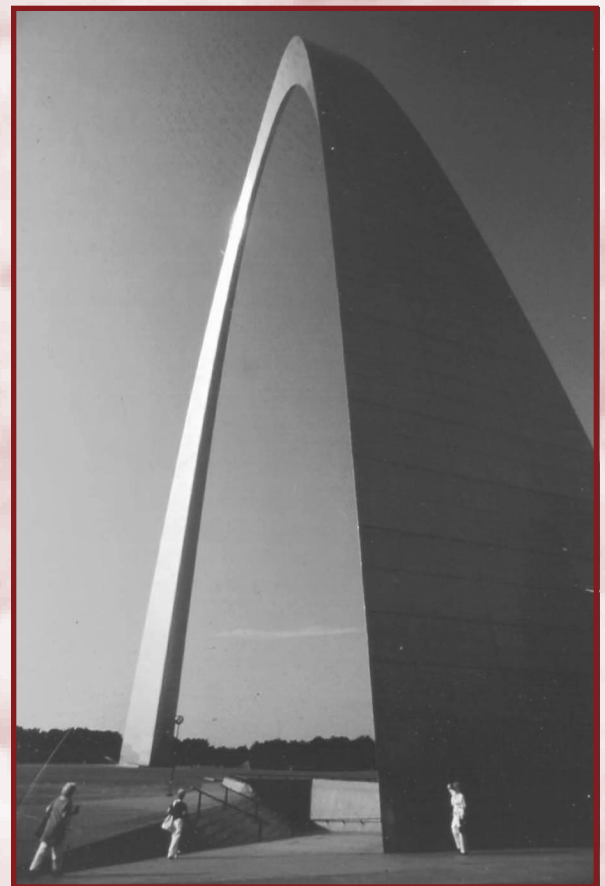
And much more!

Get inspired by the spirits of great minds, impressive architecture, and culture of the city of St. Louis. Meet you in St. Louis!

For visitor information on St. Louis call 1-800-916-0040 (USA & Canada), + 314-421-1023 (International) or visit the World Wide Web page <http://www.explorestlouis.com>.



The Old Cathedral, built in 1834 on the site of St. Louis’ first church, is the oldest cathedral west of the Mississippi.



The Gateway Arch — The symbol of spirit and achievement that St. Louis played in our nation’s westward expansion. Designed by Eero Saarinen and completed in 1965, the nation’s tallest man-made monument signifies the Gateway to the West. © Gail Mooney

## Dining:

Whatever your craving may be – European specialties, American Steak & Seafood, French Creole cuisine, vegetarian dishes, culinary treats from a four-diamond award winning restaurant, or relaxed dining in any of the many casual restaurants - St. Louis will have the right selection for you.

# Student Information

## Complimentary Student Member Registration:

Full-time students who register for the conference will pay a reduced conference fee. Student members of TMS receive FREE registration. Full-time students who are not currently members of TMS will pay \$25 to attend all TMS Fall Meeting technical sessions and lectures held Monday through Thursday. The Sunday evening Student Welcome and Student Night activities are free for all students. A valid student identification card for all students and a TMS or Joint ASM/TMS student membership number for members is required to qualify for the discounted rates. Continue to learn after the conferences! Non-member students who register for the conference will receive one complimentary year of student membership at no extra cost.

### **2000 Joint ASM/TMS Student Night Activities:**

Students attending the TMS Fall Meeting are encouraged to attend Student Night activities, scheduled for Sunday, October 8. This program is annually organized and jointly sponsored by ASM and TMS. Students, faculty and interested members should note these opportunities! The Sunday evening Student Night activities are FREE to all students.

### **2000 Student Career Forum in Materials**

#### **Science and Engineering:**

*5:00 p.m.–6:30 p.m.*

*Sunday, October 8, Regal Riverfront Hotel*

Students will have the opportunity to discuss career opportunities that involve materials science and engineering, with engineering and human resources representatives from related industries. Hors d'oeuvres will be served, and this will be a wonderful opportunity to make industry connections and learn about new career options. Select ASM and TMS scholarships and the 2000 ASM/TMS Chapters of Excellence will be announced and recognized!

### **Joint ASM/TMS Student Chapter**

#### **Leadership Reception:**

*7:30 p.m.–8:00 p.m.*

*Sunday, October 8, Regal Riverfront Hotel*

This is an invitation-only event for student chapter leaders and faculty advisors to meet and share ideas. Chapter chairs are encouraged to attend and share their plans for the current year. Use this opportunity to find common challenges and new solutions when managing a student chapter!

### **2000 Student/Faculty Mixer:**

*8:00 p.m.–10:00 p.m.*

*Sunday, October 8, Regal Riverfront Hotel*

The traditional mixer for students and faculty will be held Sunday evening, and everyone is encouraged to display school pride by wearing their school colors! Dress is informal, and everyone should plan to dance and have a great time! Snacks and beverages will be provided, and those who attend will be able to participate in a raffle for fantastic door prizes! Students, faculty, members of the Board, and executive officers are all invited to attend.

### **Session Monitors:**

Students will have the opportunity to partially defray their conference expenses by serving as session monitors. Monitors are responsible for assisting the session chair, recording session attendance and assisting with audio/visual equipment. All monitors must report to the Authors' Coffee each morning (7:15am-8:15am) they are scheduled to monitor sessions. Monitor's positions are limited and will be assigned on a first-come basis, monitors will receive \$30 per session monitored. The deadline for submitting monitor work forms to TMS is September 8, 2000. To obtain work forms and schedule, contact Peggy Weiss, TMS. 724-776-9000, ext. 227 or [weissp@tms.org](mailto:weissp@tms.org), or fax 724-776-3770.

# Attention: Graduate Students Only!

Attend the 2<sup>nd</sup> TMS Graduate Student Leaders Program meeting on Monday, October 9, 2000, in the Regal Riverfront Hotel from 12:00–1:30pm. Meet with members of the Student Affairs Committee and your peers to assist in the development of this new TMS student program geared specifically toward graduate students. Attendance is limited to graduate students who must register in advance by September 28 to: Tara Braden, TMS Membership Coordinator 724-776-9000 ext 220, tbraden@tms.org

## Special Events

### **TMS Fall Meeting 2000 Welcoming Reception**

**Monday, October 9, 2000, 5:30 PM – 7:00 PM**

**Regal Riverfront Hotel**

Don't miss this opportunity to welcome old friends, and establish new acquaintances with colleagues from around the world. Complimentary snacks, beer, wine, and soft drinks will be provided.

### **Wednesday Night Reception**

**Wednesday, October 11, 2000, 5:30 PM – 7:00 PM**

**Regal Riverfront Hotel**

This is a special networking opportunity. Notable speakers, lecturers, and presenters from the week's program will be available to discuss their work and answer your questions. Complimentary snacks, beer, wine and soft drinks will be provided.

### **SPECIAL TUTORIAL**

#### **A Crystallography and Diffraction Tutorial Sponsored by the ASM-MSCTS Structures Committee**

**Monday, October 9, 2000, 8:00 AM – 12:00 NOON**

**Regal Riverfront Hotel**

Presented by: Prof. Marc DeGraef, Prof. David Laughlin, Prof. Mike McHenry; Carnegie Mellon University, Pittsburgh, Pennsylvania

In this 4-hour tutorial we will introduce the basic concepts of crystallography: lattice geometry and symmetry. We will define the 7 crystal systems and illustrate how lattice geometry computations (bond distances and angles) can be performed using the metric tensor concept. Then we introduce the reciprocal space description and the associated geometrical considerations. Symmetry operations are an essential ingredient of the description of a crystal structure, and we will enumerate the most important symmetry elements. We will take a close look at how sets of symmetry elements, called point groups and space groups, can be used to succinctly describe crystal structures. We will use 10 different crystal

structures as examples throughout the tutorial. The last part of the tutorial will introduce concepts of diffraction, in particular the structure factor, and will illustrate how the International Tables for Crystallography can be used effectively. Throughout the entire tutorial we will make extensive use of software tools to illustrate various concepts. All software tools will be made available from a website.

David E. Laughlin is Professor in the Department of Materials Science and Engineering at Carnegie Mellon University. He is also the Director of the Magnetic Recording Media Group in the Data Storage Systems Center of CMU and Editor of Metallurgical and Materials Transactions. He has published more than 250 papers in the field of Materials Science, with a major emphasis on phase transformations and the role of microstructure in controlling the extrinsic properties of magnetic materials.

Marc DeGraef is Associate Professor in the Department of Materials Science and Engineering at Carnegie Mellon University. He is also Director of the J. Earle and Mary Roberts Materials Characterization Laboratory. He has published more than 90 papers in the field of Materials Science, with an emphasis on microstructural characterization in intermetallics and Lorentz observations on magnetic materials. He is currently writing an undergraduate level textbook on crystallography, symmetry and diffraction (M. McHenry coauthor).

Michael E. McHenry is Professor in the Department of Materials Science and Engineering at Carnegie Mellon University. He is also the Principal Investigator on the Multidisciplinary University Research Initiative (MURI) on High Temperature Magnetic Materials of CMU and Editor for the Magnetism and Magnetic Materials and InterMag Conferences. He has published more than 150 papers in the field of Materials Science, with a major emphasis on microstructure/property relationships in magnetic and superconducting materials.



David E. Laughlin



Marc DeGraef



Michael E. McHenry

# Special Events continued. . .

The Young Leaders Tutorial Lecture includes an optional “brown bag” lunch for \$15, which should be purchased in advance using the enclosed registration form. There will be no charge for those attending the lecture who do not wish to purchase the lunch.

## Attention! Young Professionals:

We'll be looking for you at the Young Leaders Business Meeting on Sunday, October 8, 2000, from 2:30 PM – 4:00 PM in the Regal Riverfront Hotel. Please check the meeting Calendar of Events for the room.

**Reception from  
5:30 PM – 6:30 PM**

Professional members age 35 or under, come and become a part of this pro-active young professionals group!

### **Young Leaders Tutorial Luncheon Lecture—**

*Prof. Robert O. Ritchie*

*University of California-Berkeley*

*Department of Materials Science and Mineral Engineering,*

*Sponsored by the TMS Young Leaders Committee*

*Monday, October 9, 2000*

*12:00 noon–1:30 p.m.*

*Regal Riverfront Hotel*

### **Structural Disasters Due to Fatigue— From Aircraft to Medical Devices:**

It is estimated that over 80% of all structural failures can be traced to mechanical fatigue, invariably in association with cyclic plasticity, sliding or physical contact (fretting or rolling contact fatigue), environmentally-assisted damage (corrosion fatigue), or elevated temperatures (creep-fatigue). Many of these failures, such as aircraft crashes or medical implant fractures, incur enormous financial costs and can involve significant loss of life. Indeed, the annual cost of such fatigue fractures has been estimated to be between one and two billion dollars. In this presentation, we focus on the role of cyclic fatigue in two quite diverse safety-critical applications, namely the premature failure of metallic components, e.g., airframe and engine components, that have caused major (milestone) disasters in aviation history, and the mechanical fracture of medical prostheses implanted in the human body.

### **Honorary Symposium and Dinner Interfacial Dislocations: Symposium in Honor of J.H. Van der Merwe**

*Sponsored by the ASM-MSCTS Structures Committee*

*Wednesday, October 11, 2000,*

*6:00 PM–9:00 PM*

*Regal Riverfront Hotel*

This symposium is being held to honor J.H. Van der Merwe on the 50<sup>th</sup> anniversary of his discovery of interfacial dislocations. Presentations will address interfacial-dislocation energetics, dislocation core structures, low energy dislocation structures, nucleation of dislocation dynamics, misfit accommodation by compliant substrates, and misfit dislocations at precipitate interfaces.

The cost of the dinner ticket will be \$50. Please refer to the Advance Registration Form in this brochure to purchase your ticket.



**ASM/TMS Distinguished Lectureship  
in Materials and Society**

Wednesday, October 11, 2000

11:45 AM–12:45 PM

Americas Center

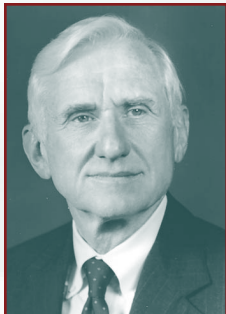
**Lecturer:** Prof. Merton C. Flemings, FASM

Toyota Professor

Massachusetts Institute of Technology

Cambridge, MA

**Topic: Why Materials Science and Engineering  
(MSE) is Good for Metallurgy**



**Merton Flemings**

Metallurgy/materials education will continue to evolve to encompass, in an intellectually unified way, the full range of structural and functional materials. Computation, information, and other advanced sciences and technologies will assume increasing roles in materials education, as will distance and continuing education. The advantages of the changes will be many...to the graduates, to emerging industries, and to the traditional metallurgical industries seeking productive, creative young engineers as employees.

Metallurgy/materials departments have evolved quite remarkably over the last century. The need for continuing change is now no less if we are to attract the best young people into our field in the numbers needed. Some historical anecdotes and current directions of materials education at MIT, including distance education, will be summarized.

## University Alumni Receptions

Alumni receptions of various universities will be scheduled at the Regal Riverfront Hotel.

Please refer to the final program (available on-site) for a detailed listing.

# Don't Miss the Special Wednesday Night Mixer

Wednesday, October 11, 2000

5:30–7:00 PM

**Regal Riverfront Hotel**

This special networking opportunity is your chance to network with notable speakers, lecturers, and presenters from the week's program; or just catch up with old friends and colleagues. Complimentary refreshments will be served.

# Hotel Registration Form

TMS 2000 Fall Meeting  
October 8-12, 2000  
Regal Riverfront Hotel  
200 S. Fourth Street, St. Louis, MO 63102



Reservation Phone: (800) 325-7353 or (314) 241-9500  
Reservation Fax: (314) 241-9601

Please Reserve \_\_\_\_\_ Room(s) for \_\_\_\_\_ Person(s)

Name \_\_\_\_\_

Sharing with \_\_\_\_\_

Company \_\_\_\_\_

Mailing Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Zip Code \_\_\_\_\_ Country \_\_\_\_\_

Company Phone \_\_\_\_\_ Company Fax \_\_\_\_\_

All reservations must be accompanied by first night's deposit or credit card.

Please check here if handicap accommodations are required. 

All reservations must be received at the Regal Riverfront Hotel by September 7, 2000. Requests prior to and after convention dates will be accepted on space available basis only. Convention rate applies three days prior and three days following official meeting dates based on availability. All rooms are subject to 14.776% tax.

Check       Credit Card

Card No. \_\_\_\_\_

Visa       MasterCard       American Express       Discover       Other

Expiration Date \_\_\_\_\_ Signature \_\_\_\_\_

I plan to arrive \_\_\_\_\_ (Day & Date) \_\_\_\_\_

I plan to depart \_\_\_\_\_ (Day & Date) \_\_\_\_\_

1 (one) person \$126.00      2 (two) persons \$126.00      3 (three) persons \$126.00      4 (four) persons \$126.00

Please Check:

Smoking Requested       Non-Smoking Requested       1 (one) Bed Requested       2 (two) Beds Requested

Special Requests: \_\_\_\_\_

**PLEASE NOTE:** CHECK IN TIME IS 4:00 PM      CHECK OUT TIME IS 12 NOON



# Registration Form

9 - 12 October 2000 • America's Center • St. Louis, Missouri USA

**Advance Registration Deadline: 11 September 2000**

Fax or mail this form to:

ASM Int'l, Registration Dept., 1111 Gail St., St. Louis, MO 63103

FAX: (513) 621-4439



**Please print or type**

Mr.  Ms.  Mrs.  Dr.  Prof. TMS/ASM ID# (required for discount) \_\_\_\_\_

Last Name \_\_\_\_\_ First Name \_\_\_\_\_ Middle Initial \_\_\_\_\_

Job Title \_\_\_\_\_

Company \_\_\_\_\_

Street Address \_\_\_\_\_

Dept./M.S. \_\_\_\_\_

City \_\_\_\_\_ State/Province \_\_\_\_\_ Zip \_\_\_\_\_ Country \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

E-mail \_\_\_\_\_

Is the above address a  business address or a  home address

Special Requirements \_\_\_\_\_

Dietary Restrictions:  Vegetarian (V)  Kosher (K)  Diabetic (D)

**1. Which category below BEST DESCRIBES the type of organization in which you are employed (please check only one)?**

**INDUSTRIAL**

- X01 Aerospace
- X02 Automotive
- X03 Off-highway
- X04 Fabricated Metal Products
- X05 Machinery (except electrical)
- X06 Electrical/Electronic Industry
- X07 Chemical/Process Industry
- X08 Primary Metals Production

**INDUSTRIAL - Con't**

- X09 Energy and Utilities
- X10 Heat Treating - Commercial
- X11 Heat Treating - Captive (In-house)
- X12 Heat Treating - Commercial & Captive
- X13 Thermal Spray - Commercial
- X14 Thermal Spray - Captive (In-house)

**INDUSTRIAL - Con't**

- X15 Thermal Spray - Commercial & Captive
- X16 Consulting
- X17 Commercial Testing
- X18 Contract R & D
- X19 **EDUCATION**
- X20 **GOVERNMENT**
- X21 **BOOK DEALER**
- X22 **SUBSCRIPTION AGENT**

**2. Please check a single selection in each column that BEST DESCRIBES you and your work.**

**JOB CLASSIFICATION**

- Y01 CEO/President/Gen'l Management
- Y02 Mgr/Supervisor of Division or Group
- Y03 Program/Project Mgr
- Y04 Engineer/Scientist
- Y05 Technician/Operator
- Y06 Professor/Instructor
- Y07 Student
- Y08 Librarian

**PRINCIPLE WORK DONE IN YOUR SECTION OR DIVISION OF THE ORGANIZATION**

- Y09 R & D
- Y10 Manufacturing/Process Engineering
- Y11 Materials Testing and Selection
- Y12 Quality Assurance/Quality Control
- Y13 Design/Selection of Materials
- Y14 Marketing/Sales
- Y15 Purchasing
- Y16 Training

**3. How many employees are at your location?**

- Z01 1-4
- Z02 5-9
- Z03 10-14
- Z04 15-19
- Z05 20-49
- Z06 50-99
- Z07 100-249
- Z08 250-499
- Z09 500-999
- Z10 1000-2499
- Z11 2500 +



**Please see General Information for what is included with each registration category.**

Materials Solutions Event	Non-Member	Member
Value package includes admission to Materials Solutions/TMS/Heat Treating Conferences and Exhibits		
• Full Conference - Attendees & Participants	<input type="checkbox"/> \$575 (MSAB) <sup>1</sup>	<input type="checkbox"/> \$450 (MSAA)
• Full Conference - Students Only <sup>2,3</sup>	<input type="checkbox"/> \$25 (CCCD)	<input type="checkbox"/> \$0 (CCCC)
Exhibits	Non-Member	Member
• Materials Solutions and Heat Treating Exhibits Only (Pre-Reg Only)	<input type="checkbox"/> \$0 (JJJZ)	<input type="checkbox"/> \$0 (JJJY)
Additional Functions:		
• IMS Bonus Features: Sunday Symposium, Buehler Luncheon, Struers Ice Breakers Reception, IMS Awards Luncheon (Does NOT include Monday-Wednesday IMS programming)		<input type="checkbox"/> \$50 (IMMS)
• ASM Awards Dinner and Dance Ticket (Tuesday)	___ No. of tickets @ \$65.00 (KKKC) =	___
• ASM Committee/Council and Canada/Europe Awards Luncheon (Monday)	___ No. of tickets @ \$25.00 (KKKE) =	___
• Materials XXI Management Luncheon (Monday)	___ No. of tickets @ \$25.00 (KKKF) =	___
• TMS Young Leader Tutorial Luncheon Lecture (Monday)	___ No. of tickets @ \$15.00 (KKKK) =	___
• TMS Interfacial Dislocation Symposium & Dinner (Wednesday)	___ No. of tickets @ \$50.00 (KKKL) =	___
Plant Tours (Thursday)		
• Boeing	___ No. of tickets @ \$20.00 (KKKG) =	___
• Anheuser Busch Brewery	___ No. of tickets @ \$20.00 (KKKH) =	___
• Airgas Inc.	___ No. of tickets @ \$20.00 (KKKI) =	___
• Emerson Electric Motor Technology Center	___ No. of tickets @ \$20.00 (KKKJ) =	___
Optional Guest Program		
• St. Louis Overview (Monday) - Lunch included	___ No. of tickets @ \$50.00 (LLLA) =	___
• Historic St. Charles (Tuesday) - Lunch included	___ No. of tickets @ \$48.00 (LLLB) =	___
• St. Louis Treasures (Wednesday) - Lunch included	___ No. of tickets @ \$41.00 (LLLC) =	___
• Guest name for badge _____		(LLLD)
<sup>1</sup> All Materials Solutions non-member registrants receive a one-year complimentary membership to ASM. <sup>2</sup> To qualify for student rate, you must attach a copy of your student ID card. Registrations received without appropriate verification will be charged full conference registration fee. <sup>3</sup> All registered non-member students will receive a complimentary membership in ASM and TMS for 2001.		
Method of Payment (all payments must be in U.S. dollars) Registrations will not be processed without full payment		
<input type="checkbox"/> Check enclosed (payable to ASM International) Check#: _____		
Credit Card Number _____ Exp. Date _____		
<input type="checkbox"/> MasterCard <input type="checkbox"/> VISA <input type="checkbox"/> American Express <input type="checkbox"/> Discover <input type="checkbox"/> Diners Club		
Signature _____		
<b>CEMAOTMS</b>		
ASM reserves the right to amend this program as necessary		
		Grand Total: \$ _____

# PMP 2000

November 5-8, 2000  
San Francisco, California, USA

## *The Second International Conference on Processing Materials for Properties*

**November 5-8, 2000  
Renaissance Parc Fifty-Five Hotel  
San Francisco, California, USA**

Sponsored jointly by  
**The Mining and Materials  
Processing Institute of Japan  
(MMIJ)**



and  
**The Minerals, Metals  
& Materials Society  
(TMS)**

**TMS**  
Minerals • Metals • Materials

**To register  
today and  
for general  
information  
contact:**

TMS Meeting  
Services Department  
184 Thorn Hill Road  
Warrendale, PA 15086  
Call toll free 1-800-966-4867  
or 724-776-9000, ext. 243  
or fax us at 724-776-3770  
E-mail: [mtgserv@tms.org](mailto:mtgserv@tms.org)

### **You should attend this show if:**

- ... you are a member of the international materials community.
- ... you need to stay informed of continuing globalization of materials.
- ... you want to know more about the creation of new technologies and materials and their importance in associated processing routes.
- ... you are interested in materials characterization and properties of numerous metals, materials, and processing methods.

**PMP 2000** places special emphasis on the processing aspects in material research, development, and production. The inclusion of topics in different materials fields allows you to gain appreciation and an in-depth understanding of Materials Processing for Properties.

#### **Plan to participate in any of the 35-40 sessions and choose from an extensive presentation menu that includes:**

- Copper, Nickel, Zinc, Lead and Tin
- Rare Metals
- Nonferrous Alloys and Light Metals
- High-Technology Materials:  
Electronic, Magnetic and Photonic Materials
- High-Temperature Materials
- Composite Materials
- Thin Films and Coatings
- Powder Preparation and Processing
- Solidification Processing
- Electrolytic Processing
- Novel Materials Development in Aqueous Processing
- Control and Analysis in Materials Processing
- Resources and Its Related Environment
- Waste Management
- Iron and Steel Making

An important component of PMP 2000 is the opportunity to meet with representatives of the university, the industry, etc. from all over the globe. In this respect, the conference venue at Renaissance Parc Fifty-Five Hotel will provide excellent opportunities for networking and discussions with colleagues and associates.

### **For Information on the technical aspects of the PMP 2000 Conference:**

Dr. Brajendra Mishra  
Metallurgical and Materials Engineering Department  
Colorado School of Mines  
Golden, Colorado 80401-1887  
Telephone: 303-273-3893; Fax: 303-384-2189  
E-mail: [bmishra@mines.edu](mailto:bmishra@mines.edu)

Dr. Chikabumi Yamauchi  
Department of Materials Science and Engineering  
Graduate School of Engineering, Nagoya University  
Nagoya 464-8603  
Japan 00151  
Telephone: 81-052-789-3360; Fax: 81-052-789-3228  
E-mail: [yamauchi@numse.nagoya-u.ac.jp](mailto:yamauchi@numse.nagoya-u.ac.jp)



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