

# TMS2007

136th Annual Meeting & Exhibition

Linking Science and Technology for Global Solutions

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## Welcome to the TMS 2007 Annual Meeting & Exhibition!

Dear Colleague:

This is an exciting year for the The Minerals, Metals & Materials Society (TMS)...and you are a part of it at this 136th meeting! Traditionally, this meeting has been the place to learn about the latest advances in our field and network with colleagues from around the globe. This year's meeting encompasses that and significantly more...we celebrate TMS' 50th anniversary as a member society of AIME by taking a look back at all that materials science and engineering has accomplished, and revealing what new technology awaits us. I encourage you to attend the anniversary plenary sessions scheduled each morning, highlighting our progress as a materials community over the last 50 years, which feature special speakers from industry, academia and government. We will also look ahead, and have some exciting news about Materials Technology@TMS, which will be launched here at this meeting.

Of course, we have an outstanding technical program, with 280 sessions and a record 2,500 presentations covering light metals; extraction, processing, structure and properties; and emerging materials; as well as plenary sessions in aluminum recycling and magnesium technology. Lectures ranging from materials characterization to nanomaterials, as well as various receptions, and honors and awards events, provide multiple opportunities to network and socialize with colleagues.

Furthermore, the exhibition houses excellent examples of what companies offer in helping us in our daily work. Be sure to visit the *JOM* booth at the exhibition, which captures the Greatest Materials Moments in History as well as providing the link to the future with Materials Technology@TMS.

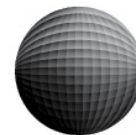
The future of materials science and engineering is also evidenced by the students with us again this year to take advantage of programs to prepare them for their careers. There are a variety of student events, including the TMS 50th Anniversary Materials Bowl. All will enjoy this materials knowledge and trivia competition!

I hope you gain valuable knowledge during this week, as well as make valuable contacts, and enjoy the spectacular venue of Orlando as well!

Sincerely,

A handwritten signature in cursive script that reads "B. Mishra".

Brajendra Mishra  
TMS President



**Join TMS as we *Celebrate 50 Years as a Member Society of AIME!***



## **JOM Presents the 10 Greatest Materials Moments**

Monday, 8 a.m. • Northern Hemisphere B/C/D

This top 10 countdown crosses the millennia and identifies pivotal historical events that lead 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 10 was determined through voting by TMS members, the materials community at large and the general public. Attend to find out if your number one moment made it in the top 10!

Read more about the Greatest Materials Moments in *JOM*, page 14.

## **TMS 50th Anniversary Plenary Breakfast Series**

Monday, Tuesday and Wednesday, 8 a.m. • Northern Hemisphere B/C/D

### **The Future of Materials Science and Engineering**

by Anniversary Laureate - Professor Diran Apelian, Howmet Professor of Engineering;  
Director Metal Processing Institute, Worcester Polytechnic Institute

**Monday**

### **Light Metals: 50 Years of Technological Progress**

by Anniversary Laureate - Professor James Evans, University of California, Berkeley

**Tuesday**

### **Structural Materials: 50 Years of Technological Progress**

by Anniversary Laureate - Dr. Jeffrey Wadsworth, Oak Ridge National Laboratory

**Tuesday**

### **Extraction & Processing: 50 Years of Technological Progress**

by Anniversary Laureate - Dr. Michael King, Falconbridge Ltd.

**Tuesday**

### **Materials Processing & Manufacturing: 50 Years of Technological Progress**

by Anniversary Laureate - Dr. Alan Taub, General Motors Corporation

**Wednesday**

### **Electronic, Magnetic & Photonic Materials: 50 Years of Technological Progress**

by Anniversary Laureate - Dr. Stan Williams, Hewlett-Packard

**Wednesday**

### **Evolution of the Profession and the Professional**

by Anniversary Laureate - Professor Julia Weertman  
Walter P. Murphy Professor Emerita in Service, Northwestern University

**Wednesday**



*Celebrating 50 Years  
as a Member Society of AIME*

Papers presented by the Anniversary Laureates are included in *JOM*, beginning on page 18.

**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.**

Plus, see *JOM's* representation of the Top 10 Moments at the booth!

## Your Value-Packed Registration Includes

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

## Badges

Please be sure to wear your attendee badge in order to be admitted to technical sessions, the exhibition and social functions. Guest badges are for spouses or other individuals accompanying registered meeting attendees and are for identification purposes only. They do not permit access to technical presentations.

## Event Locations

**Dolphin Hotel** is the site for all conference events, including technical sessions and the exhibition; technical sessions begin at 9 a.m. Monday through Thursday.

**Swan Hotel** is the location for all committee meetings and guest hospitality. Guest hospitality is hosted Monday through Wednesday, 7 to 10 a.m., in Macaw 2. TMS sponsors a continental breakfast for spouses or other individuals accompanying registered meeting attendees.

## Shuttle Service

The shuttle operates in 30-minute intervals between the Swan Hotel, Dolphin Hotel, Disney All-Star Sports Hotel, and Disney Animal Kingdom Lodge.

Sunday .....	noon to 11:30 p.m.
Monday .....	6:30 a.m. to 7 p.m.
Tuesday .....	6:30 a.m. to 10:30 p.m.
Wednesday .....	6:30 a.m. to 6:30 p.m.
Thursday .....	6:30 a.m. to 1:30 p.m.

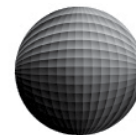
- See the following pages for floor plans.

## Authors' Coffee

### *Attention speakers, session chairs and organizers!*

Your attendance is required on the day of your session in order to coordinate last minute changes and to receive instructions before the presentations begin. Authors' coffee is held Monday through Thursday from 7 to 8 a.m. at the Dolphin Hotel, Northern Hemisphere Ballroom B, C, and D, on the ballroom level.





## Tours

A representative from the tour company is available for on-site ticket sales at the Tour/Housing Desk located on the lobby level of the Dolphin Hotel.

## Internet Options

Visit the **Cyber Center** on the lobby level of the Dolphin Hotel to check and send e-mail at no charge.

**WiFi** is available in the Authors' Coffee location in the Hemispheres Ballroom area of the Dolphin Hotel throughout the day, beginning after 9 a.m.

## Employment Referral Board

Post your resume or job openings on the employment referral board located at the TMS Member Services booth.



## Policies

### Refunds

The deadline for all refunds was January 29, 2007. No refunds are issued at the meeting. All fees and tickets are nonrefundable.



### 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 speak with a representative in the meeting registration area.

### Cellular Phone Usage

In consideration of attendees and presenters, TMS kindly requests your cooperation in minimizing disturbances which may occur during technical sessions due to cell phone use. Please place cellular phones or other electronic devices in "silent mode" while you are in meeting rooms.

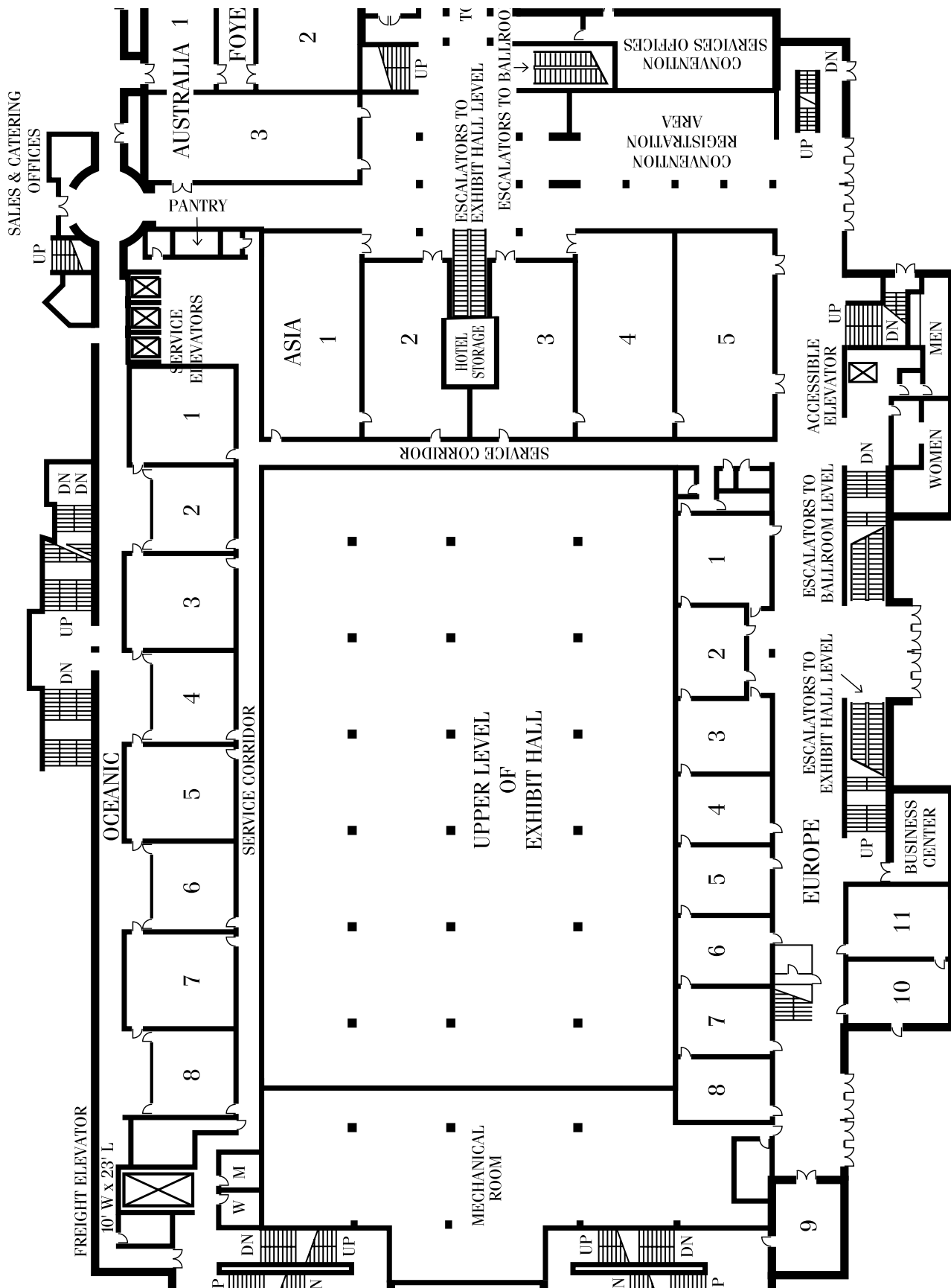
### Audio/Video Recording

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.

### Photography Notice

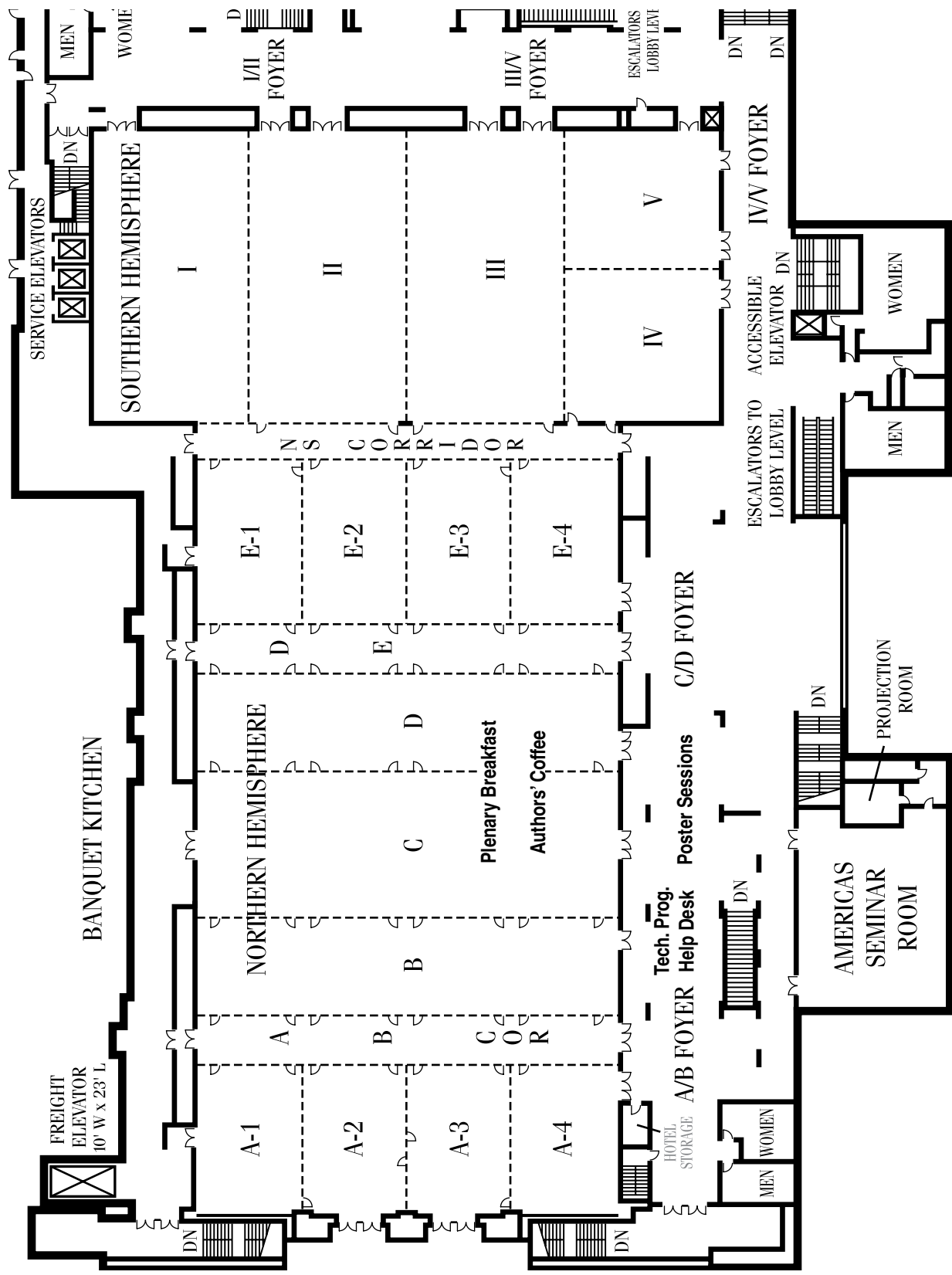
By registering for the meeting, all attendees acknowledge that they may be photographed by TMS personnel while at events, and that those photos may be used for promotional purposes.

## Dolphin Lobby Level

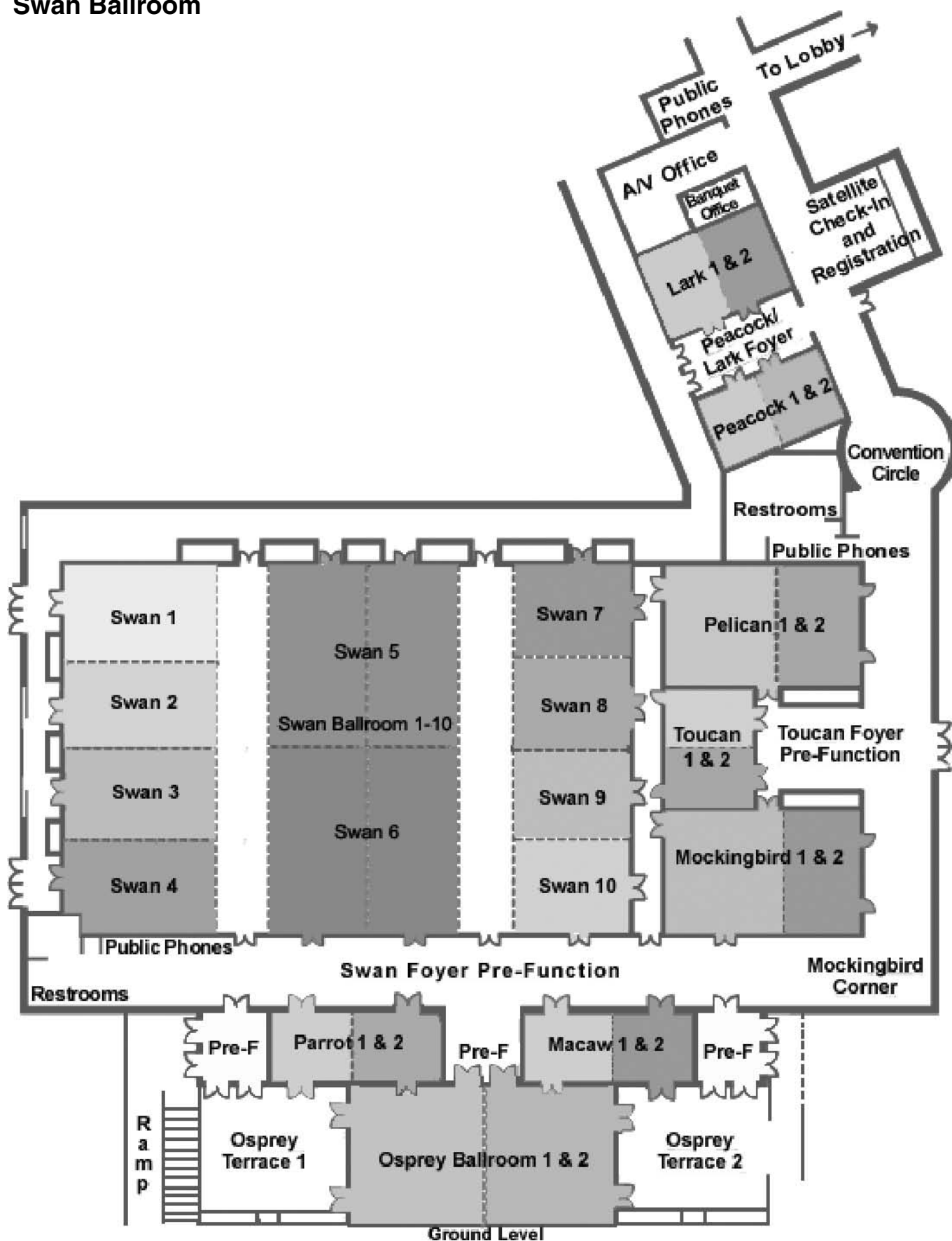




## Dolphin Ballroom Level • Hemispheres Ballroom



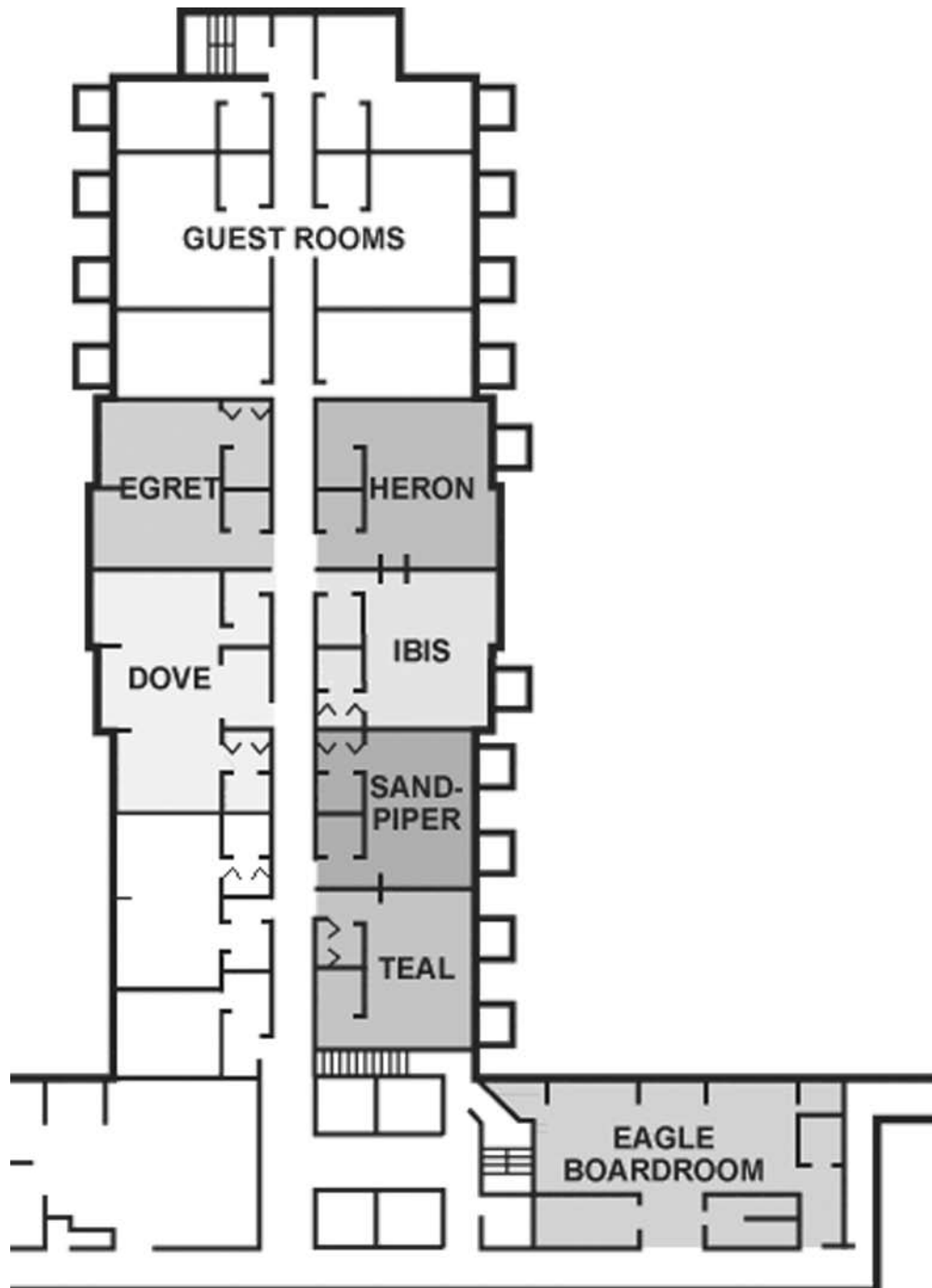
**Swan Ballroom**



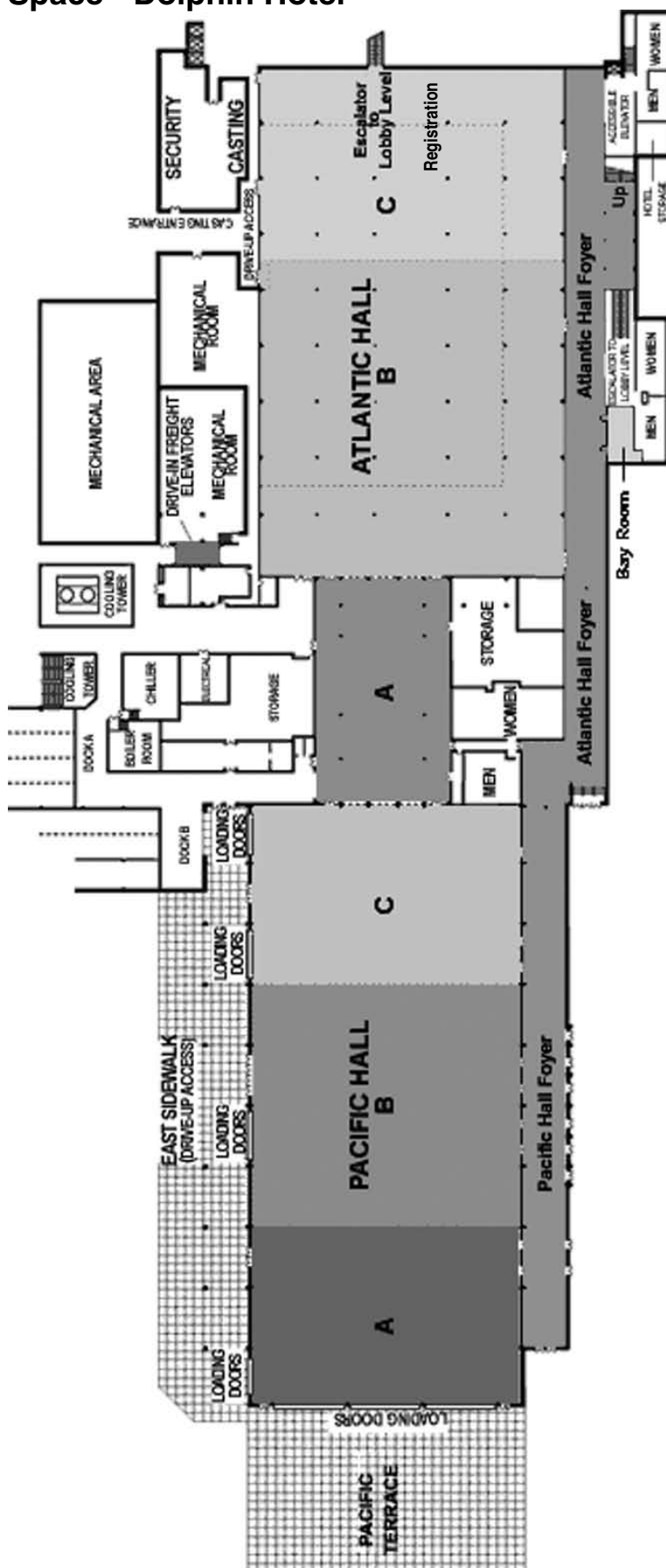


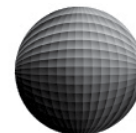


## Swan Hospitality Suites



### Convention Hall Space • Dolphin Hotel





## In Materials Characterization

## For More Information

### Monday

Mechanics and Materials Modeling and Materials Design

Methodologies, in Honor of Dr. Craig Hartley's 40 Years

of Contributions to Mechanics and Materials Science ..... Technical Program

Frontiers in Solidification Science ..... Technical Program

### Tuesday

Hume-Rothery Award Lecture: How Big is an Atom? ..... This Section, page 21

### Throughout the Week

32 sessions in Materials Characterization ..... Technical Program

## In Nanomaterials

## For More Information

### Monday

Mechanical Behavior of Nanostructured Materials, in Honor

of Carl Koch (session and poster) ..... Technical Program

2007 Nanomaterials: Fabrication, Properties and Applications ..... Technical Program

Towards Functional Nanomaterials: Synthesis, Characterization

and Applications ..... Technical Program

Institute of Metals/Robert Franklin Mehl Lecture: Inverse

Nanostructuration in Complex Metallic Alloys ..... This Section, page 20

### Throughout the Week

28 sessions in Nanomaterials and Nanoscale Structures ..... Technical Program

## In Biomaterials

## For More Information

### Throughout the Week

8 sessions in Biological, Bioinspired and Biomaterials ..... Technical Program

## In Magnesium

## For More Information

### Monday

Magnesium Technology (plenary) ..... Technical Program

### Wednesday

Light Metals Division Luncheon: FreedomCAR Automotive

Lightweighting Materials ..... This Section, page 22

### Throughout the Week

13 sessions in Magnesium Technology ..... Technical Program

## In Aluminum

## For More Information

### Monday

Aluminum Recycling Industry: Global Challenges  
and Opportunities (plenary) ..... Technical Program  
Furnace Systems Technology (workshop)..... This Section, page 18

### Tuesday

Alumina and Bauxite: Alumina Refinery Safety and Integrity  
(panel discussion) ..... Technical Program  
Recycling and Waste Processing: Automotive Recycling, Global  
Challenges and Opportunities (session and panel discussion) ..... Technical Program  
Aluminum Reduction Technology: Slotted Anodes ..... Technical Program

### Thursday

Cast Shop Technology: Cast Shop Safety ..... Technical Program

### Throughout the Week

49 sessions in Aluminum Production and Applications ..... Technical Program

## In Lead-Free Solders

## For More Information

### Throughout the Week

11 sessions in Lead-Free Solder Technologies ..... Technical Program

## In Integrated Computational Materials Engineering

## For More Information

### Wednesday

Integrated Computational Materials Engineering: Lessons  
from Many Fields ..... Technical Program  
National Science Foundation Workshop: CyberInfrastructure to  
CyberDiscovery for Materials Science ..... Technical Program  
National Academies ICME Study Community Town Hall Meeting ..... Technical Program

### Throughout the Week

26 sessions in Computational Materials Methods ..... Technical Program

## In Energy

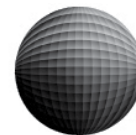
## For More Information

### Monday

Materials in Clean Power Systems II: Fuel Cells, Solar, and  
Hydrogen-Based Technologies (plenary) ..... Technical Program  
8th Global Innovations Symposium: Trends in Materials  
and Manufacturing Technologies for Energy Production (plenary) ..... Technical Program

### Throughout the Week

25 sessions in Materials in Energy Applications..... Technical Program



## In High Temperature Materials and Superalloys

For More Information

### Throughout the Week

10 sessions in High Temperature Materials and Superalloys ..... Technical Program

## In Education and Professional Development

For More Information

### Monday

Women in Science Breakfast Lecture: Advancing Women

in Science and Engineering ..... This Section, page 20

Internet and Other Electronic Resources for Materials

Education (session and panel discussion) ..... Technical Program

Outreach Programs in Materials Science and Engineering

(session and panel discussion) ..... Technical Program

Young Leaders Tutorial Luncheon Lecture: Materials Research

in Multidisciplinary, Application-Driven Technology ..... This Section, page 20

### Tuesday

Intellectual Property in Materials Science: Patents,

Tech Transfer and Licensing ..... Technical Program

Extraction & Processing Division Luncheon:

The Thinking to Knowledge Chain in Extractive Metallurgy ..... This Section, page 21



# MATERIALS TECHNOLOGY TMS

### What is it?

A new Web-based interface for materials science and engineering professionals

### What can I do on the site?

Network, share knowledge and utilize resources in technology-specific communities online

### What features does it have?

Discussion boards, databases, research, articles, proceedings, newswires and other informational tools

### What are the technology areas?

Integrated Computational Materials Engineering

Magnesium

Materials for Nuclear Power

Lead-Free Solders

Superalloys

Education

### Where can I get more information?

[www.materialstechnology.org](http://www.materialstechnology.org) or stop by the JOM or TMS Membership booths for a demonstration!



### Sunday

Registration .....	11 a.m. to 6 p.m. ....	D .....	Atlantic Hall C
TMS Membership Booth.....	11 a.m. to 6 p.m. ....	D .....	Lobby Level, Convention Foyer
TMS Publications Sales.....	11 a.m. to 6 p.m. ....	D .....	Lobby Level, Convention Foyer

#### **Student Events:**

TMS 50th Anniversary Materials Bowl.....	1:30 p.m. ....	D .....	Pacific Hall A
Elimination Rounds.....	1:30 to 5 p.m.		
Championship Match.....	8:30 p.m.		
Student Orientation .....	2:30 to 3 p.m. ....	S .....	Osprey 1
Career Forum .....	3:30 to 5 p.m. ....	S .....	Osprey 1
Career Tips Session .....	5 to 6 p.m. ....	S .....	Osprey 1
Student Networking Mixer .....	9 to 11 p.m. ....	D .....	Pacific Hall A/B

#### **Social Functions:**

Young Leaders/New Member Reception .....	5 to 6 p.m. ....	S .....	Mockingbird 1
President's Golden Jubilee Celebration (by invite) .....	6 to 8:30 p.m. ....	off-site .....	Atlantic Dance Hall

#### **Committee Meetings:**

Professional Reg. Leadership Committee .....	7 a.m. to noon.....	S .....	Heron
Financial Planning Committee.....	7:30 to 9:30 a.m.....	S .....	Toucan 2
Accreditation Committee .....	8:30 to 10:30 a.m.....	S .....	Eagle Boardroom
TMS Board of Directors .....	10:30 a.m. to 12:30 p.m. ....	S .....	Osprey 2
ABET Training Session .....	10:30 a.m. to 5 p.m. ....	S .....	Macaw 1
Young Leaders Committee Business Meeting.....	12:30 to 2 p.m. ....	S .....	Toucan 2
Information Session/Committee Orientation.....	1 to 3 p.m. ....	S .....	Pelican 2
Nominating Committee .....	2 to 3 p.m. ....	S .....	Lark 2
Program Committee .....	3 to 5 p.m. ....	S .....	Ibis
Publications Coordinating Committee .....	4 to 6 p.m. ....	S .....	Heron
LMD Council.....	4:30 to 6 p.m. ....	S .....	Toucan 2
International Materials Review .....	7 to 9:30 p.m. ....	S .....	Eagle Boardroom
ASM Materials Science Sector Executive.....	9 to 10:30 p.m. ....	S .....	Heron

(For TMS Technical Committee Meetings Schedule, see page 17.)

### Monday

Registration .....	7 a.m. to 6 p.m. ....	D .....	Atlantic Hall C
TMS Membership Booth.....	7 a.m. to 6 p.m. ....	D .....	Lobby Level, Convention Foyer
TMS Publications Sales.....	7 a.m. to 6 p.m. ....	D .....	Lobby Level, Convention Foyer
Authors' Coffee .....	7 to 8 a.m. ....	D .....	Northern Hemisphere B/C/D
Greatest Moments/TMS 50th Anniv. Plenary .....	8 to 9 a.m. ....	D .....	Northern Hemisphere B/C/D

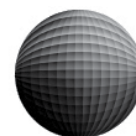
#### **Exhibition:**

Exhibit Hours .....	noon to 6 p.m. ....	D .....	Atlantic Hall C
Hosted Grand Opening Reception .....	5 to 6 p.m. ....	D .....	Atlantic Hall C
Inst. of Metals/Robert Franklin Mehl Lecture .....	12:30 to 1:30 p.m. ....	S .....	Pelican 1
Young Leaders Tutorial Lecture/Luncheon.....	12:30 to 2 p.m. ....	S .....	Mockingbird 1
Hume-Rothery Award Lecture .....	2 p.m. ....	D .....	Oceanic 7
Technical Division Student Poster Contest .....	5 to 6:30 p.m. ....	D .....	Atlantic Hall Foyer

#### **Social Functions:**

Women in Science Breakfast/Presentation .....	7 to 8 a.m. ....	S .....	Pelican 1/2
Guest Hospitality .....	7 to 10 a.m. ....	S .....	Macaw 2
Sloan Industry Center Luncheon (by invite) .....	12:30 to 2 p.m. ....	S .....	Osprey 1
Purdue University Alumni Reception .....	6 to 7:30 p.m. ....	S .....	Dove
Ohio State University Alumni Reception.....	6 to 8 p.m. ....	S .....	Swan 6

**Key: S=Swan Hotel / D=Dolphin Hotel**



Carl C. Koch Honorary Dinner .....	6 to 9:30 p.m.....	S .....	Pelican 1
Richard Fields Dinner .....	6 to 9:30 p.m.....	S .....	Mockingbird 1
Colorado School of Mines Alumni Reception .....	6:30 to 7:30 p.m.....	S .....	Parrot 1
Michigan State University Alumni Reception .....	6:30 to 8:30 p.m.....	S .....	Peacock 1/2
Univ. of Science & Tech. Beijing Alumni Reception .....	8 to 9:30 p.m.....	S .....	Osprey 2

## **Committee Meetings:**

Met. Trans. "A" Board of Review .....	7 to 8 a.m.....	S .....	Toucan 1
Met. Trans. Joint Commission/Managers .....	8 to 9:30 a.m.....	S .....	Toucan 1
Acta Materialia Inc. Investment Committee .....	9 a.m. to 5 p.m. ....	S .....	Egret
Past Presidents' Brunch.....	9:30 to 11 a.m.....	S .....	Eagle Boardroom
EMPMD Council .....	12:30 to 2 p.m.....	S .....	Lark 1/2
EPD Council .....	12:30 to 2 p.m.....	S .....	Peacock 1/2
Membership and Student Development Committee .....	12:30 to 2 p.m.....	S .....	Dove
Seven Springs Int'l Symposium on Superalloys: Program Committee .....	12:30 to 2 p.m.....	S .....	Mockingbird 2
Accreditation/UMC Committee .....	2:30 to 4 p.m.....	S .....	Eagle Boardroom
MS&T Steering Committee.....	2:30 to 4:30 p.m.....	D .....	Pharaoh Suite
REWAS Organizing Committee.....	3 to 4 p.m.....	D .....	Los Presidente Suite
Joint TMS-ASM Mtg. on Aluminum Publications.....	4 to 6 p.m.....	S .....	Macaw 2
Seven Springs Int'l Symposium on Superalloys: Organizing Comm.....	5 to 7 p.m.....	S .....	Mockingbird 2

(For TMS Technical Committee Meetings Schedule, see page 17.)

## **Tuesday**

Registration .....	7 a.m. to 5:30 p.m. ....	D .....	Atlantic Hall C
TMS Membership Booth.....	7 a.m. to 5:30 p.m. ....	D .....	Lobby Level, Convention Foyer
TMS Publications Sales.....	7 a.m. to 5:30 p.m. ....	D .....	Lobby Level, Convention Foyer
Authors' Coffee .....	7 to 8 a.m.....	D .....	Northern Hemisphere B/C/D
Greatest Moments/TMS 50th Anniv. Plenary .....	8 to 9 a.m.....	D .....	Northern Hemisphere B/C/D
Exhibition .....	9:30 a.m. to 5:30 p.m. ....	D .....	Atlantic Hall C
Extraction & Processing Division Luncheon.....	12:30 to 2 p.m.....	D .....	Pacific Hall B
Extraction & Processing Division Distinguished Lecture .....	2 to 2:45 p.m.....	D .....	Pacific Hall A

## **TMS and AIME Annual Awards Banquet:**

Reception .....	6 to 7 p.m.....	D .....	Pacific Hall B
Dinner and Awards .....	7 to 9:30 p.m.....	D .....	Pacific Hall B

## **ACTA Materialia Inc. Board of Governors:**

Committee Meeting .....	8 a.m. to 6 p.m.....	S .....	Pelican 1
Luncheon (by invite) .....	noon to 1 p.m.....	S .....	Pelican 2

## **Social Functions:**

Guest Hospitality .....	7 to 10 a.m.....	S .....	Macaw 2
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## **Committee Meetings:**

Met Trans "B" Board of Review .....	7 to 8 a.m.....	S .....	Heron
AMERIC.....	7 to 9 a.m.....	S .....	Dove
Fellows Award Committee .....	7:30 to 9 a.m.....	S .....	Osprey 2
Hume-Rothery/ACTA Met. Awards Committee .....	7:30 to 9 a.m.....	S .....	Osprey 2
IOM/Mehl Awards Committee .....	7:30 to 9 a.m.....	S .....	Osprey 2
Honors and Professional Recognition Committee .....	9 to 10 a.m.....	S .....	Osprey 2
Executive Committee.....	10 a.m. to noon.....	D .....	Los Presidente Suite
MPMD Council.....	12:30 to 2 p.m.....	S .....	Lark 1/2
SMD Council.....	12:30 to 2 p.m.....	S .....	Peacock 1/2
Technical Division Chairs Strategy .....	3 to 5 p.m.....	S .....	Toucan 2

(For TMS Technical Committee Meetings Schedule, see page 17.)

**Key: S=Swan Hotel / D=Dolphin Hotel**

**Wednesday**

Registration .....	7 a.m. to 5 p.m. ....	D .....	Atlantic Hall C
TMS Membership Booth.....	7 a.m. to 5 p.m. ....	D .....	Lobby Level, Convention Foyer
TMS Publications Sales.....	7 a.m. to 5 p.m. ....	D .....	Lobby Level, Convention Foyer
Authors' Coffee .....	7 to 8 a.m.....	D .....	Northern Hemisphere B/C/D
Greatest Moments/TMS 50th Anniv. Plenary.....	8 to 9 a.m.....	D .....	Northern Hemisphere B/C/D

**Exhibition:**

Exhibit Hours .....	9:30 a.m. to 3 p.m. ....	D .....	Atlantic Hall C
Complimentary Snack .....	12:15 to 2 p.m.....	D .....	Atlantic Hall C
Light Metals Division Luncheon.....	12:30 to 2:30 p.m.....	D .....	Pacific Hall A

**Social Functions:**

Guest Hospitality .....	7 to 10 a.m.....	S .....	Macaw 2
King-Ning Tu Honorary Luncheon.....	12:30 to 2 p.m.....	S .....	Peacock 1/2
Craig Hartley Honorary Dinner .....	6 to 9:30 p.m.....	S .....	Mockingbird 1

**Committee Meetings:**

Education Committee .....	7 to 8 a.m.....	S .....	Macaw 1
ICME TCG .....	7 to 8 a.m.....	S .....	Peacock 2
TMS Board of Directors .....	9:30 to 11:30 a.m.....	S .....	Osprey 1
Aluminum Assoc. Molten Metal Review Session.....	2 to 5 p.m.....	S .....	Heron

(For TMS Technical Committee Meetings Schedule, see page 17.)

**Thursday**

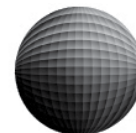
Registration .....	7 to 10 a.m.....	D .....	Atlantic Hall C
TMS Membership Booth.....	7 to 10 a.m.....	D .....	Lobby Level, Convention Foyer
TMS Publications Sales.....	7 to 10 a.m.....	D .....	Lobby Level, Convention Foyer
Authors' Coffee .....	7 to 8 a.m.....	D .....	Northern Hemisphere B/C/D

**Committee Meetings:**

Light Metals Subject Chairs Breakfast.....	7 to 8:30 a.m.....	S .....	Osprey 1
Light Metals Executive Committee .....	8:30 to 10:30 a.m.....	S .....	Osprey 1

(For TMS Technical Committee Meetings Schedule, see page 17.)

**Key: S=Swan Hotel / D=Dolphin Hotel**



## TMS Technical Committee Meetings

### *You are invited...*

Help chart the technological course for future TMS annual meetings, as well as the materials science and engineering profession, by participating in a TMS technical committee. While at TMS 2007 Annual Meeting & Exhibition, you are invited to attend any of the technical committee meetings below.

as of 1/24/07

### Sunday

Recycling and Environmental Technologies .....	noon to 1:30 p.m.....	S .....	Ibis
Pyrometallurgy.....	1 to 2 p.m.....	S .....	Mockingbird 2
Magnesium.....	1:30 to 3:15 p.m.....	S .....	Toucan 1
Thin Films and Interfaces .....	3 to 4 p.m.....	S .....	Peacock 2
Aluminum.....	3 to 4:30 p.m.....	S .....	Pelican 1
Reactive Metals .....	3:30 to 4:30 p.m.....	S .....	Eagle Boardroom
Aqueous Processing.....	5 to 6 p.m.....	S .....	Peacock 2
Global Innovations.....	5 to 6 p.m.....	S .....	Lark 2
Nanomechanical Materials Behavior.....	6 to 7:30 p.m.....	S .....	Egret
TMS/ASM Mechanical Behavior.....	6:30 to 8 p.m.....	S .....	Dove
Alloy Phases.....	7 to 9 p.m.....	S .....	Parrot 1
Materials Characterization.....	7 to 9 p.m.....	S .....	Toucan 1
Phase Transformations .....	7:30 to 9 p.m.....	S .....	Ibis

### Monday

Chemistry and Physics of Materials .....	7:30 to 8:45 a.m.....	S .....	Parrot 1
Superconducting and Magnetic Materials .....	8 to 9 a.m.....	S .....	Toucan 2
Powder Materials .....	12:30 to 2 p.m.....	S .....	Ibis
Adv'd. Characterization, Testing and Simulation .....	5:30 to 6:30 p.m.....	S .....	Heron
Surface Engineering .....	5:30 to 6:30 p.m.....	S .....	Toucan 2
Nuclear Materials .....	5:30 to 7 p.m.....	S .....	Ibis
Composite Materials.....	5:45 to 7 p.m.....	S .....	Pelican 2
Biomaterials.....	6 to 7 p.m.....	S .....	Egret
Solidification .....	6 to 7 p.m.....	S .....	Toucan 1
Computational Materials Science and Engineering.....	8 to 9 p.m.....	S .....	Pelican 2

### Tuesday

Nanomaterials .....	7 to 8:30 a.m.....	S .....	Ibis
Electronic Packaging and Interconnection Mats.....	7:15 to 8:45 a.m.....	S .....	Mockingbird 2
Process Technology and Modeling .....	2 to 3:30 p.m.....	S .....	Heron
Refractory Metals .....	5:30 to 7 p.m.....	S .....	Lark 2
TMS/ASM Microstructures and Textures .....	6 to 7 p.m.....	S .....	Peacock 2
Shaping and Forming .....	6 to 7:30 p.m.....	S .....	Ibis
Titanium.....	6 to 7:30 p.m.....	S .....	Mockingbird 2
Corrosion and Environmental Effects .....	6:30 to 7:30 p.m.....	S .....	Parrot 1
High Temperature Alloys .....	6:30 to 8 p.m.....	S .....	Heron

**Key: S=Swan Hotel / D=Dolphin Hotel**

**Furnace Systems Technology Workshop**  
“Practical Knowledge for Improved Process Performance”

Sponsored by TMS Light Metals Division

**Monday, Tuesday and Wednesday**

**Presenting Companies**

Altek-MDY  
Bloom Engineering  
Harbison Walker Refractories  
Hauck Manufacturing  
Maerz-Gautschi Industrieofenanlagen  
Mechatherm International  
Otto Junker Group/Thermcon Ovens B.V.  
Praxair  
Pyrotek/EMP Technologies  
Seco Warwick  
Solios Thermal  
The Schaefer Group  
Thorpe Technologies

**Monday**

***Session 1: Combustion Process***

**2 p.m. “Basics of Combustion” by Don Whipple, Bloom Engineering**

- Basics of generating heat through natural gas combustion
- Determination of portion of useable generated heat
- Mechanisms available to transfer energy to the load
- Methods to enhance the transfer and efficiently use the energy available

**2:45 p.m. “Burner Types” by Jack Marino, Hauck Manufacturing**

Burners for Melting and Holding Furnaces

- Traditional radiant flames
- High velocity flames
- Roof fired designs – flat flames and cone-type flames
- Alternating pulse regenerators
- Rotary regenerators
- Low NOx designs

Burners for Process Furnaces

- Direct fired – high velocity flame shielding and low NOx designs
- Radiant tube fired – traditional designs, using recuperators, low NOx options and self recuperatives SER designs

**3:30 p.m. “Fuel to Air Ratio Control Systems” by Brian Kelly, Hauck Manufacturing**

- Methods of controlling the fuel to air ratio in premix and nozzle mix burners
- Fixed air and modulated fuel
- Variable linked valve systems
- Pulse firing
- Pressure balanced systems
- Mass flow control
- Advantages and disadvantages

**4:15 p.m. “NOx/CO Emissions” by John Dormire, Bloom Engineering**

- What is NOx?
- How is it formed?
- What affects the potential for NOx formation in the combustion process?
- Common methods for minimizing NOx formation
- Effect of techniques on CO emissions
- How is NOx measured?

**Tuesday**

***Session 2: Melters and Holders***

**8:30 a.m. “Liquid Metal Furnaces in Aluminum Cast Houses; Direct Charged Melting Furnaces” by Oliver Moos, Maerz-Gautschi Industrieofenanlagen**

**9:15 a.m. “Well Charged Melters” by Christopher Emes, Mechatherm International**

- Typical melt rates and fuel efficiency for open well charged melters
- Furnace sizing, burner input and burner/flue positioning
- Advantages of pumping/circulating for melt rate and fuel efficiency

**10 a.m. “Multiple Chamber Melters” by Tom Schmidt, Otto Junker Group**

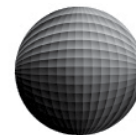
- Latest developments of metal circulation in furnaces to ensure requirements for high melt rates
- Processing lightweight/contaminated scrap efficiently

**10:45 a.m. “Dross Processing and Reducing Dross” by David Roth, Altek-MDY**

Global technologies that reduce furnace dross generation

- Dross cooling for maximum recovery
- Pretreatment of scrap to reduce dross





## **Session 3: Process Furnaces**

**Wednesday**

### **2 p.m. “Homogenizing Furnaces” by John Allen, Thorpe Technologies**

- Homogenizing process
- Features and performance of various homogenizing furnaces available on the market
- Quality of product
- Energy efficiency
- Emissions of homogenizing furnaces

### **2:45 p.m. “Heat Treatment of Aluminum-Strip Coils – Furnace Designs and Concepts” by Dan Alabran, Seco Warwick**

Common aspects and differences between the two types of annealing furnace designs – mass flow and jet flow

- Airflow design
- Insulation construction
- Heating systems
- Cooling systems

### **3:30 p.m. “Furnace Energy Consumption Myths” by David White, The Schaefer Group**

Validity of long-held concepts for energy savings in aluminum furnaces

### **4:15 p.m. “Delacquering Systems” by Robert F. Jenkins, Thorpe Technologies**

- Basic delacquering process
- Features and performance of various delacquering systems
- Types of scrap processed
- System stability
- Energy efficiency
- Emissions of delacquering systems

## **Session 4: Additional Furnace Considerations**

### **8:30 a.m. “Refractory Selections for Aluminum Cast Houses” by John Sutton and Stan Smith, Harbison Walker Refractories**

- Operating trends in the aluminum industry
- Ways to line furnaces with monolithic and brick construction

### **9:15 a.m. “Melting Applications with Oxy-Fuel Firing” by Maynard Ding, Praxair**

- Introduction to basics and equipment in using oxy-fuel combustion for melting
- Operational benefits
- Increase in melt rates and reduction in fuel consumption with oxygen enriched air and pure oxy-fuel combustion

### **10 a.m. “Metal Circulation” by Jim Grayson, Pyrotek/EMP Technologies**

- Positive impact of different metal circulation systems on efficiency of melting and holding furnaces
- Different techniques and applications relating to different operating requirements demanded by cast house and foundry operations
- Types of circulation systems
- Appropriate selection to ensure benefits are realized

### **10:45 a.m. “Electro Magnetic Stirring ‘In situ Devices’ and New Developments in Stirring Technology” by Andrew Haberl, Solios Thermal**

***Register for this workshop at the registration area in Atlantic Hall C.  
Cost: \$200 members; \$250 nonmembers***

**“Advancing Women in Science and Engineering”** Breakfast Lecture

**Monday, 7 a.m.**.....Swan Hotel, Pelican 1 and 2

**Speaker: Abigail Stewart**, Sandra Schwarz Tangri Professor of Psychology and Women’s Studies, University of Michigan; director of UM ADVANCE project supported by the NSF ADVANCE program on Institutional Transformation

*Pre-registrants only*

**“Inverse Nanostructuration in Complex Metallic Alloys”**

Institute of Metals/Robert Franklin Mehl Lecture

**Monday, 12:30 to 1:30 p.m.**.....Pelican 1

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

**About the Lecture**

Now that new tools are available to solve the crystallographic structure of complex compounds in metallic alloy systems, a vivid interest manifests itself to discover new compounds in multiconstituent alloys. Several are yet known to contain hundreds or more atoms per unit cell. In the meantime, real efforts are made for better understanding of the properties of these compounds and the mechanisms that underpin the progressive loss of metallic character when the size of the unit cell increases. This lecture 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. Examples are transport properties, surface electronic structure, surface energy, wetting and friction. All examples show the same trend, namely apparent localization of electronic states, loss of conductivity, opening of gaps, softening with no work hardening, etc. All phenomena are reminiscent of what is observed in nanostructured metals but together with the increase of the size of the unit cell. This effect is coined “inverse nanostructuration” by the lecturer who will argue that complex metallic alloys help us revisit ancient problems in metal physics, while in parallel potential applications may be sorted out.

**About the Speaker**

Jean-Marie Dubois is Distinguished Director of Research at CNRS, France; his research topics have revolved around metal physics and engineering of complex materials. He is also the director of Institut Jean Lamour, a joint CNRS-Nancy University institute and is coordinating the CMA European Network of Excellence. This network is dedicated to research on complex metallic alloys and comprises 19 partner institutions in 12 European countries. After establishing structure models for metallic glasses and quasicrystals, Dr. Dubois became interested in applied properties of these materials: heat insulation, low adhesive properties and infrared light absorption. He is currently working on cold-welding and solid-solid adhesion in vacuum of complex intermetallics against steel and more generally on understanding the surface energy of those materials.

*Open to all*

**“Materials Research in Multidisciplinary, Application-Driven Technology”**

Young Leaders Tutorial Luncheon Lecture

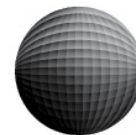
**Monday, 12:30 to 2 p.m.**.....Swan Hotel, Mockingbird 1

**Speaker: Ryan K. Roeder**, Assistant Professor, Aerospace and Mechanical Engineering, University of Notre Dame, and 2007 TMS Early Career Faculty Fellow

**Topics**

1. Critical and Independent Thinking
2. Communication
3. Collaboration and Teamwork
4. Vision Transcending Narrow Disciplines

*Open to all (Pre-registrants had the option of purchasing a boxed lunch.)*



## **“How Big is an Atom?” Hume-Rothery Award Lecture**

**Monday, 2 p.m. .... Dolphin Hotel, Oceanic 7**

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

### **About the Lecture**

While atomic size mismatch and electron/atom ratio ( $e/a$ ) are determinants in phase stability, unavailable in Hume-Rothery's day, experimental, theoretical and computational methods have made enormous progress possible. 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. Studies range from the Fe-C dipole distortion in martensite, to the interfacial strain in thin III-V multilayers, to local size effects in alloys with a very small mismatch (Fe-Cr) and an appreciable mismatch (Ni-Pt vs, CuAu). Also explored are the O-vacancy-induced modulations in YBCO and the rapidly diffusing Au in Pb, all variants on the same theme of “size.” (This lecture is supported by DOE/BES, NSF/DMR, and the State of Texas.)

### **About the Speaker**

Simon C. Moss is the M.D. Anderson Professor of Physics at the University of Houston in Texas, where he has spent more than 30 years of his career. His doctorate is in metallurgy and materials science. Professor Moss is a member of the Materials Science Review Committee for Brookhaven National Laboratory. He has more than 200 publications to his credit and received more than a dozen honors and awards.

*Open to all*

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## **“The Thinking to Knowledge Chain in Extractive Metallurgy”**

**Extraction & Processing Division Luncheon**

**Tuesday, 12:30 to 2 p.m. .... Dolphin Hotel, Pacific Hall B**

**Speaker: Tony Eltringham**, Vice President, Operating Excellence, BHP Billiton Base Metals

### **About the Lecture**

One of the major challenges facing any business today is matching improvement rates to the expectations of stakeholders. Data is more readily available than ever before, but in the minerals industry the conversion of this data to transferred knowledge is disappointingly slow and dangerously staid. 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? How can we improve the thinking processes among our technologists and accelerate effective knowledge transfer in the next 10 years with the emphasis being on effective? This lecture will address these questions.

### **About the Speaker**

Tony Eltringham has more than 38 years of experience in the mining industry starting with copper smelting in Zambia that has broadened to cover most minerals in his company, BHP Billiton in the Americas, Australia and Africa. He has handled operations, managed research and development, commissioned new projects and worked with troubled operations. His current work is in operations analysis, troubleshooting and improvement as well as leading a Six Sigma redeployment and promoting new styles of thinking for young people entering the company. Mr. Eltringham has been a member of TMS since 1972.

*Purchase luncheon tickets at the registration area in Atlantic Hall C. Cost: \$45*

**“Solution Processing of Advanced Materials – What Can Hydrometallurgy Offer?”**

Extraction & Processing Division Distinguished Lecture

**Tuesday, 2 to 2:45 p.m. .... Dolphin Hotel, Pacific Hall A**

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

**About the Lecture**

Hydrometallurgy is now a major player in the extraction and processing of bulk metals; however, the use of solution processing to produce advanced materials and structures is still in its infancy. Solution processing steps, such as plating and CMP, are widely used in the manufacture of semiconductor devices. Solution processing offers unparalleled benefits for processing biocompatible and biomimetic materials. It also offers some intriguing possibilities in nanoscale engineering. The potential is vast, and the literature offers new advances daily. Nonetheless, in many instances, synthesis methods being used are so unwieldy, uneconomic or environmentally unacceptable, that revolutionary changes are needed before they can be scaled up for commercial production. The challenges now limiting the use of solution processing to produce advanced materials have many parallels with those that have been overcome to bring the hydrometallurgy field to its current status. Consideration of these parallels makes it clear that hydrometallurgists can play a key role in bringing competitively priced advanced materials to market.

**About the Speaker**

Fiona Doyle is executive associate dean and associate dean for academic affairs in the college of engineering at the University of California, Berkeley. Her research focuses on solution chemistry in the processing and behavior of minerals, materials, wastes and effluents. The applications range in scale from the templated precipitation of nanoscaled structures, through chemical mechanical planarization in the electronics industry, to the remediation of contamination at abandoned and inactive mine sites. Professor Doyle has taught undergraduate and graduate courses relating to engineering chemistry, mineral engineering, surface and colloid properties of materials, solution processing of materials, corrosion and electrometallurgy. Her doctorate is in hydrometallurgy.

**“FreedomCAR Automotive Lightweighting Materials”** Light Metals Division Luncheon

**Wednesday, 12:30 to 2:30 p.m. .... Dolphin Hotel, Pacific Hall A**

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

**About the Lecture**

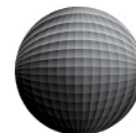
Expanding world economic prosperity, probable peaking of conventional petroleum production capacity in the coming decades, and environmental concerns require efforts to increase the efficiency of petroleum-based fuels in automotive transportation, and to develop alternatives. The United States government has been aggressively pursuing research and development (R&D) on both for over 10 years in conjunction with the auto, truck and energy-supply industries. Lightweighting of vehicles is an effective way of addressing efficiency of use, directly through mass reduction and indirectly by minimizing diesel, hybrid, and fuel-cell powertrains. Major federal R&D in automotive lightweighting is FreedomCAR Automotive Lightweighting Materials (ALM). R&D first focused on the materials and manufacturing issues of aluminum and glass-fiber-reinforced polymer-matrix composites (PMCs) but more recently looked to carbon-fiber-reinforced PMCs, advanced high-strength steels, magnesium, titanium, metal-matrix composites and glass. Manufacturing issues addressed have included metal production, and casting, sheet-metal forming, production of lower cost carbon fiber, fiber-reinforced-PMC component fabrication techniques, joining, nondestructive evaluation, crashworthiness and recycling. There already have been commercial applications of some of the technologies developed, and this effort has provided an excellent example of government-industry cooperation.

**About the Speaker**

Joseph A. Carpenter Jr. is the technology development manager for the U.S. Department of Energy (DOE) Automotive Lightweighting Materials effort, which is part of the FreedomCAR and Fuels Initiative between DOE and automotive and energy-supply industries in the United States. Dr. Carpenter held research and research management positions at Chrysler Corporation, the Oak Ridge National Laboratory, and the National Institute for Standards & Technology before joining DOE.

*Purchase luncheon tickets at the registration area in Atlantic Hall C. Cost: \$45*





## 136th TMS & AIME Dinner and Awards Presentation

With Installation of 2007 TMS President

**Tuesday • 6 p.m. Cash Bar, 7 p.m. Dinner • Pacific Hall B**

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

*(Purchase tickets at the registration area in Atlantic Hall C. Cost: \$70)*

### 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

### Bruce Chalmers Award

David R. Poirier, The University of Arizona

### Champion H. Mathewson Award

Brian D. Kernan, The Ex One Company

### Distinguished Service Award

Dan J. Thoma, Los Alamos National Laboratory

### Early Career Faculty Fellow

Ryan K. Roeder, University of Notre Dame

### Educator Award

Lawrence E. Murr, University of Texas at El Paso

### Institute of Metals/Robert Franklin Mehl Award

Jean-Marie Dubois, Ecole Nationale Supérieure des Mines

### John Bardeen Award

Sungho Jin, University of California, Berkeley

### Robert Lansing Hardy Award

David F. Bahr, Washington State University

### TMS Foundation Shri Ram Arora Award

C. Sudha, Indira Gandhi Centre for Atomic Research

### William Hume-Rothery Award

Simon C. Moss, University of Houston

*(Awards continue on the next page)*



**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 attractive 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 quasicrystals in 1980. Early in his career, Dr. Shull discovered the reversed Curie temperature phenomenon in Fe<sub>70</sub>Al<sub>30</sub>, 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.

## Alumni Receptions

Monday • *Swan Hotel*

**Purdue University**  
6 to 7:30 p.m. • *Dove*

**Ohio State University**  
6 to 8 p.m. • *Swan 6*

**Colorado School of Mines**  
6:30 to 7:30 p.m. • *Parrot 1*

**Michigan State University**  
6:30 to 8:30 p.m. • *Peacock 1 and 2*

**University of Science & Technology Beijing**  
8 to 9:30 p.m. • *Osprey 2*



## Electronic, Magnetic & Photonic Materials Division

**Distinguished Scientist/Engineer Award**  
King-Ning Tu, UCLA

**Distinguished Service Award**  
Darrel Frear, Freescale Semiconductor

## Extraction & Processing Division

**Distinguished Lecturer**  
Fiona M. Doyle, University of California, Berkeley

**Distinguished Service Award**  
Philip J. Mackey, Xstrata Process Support

**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.

**JOM Award**  
Fiona Stevens McFadden, Aluminum Smelter Consultant  
Barry J. Welch, Welbank Consulting  
Paul C. Austin, Cambridge University

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

**Technology Award**  
Bob R. Powell, General Motors Corporation

## Materials Processing & Manufacturing Division

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

**Distinguished Service Award**  
Richard N. Wright, Idaho National Laboratory

## Structural Materials Division

**Distinguished Scientist/Engineer Award**  
Ramgopal Darolia, General Electric Company

**Distinguished Service Award**  
Peter K. Liaw, University of Tennessee

## Other Awards

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

**AIME Honorary Member**  
Alan Lawley, Drexel University

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

**AIME Mineral Economics Award**  
William P. Imrie, Bechtel Corporation

**J. Keith Brimacombe Prize**  
Diran Apelian, Worcester Polytechnic Institute

**Professor Carl C. Koch Honorary Dinner**  
*Monday, 6 to 9:30 p.m. Swan Hotel, Pelican 1*

Held in conjunction with the symposium Mechanical Behavior of Nanostructured Materials, in Honor of Carl Koch

*Purchase tickets at the registration area in Atlantic Hall C. Cost: \$65*

**Professor King-Ning Tu Honorary Luncheon**  
*Wednesday, 12:30 to 2 p.m. Swan Hotel, Peacock 1 and 2*

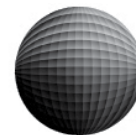
Held in conjunction with the symposium Advanced Metallizations and Interconnect Technologies, in Honor of Professor K.N. Tu's 70th Birthday

*Purchase tickets at the registration area in Atlantic Hall C. Cost: \$45*

**Dr. Craig Hartley Honorary Dinner**  
*Wednesday, 6 to 9:30 p.m. Swan Hotel, Mockingbird 1*

Held in conjunction with the symposium Mechanics and Materials Modeling and Materials Design Methodologies, in Honor of Dr. Craig Hartley's 40 Years of Contributions to Mechanics and Materials Science

*Purchase tickets at the registration area in Atlantic Hall C. Cost: \$65*



## New!

### TMS 50th Anniversary Materials Bowl

*Sunday Dolphin Hotel, Pacific Hall A*

1:30 to 5 p.m. Elimination Rounds

### 8:30 p.m. Championship Match

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. Twelve Material Advantage chapter teams will compete in elimination rounds with the championship game to culminate prior to the TMS Networking Mixer.

### Student Attendee Orientation

*Sunday, 2:30 to 3 p.m. Swan Hotel, Osprey 1*

This is a great opportunity to get your questions answered about TMS and the different activities taking place, and meet other students with similar interests.

### Career Forum

*Sunday, 3:30 to 5 p.m. Swan Hotel, Osprey 1*

This forum will address the many pertinent issues students face today in pursuing a career in the materials field. Representatives from various backgrounds will provide personal insights on preparation strategies, as well as tips on how to develop and foster a rewarding career. The speakers will also address questions from students.

### Career Tips Session

*Sunday, 5 to 6 p.m. Swan Hotel, Osprey 1*

Find out at this session what human resource representatives are looking for when reviewing resumes and interviewing candidates. Plus, get tips to get your resume noticed, get your foot in the door and land that perfect job.

### TMS Networking Mixer

*Sunday, 9 to 11 p.m. Dolphin Hotel, Pacific Hall A and B*

Sponsored by TMS Member and Student Development Committee

Attend this event and open the door to endless career possibilities. 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. Don't miss this excellent opportunity to make the connections you need to succeed. Refreshments (beer\*, soft drinks, snacks) and music will be provided.

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

### TMS Technical Division Student Poster Contest

*Monday, 5 to 6:30 p.m. Dolphin Hotel, Atlantic Hall Foyer*

\$500 will be awarded to the best undergraduate poster and the best graduate poster in each of the five TMS technical divisions. A top prize of \$2,500 will be awarded 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!

### TMS 50th Anniversary Student Essay Contest

In celebration of 50 years as a member society of AIME in 2007, TMS will present a special award of \$2,500 for the best student essay submitted by poster participants.

**Hot off the Press! Seven New Books!**

- *Aluminum Alloys for Transportation, Packaging, Aerospace, and Other Applications*
- *Friction Stir Welding IV*
- *Innovations in Titanium Technology*
- *Light Metals 2007 (book and CD-ROM set)*
- *Magnesium Technology 2007 (book and CD-ROM set)*
- *Materials Processing Under the Influence of External Fields*
- *Shape Casting: 2nd International Symposium*

**Purchase your copy at the TMS Publications Sales area in the Dolphin Hotel this week and receive free shipping! Or order online in the TMS Document Center at <http://doc.tms.org>.**

TMS members receive a 30% discount off the list price!

See the ad in *JOM* on page 2 in this program for more information about these books.

**Collected Proceedings CD-ROMs**

Three different CD-ROMs containing multiple symposia based on the topical area are available for purchase this week at the TMS Publications Sales area:

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

**The CD-ROMs include:**

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

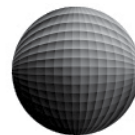
Each publishing symposium will be presented as an individual publication on the CD-ROM, with its own table of contents, standard publication reference numbers, and copyright information.

**These CD-ROMs will not be available for purchase after the meeting. Get yours for only \$150. (Student price is \$75.)**

**Individual Printed Proceedings**

For those interested in purchasing printed copies of individual symposia, visit the TMS Publications Sales area or telephone TMS Customer Service at (724) 776-9000, ext. 256, or (800) 759-4TMS.

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



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

### You'll find them at the TMS 2007 Exhibition!

More than 140 companies are on-site with products and services available to assist you. See the exhibition directory preceding this meeting information section.

Visit the exhibition in Atlantic Hall C in the Dolphin Hotel during these hours:

**Monday**  
noon to 6 p.m.  
*Hosted Grand Opening Reception at 5 p.m.!*

**Tuesday**  
9:30 a.m. to 5:30 p.m.

**Wednesday**  
9:30 a.m. to 3 p.m.

## TMS thanks our corporate sponsors for their generosity!

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EDAX  
Elsevier  
Fluor Corporation  
GE Water & Process Technologies  
Great Lakes Carbon LLC  
Harbison-Walker Refractories  
Hatch  
Innovatherm GmbH+Co. KG  
Jacobs Consultants, Inc.  
Koppers, Inc.  
LAEIS GmbH  
McAllister Mills, Inc.  
Metaillics Systems Div., Pyrotek, Inc.  
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Nihon Superior Co., Ltd.  
Oxbow Carbon & Minerals LLC  
SEC Carbon, Ltd.  
SGL Carbon Group  
Skamol Americas  
Solios Group  
Springer  
SSM Petcoke  
TCP Petcoke Corporation  
Thermo-Calc Software  
VABCo

Monday Authors' Coffee  
Registration Material Insert  
Wednesday Authors' Coffee  
General Meeting Sponsor  
*TMS Today* Newsletter – Monday Edition  
Registration Material Insert  
Wednesday Snack  
Monday Afternoon Coffee Break  
Exhibit Hall Side Entry Unit  
General Meeting Sponsor  
Greatest Materials Moment #9  
Registration Material Insert  
Attendee Lunch Coupon  
Badge Lanyard  
Tuesday Authors' Coffee  
Information Booth, Signs and Banners  
Wednesday Morning Coffee Break  
Wednesday Snack  
*TMS Today* Newsletter – Tuesday Edition  
General Meeting Sponsor  
Wednesday Snack  
Registration Material Insert  
General Meeting Sponsor  
General Meeting Sponsor  
Tuesday Morning Coffee Break  
General Meeting Sponsor  
Registration Material Insert  
Monday Morning Coffee Break  
General Meeting Sponsor  
Registration/Program Bag/Insert  
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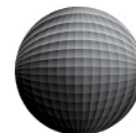
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### Who We Are

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; continuing education; publications, including four journals and proceedings; and its Web site.

**To learn more, visit [www.tms.org](http://www.tms.org).**

### TMS

184 Thorn Hill Road  
Warrendale, PA 15086-7514 USA  
Telephone: (724) 776-9000 / (800) 759-4TMS  
Fax: (724) 776-3770  
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**137th Annual Meeting & Exhibition**



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