FEBRUARY 11–15, 2001 ■ ERNEST N. MORIAL CONVENTION CENTER ■ NEW ORLEANS, LOUISIANA

TMS2001

THE 130TH ANNUAL MEETING & EXHIBITION OF THE MINERALS, METALS & MATERIALS SOCIETY

HOUSING & REGISTRATION FORMS **Included**

NetWORKING **Opportunities**

The FOREFRONT **of Technology**

SPECIAL **Non-Member Offer**

New SHORT COURSES

ADVANCE BROCHURE

. . . critical information for surviving the aggressive pace of 21st Century business.

CONTENTS

How does one stay on top of the latest developments in research and industry? It is not always easy to find the appropriate forum that can be readily accessed and relied on in a fast growing business world. International businesses and academia constantly seek cutting edge information while working persistently to explore the materials sciences. The 130th TMS Annual Meeting & Exhibition in New Orleans, Louisiana, has once again geared up to provide a comprehensive technical program and exhibit that surpasses previous years while gaining additional programming strength with the participation and contribution of the Aluminum Association.

Every year more than 4,500 of the world's top engineers, industry and academic leaders, and researchers attend the TMS Annual Meeting & Exhibition to learn and contribute to the one of a kind international exchange forum in the materials sciences and metallurgy community. Over 1,300 technical presentations—including more than 170 sessions, lectures, tutorials, poster session, and short courses promise to provide you with critical information for surviving the aggressive pace of 21st Century business.

Join us in 2001!

FUTURE MEETING SITES

ANNUAL MEETING AND EXHIBITION

More than 1,200 technical presentations and 30,000 square feet of exhibitions will detail the latest advances and most critical developments in minerals, metals, and materials science and technology.

2002 / Seattle, WA ..... February 17–21 / Washington State Convention & Trade Center

2003 / San Diego, CA ..... March 2–6 / San Diego Convention Center

2004 / Charlotte, NC ..... March 14–18 / Charlotte Convention Center

2005 / San Francisco, CA ..... February 13–17 / Moscone West Convention Center

FALL MEETING: PHYSICAL METALLURGY AND MATERIALS

A program focusing on new developments in materials research and applications held in conjunction with ASM's Materials Week and the Materials Expo.

2001 / Indianapolis, IN ..... November 4–8 / Westin Hotel

FALL EXTRACTION & PROCESS METALLURGY MEETING

Computational Modeling of Materials, Minerals and Metals Processing

2001 / San Diego, CA ..... September 23–26 / San Diego Hilton Resort

ELECTRONIC MATERIALS CONFERENCE

The annual forum devoted to discussion of preparation and characterization of electronic materials.

2001 / Notre Dame, IN ..... June 27–29 / University of Notre Dame

TOPICAL CONFERENCES

Second International Conference on Processing Materials for Properties (PMP2)

2000 / San Francisco, CA ..... November 5–8 / Renaissance Parc 55 Hotel

Organometallic Vapor Phase Epitaxy Conference (OMVPE)

2001 / San Diego, CA ..... March 11–14 / San Diego Hilton Resort

Materials and Science in Sports

2001 / Coronado, CA ..... April 22–25 / Coronado Island Marriott Resort

Fifth International Special Emphasis Symposium on Superalloys 718, 625, 706 and Derivatives

2001 / Pittsburgh, PA ..... June 17–20 / Embassy Suites Hotel

International Symposium on Structural Intermetallics – 3

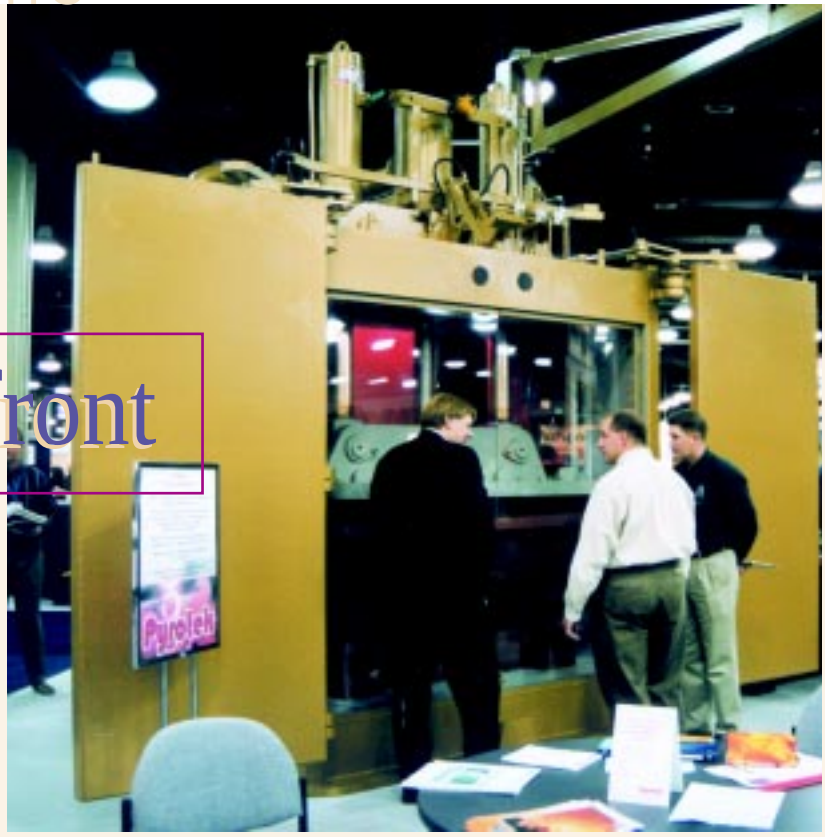
2001 / Jackson Hole, WY ..... September 23–27 / Snow King Resort

FOR MORE INFORMATION ON ANY OF THESE CONFERENCES, PLEASE CONTACT:

TMS Meeting Services Department
184 Thorn Hill Road
Warrendale, PA 15086

TELEPHONE: (724) 776-9000, ext 243
FAX: (724) 776-3770
E-MAIL: mtgserv@tms.org
WEB: http://www.tms.org/Meetings/Meetings.html

On the Forefront



2001: An Odyssey of Materials in Space

The objective of this symposium is to provide an overview of the materials science contributions that have enabled the exploration and implementation of space, and to project the advancements required for future space missions. Materials which contribute to launch technology, orbital payloads and space exploration will be presented, along with discussion of space-based materials research. *Sponsored by: Extraction and Processing Division, Light Metals Division, Aluminum Committee, Copper, Nickel, Cobalt Committee, and Jt. Composite Materials Committee*

Adhesion between Solid Surfaces

Any topic related to the adhesion between solid surfaces is acceptable but experimental techniques for measuring adhesion between solid surfaces will be emphasized. Experiments or theories, which can substantiate these techniques, will be presented along with interpretations and calculations to support these measurements. Variables or conditions, which may affect measurements will be illustrated. Reversibility, repeatability and stability of the techniques will also be defined. *Sponsored by: Structural Materials Division, Electronic, Magnetic & Photonic Materials Division, and Jt. Chemistry and Physics of Materials Committee*

Alumina & Bauxite

Papers addressing all aspects of the Bayer Industry are sought for the Bauxite and Alumina sessions: from bauxite through to alumina quality; from analytical methods through to process control; from theoretical aspects to operational issues. Also papers that relate to improvements to the safety and the integrity of the Refineries through design, maintenance procedures and alternative materials are encouraged. The increasing focus on environmental issues, in particular greenhouse emissions and residue disposal, are areas where the industry needs to be continually aware and seek opportunities for improvement. *Sponsored by: Light Metals Division, Aluminum Committee*

Aluminum in Building and Structural Design Applications

The third largest end use of aluminum in the U.S. is in construction and infrastructure applications. In addition, many applications of aluminum in transportation and other growing markets require the material to be designed for load bearing applications. Much of this design is performed in accordance with a newly revised Aluminum Association standard, the Aluminum Design Manual. Papers in this session outline the use of aluminum as a structural material, including its properties, design advantages, and applications. *Sponsored by: Light Metals Division, Aluminum Association*

Aluminum Joining-Emphasizing Laser and Friction Stir Welding

Aluminum alloys are finding expanding application in automotive structures and hang-on components and with these come new challenges for effective and efficient joining. Those challenges are being met with both new welding processes, like friction-stir welding, and with enhancements to existing processes, such as multiple-head spot welding and automated systems. In this session, we will focus on a number of these new and enhanced joining technologies, using real case studies to illustrate the degree of progress that has already been made as well as some of the potential for the future. *Sponsored by: Light Metals Division, Aluminum Association*

Aluminum Reduction Technology

The sessions will address all aspects of primary aluminum production technology. Particular focus will be on cell operation, with emphasis on cell performance improvements, operating advances, cell modernization and productivity increase. New cell materials and emerging technologies will also be covered, together with process control, modeling for cell design, environmental aspects and fundamentals. There will also be a session on PFC emissions in the primary aluminum industry. *Sponsored by: Light Metals Division, Aluminum Committee, Environmental Protection Agency*

Applications of Refractory Metals and Materials in the Processing Industries

This symposium will cover the use of refractory metals and materials in the process industry. Typically these applications have a need for a corrosion or wear resistant material for processing chemicals and other industrial products. The symposium will include applications, new alloys and materials, processing or heat-treating developments, and other topics relating to the use of refractory metals in industry. *Sponsored by: Structural Materials Division, Refractory Metals and Materials Committee*

Automotive Alloys 2001

The science and technology of aluminum and magnesium alloys as it relates to the automotive market will be the main thrust of this symposium. The 2001 symposium will be the fifth symposium covering topic areas that include: the physical and process metallurgy for aluminum and magnesium castings, extrusions, composites and sheet; alloys processing structure and properties characterization, commercial and pilot applications in automotive market technology and performance. Current research, developments, technology and review contributions will be presented. *Sponsored by: Light Metals Division, Aluminum Committee*

Bauxite Residue Treatment: New Development

The treatment and use of bauxite residue (sometimes known as red mud) was the focus of an industry workshop sponsored by The Aluminum Association in late 1999. Industry representatives were joined by outside experts to explore approaches and establish priorities for collaborative research efforts. These deliberations have been recorded in a "Technology Roadmap for Bauxite Residue Treatment and Utilization" published by the Association. Highest priority was proposed for work on metal recovery from the residue, the removal of desilication product before it becomes waste, and the area of bauxite beneficiation. The purpose of this session is to explore ongoing R&D in the context of this roadmap. *Sponsored by: Light Metals Division, Aluminum Association*

Carbon Technology

Programming for several sessions will cover anode (both prebaked and soderberg) and cathode operations as they relate to the aluminum industry. This includes raw materials, paste and green anode manufacture, anode baking, anode rodding, as well as all cathode operations. Also there will be a joint session with Reduction Technology on anode performance in cells. All aspects as they relate to properties, analytical procedures, and operations will be included. *Sponsored by: Light Metals Division, Aluminum Committee*

Cast Shop Technology

Broad-based scientific and engineering papers in the following areas are sought for incorporation in our Cast Shop technical sessions: recycling, melting and melt preparation, alloying, grain refinement, metal treatment, ingot and shape casting, continuous processing for all shapes (including strip and slab casting), process modeling, and safe melt handling practices. Papers that emphasize the translation of theory and process understanding into practice are particularly desirable, and will receive special consideration. All papers must meet minimum standards of scholarship, scientific method, completeness, documentation, and style. Submissions of a commercial nature will not be considered. *Sponsored by: Light Metals Division, Aluminum Committee*

Chemistry and Electrochemistry of Corrosion and Stress Corrosion: A Symposium Honoring the Contributions of R.W. Staehle

This conference will include papers on the chemistry and electrochemistry of corrosion and stress corrosion cracking. A wide range of topics in stress corrosion cracking including chemistry differences between crack initiation and propagation will be presented. *Sponsored by: ASM International: Materials Science Critical Technology Sector, Structural Materials Division, Corrosion and Environmental Effects Committee, Jt. Nuclear Materials Committee*

Computational Thermodynamics and Materials Design

On the occasion of his 70th birthday, a symposium dedicated to Dr. Larry Kaufman is being organized. Dr. Kaufman has pioneered the fields of calculation of phase diagrams (CALPHAD), which is a key component in today's computational materials design. Topics to be covered in the symposium include, but will not be limited to, the following: lattice stability, computational thermodynamics, calculation of phase diagrams, computational kinetics, materials design, and industrial applications. The symposium will consist of a keynote talk by Dr. Larry Kaufman and oral presentations. Sponsored by: ASM International: Materials Science Critical Technology Sector, Electronic, Magnetic and Photonic Materials Division, Structural Materials Division, Jt. Alloy Phases Committee, Jt. Computational Materials Science and Engineering, Thermodynamics and Phase Equilibria Committee

Current Research and Practice in Metal Injection Molding

Symposium will cover current research in the area of Metal Injection Molding. Also new innovations in process or technique will be covered. Areas of interest include new alloys development, new feedstocks, processing developments, non-destructive testing, characterization and mechanical properties. *Sponsored by: Materials Processing and Manufacturing Division, Powder Materials Committee*

Cyanide: Social, Industrial, and Economic Aspects

This symposium will focus on five major issues concerning cyanide: production and uses, processing practices, and innovations, recovery and destruction, fundamentals, and alternatives. Specific topics will also include, but are not limited to, the cyanide cycle, natural and synthetic sources, precious metal leaching, other industrial uses, non-industrial uses (e.g. medicinal, agricultural, and food purposes), chemistry, thermodynamics, spent potliners, detection, and analysis, etc. However, the symposium will also include presentations on politics and spills, as well as a subsequent panel discussion about the environmental movement that has targeted the use of cyanide in the mining industry. This symposium is intended for government, industrial, academic, and administrative personnel, as well as news reporters and the general pub-

NEARLY 200 TECHNICAL SESSIONS are being programmed by the EMPMD, EPD, LMD, MPMD and SMD divisions of TMS and ASM-MSCTS. Joint programming with the Aluminum Association is also planned. The entire program, including abstracts and the technical session grid, listing day, date and room location will appear in the November 2000 issue of JOM.

lic. *Sponsored by: Extraction and Processing Division, Waste Treatment and Minimization Committee, Precious Metals Committee, International Precious Metals Institute, NorthWest Mining Association*

Defect Properties and Mechanical Behavior of H.C.P. Metals and Alloys

This symposium will provide a forum to present recent results and discuss future directions of research in physical and mechanical metallurgy of h.c.p. metals and alloys. The symposium emphasizes broad scientific issues regarding the questions of general interests, such as "why beryllium is inherently so brittle" and "what makes titanium, and zirconium and their alloys so ductile"? Topics will include theory and multiscale modeling (from first principles calculations to modeling of texture evolution) and experimental investigations of bulk and defect properties, microstructural evolution, and deformation and fracture behavior. Topics related to unresolved scientific issues in lightweight materials (Mg, Ti, and Be) technology are also welcome. *Sponsored by: ASM International: Materials Science Critical Technology Sector, Structural Materials Division, Electronic, Magnetic and Photonic Materials Division, Jt. Chemistry and Physics of Materials Committee, Jt. Nuclear Materials Committee, Titanium Committee*

THE ENTIRE PROGRAM, including abstracts, will be available beginning in November on the 2001 TMS Annual Meeting & Exhibition World Wide Web site at http://www.tms.org/Meetings/Annual-01/AnnMtg01Home.html. The program will also be published in the November issue of JOM.

Electronic Structure and Alloy Properties-Hume Rothery Award

This two-day symposium is in honor of Prof. B. L. Gyorrfy, University of Bristol, UK, who has been awarded the Hume Rothery award for 2001. This symposium will aim at presentations on theoretical work, focused on the electronic structure and related properties, within the realm of alloy and materials physics. Specific subjects to be covered include the ground-state equilibrium properties of alloys, the treatment of short-range order, the effects of charge transfer, ordering tendencies, the formation of local moments, and multilayers. Other specific topics may develop as a result of participation by scientists in fields related to the main theme of the symposium. *Sponsored by: Electronic, Magnetic and Photonic Materials Division, Structural Materials Division, and Jt. Alloy Phases Committee*

Emerging Technologies for Metals Production

Alternative processes for extracting and processing metals (including aluminum, gold, magnesium, titanium, zirconium, and others) will be explored by discussing electrolytic, carbothermic, and other innovative processing concepts. The advantages and disadvantages of these novel processes will be addressed with regard to economy of scale, product quality, safety, and impact on the environment. New paradigms in metals extraction such as continuous vs. batch, nanoscale or in-situ processing, and lower cost raw material routes will also be discussed. *Sponsored by: Extraction and Processing Division, Light Metals Division, Aluminum Committee, Process Fundamentals Committee, and the TMS Young Leaders*

General Abstract Sessions

In an effort to present a more comprehensive view of current work being carried on in materials science research and industry, particularly new and emerging technologies and techniques, TMS will sponsor general abstract sessions related to the following areas: alloy phases, aluminum, chemistry and physics of materials, composite materials, corrosion and environmental effects, electronic packaging and inter-connection materials, polymers, powder metallurgy, precious metals, processing fundamentals, reactive metals, recycling, refractory metals, shaping and forming, solidification, superconducting materials, surface engineering, thin films and interfaces.

General Recycling

Several sessions will cover innovative research work, advances in ongoing research, and general industrial practices from recycling of materials. Reports of work in other fields, including optimization of physical, aqueous, and thermal processing of scraps and waste; environmental and economic impacts; material selection and design based on recyclability; life-cycle analysis of materials; properties; and applications of recovered materials will be presented. *Sponsored by: Extraction and Processing Division, Light Metals Division, Jt. Recycling Committee*

Granulation of Molten Materials

This symposium will explore aspects of granulation of slags, mattes, speiss, and metals. We will include topics such as launder and nozzle design through separation of the granulated material from the granulated medium submissions. Papers addressing both the fundamental aspects and practical application of granulation systems will be presented. *Sponsored by: Extraction and Processing Division, Pyrometallurgy Committee*

High Temperature Coatings - IV

This symposium is intended to focus on processing and characterization of high temperature coatings with regard to engineering and physical and chemical properties. The symposium will include synthesis of new unconventional materials. Various existing methods along with novel and innovative techniques of producing coatings and their applications will be addressed. *Sponsored by: Materials Processing and Manufacturing Division, ASM International: Materials Science Critical Technology Sector, Structural Materials Division, Jt. Corrosion and Environmental Effects Committee, Surface Engineering Committee*

International Symposium on Deformation and Microstructure in Intermetallics

Understanding of deformation and microstructure characteristics at/above room temperature has been a key issue for applications of intermetallics as structural materials. This symposium provides a forum for reporting recent progress and discussing unresolved issues in plastic deformation, creep, fatigue, and fracture of the materials. The emphasis is placed on macro- and micro-mechanisms associated with the deformation and fracture behavior at ambient and high temperatures. Presentations will be given on theoretical and modeling (meso-scopic) results as well as experimental works specifically related to microstructural characteristics such as slip, twinning, slip/twin-interface interactions, grain boundary sliding, and crack-tip plasticity and transformation. *Sponsored by: Structural Materials Division, ASM International: Materials Science Critical Technology Sector, Physical Metallurgy Committee, Jt. Mechanical Behavior of Materials Committee*

International Symposium on Shape Casting of Aluminum: Science and Technology

This symposium will provide a review of the state-of-the art in technology and science for shape casting of aluminum alloys. Topics will range from overviews of important problems and technological/industrial trends to fundamentals of solidification and processing-structure-property relationships, modeling methods and advances in industrial practice for Al-Si and Al-Si-Cu alloys. *Sponsored by: Light Metals Division, Materials Processing and Manufacturing Division, Structural Materials Division, ASM International: Materials Science Critical Technology Sector, Aluminum Committee, Non-Ferrous Metals Com-*

mittee, Solidification Committee, Jt. Mechanical Behavior of Materials Committee

Lead-Free Solder Materials and Soldering Technologies

The focus of this symposium will be on emerging and established lead-free and lead-bearing solders, metallizations (board and component finishes) and soldering processes for electronic, optical/optoelectronic and MEMS packaging. This symposium will address the materials and manufacturing aspects of alloy design of solders, structure-property-processing relationships of bulk solders as well as solder joints, influence of surface and underbump metallization on solderability and reliability of solder joints, microstructure modeling and control, reliability modeling and testing methodologies of electronic, MEMS and optical/optoelectronic packages. The symposium will also cover lead-free materials for metal-semiconductor contacts, alternative interconnect technology for stress management at both wafer-level and chip to package level, and the issues involved in the design and integration of conductive adhesives in electronic packages. Topics related to lead-free soldering in optoelectronic and microelectronic packages, such as BGA, micro-BGA, chip-scale etc. will also be of special interest. *Sponsored by: Electronic, Magnetic and Photonic Materials Division, Electronic Packaging and Interconnection Materials Committee*

Light Weight Alloys for Aerospace Applications

The scope of this symposium is to cover advances made in the area of scientific understanding and technological applications of lightweight alloys. Materials of interest will include: aluminum, titanium, magnesium, beryllium, and their composites. Processing, structure-property relationship, failure mechanisms and advanced joining themes will be included. *Sponsored by: Structural Materials Division, Non-Ferrous Metals Committee*

Magnesium Technology 2001

This second annual symposium will address science and technology issues associated with all aspects of magnesium production and use. The symposium will include a session honoring the memory of Lloyd Pidgeon, developer of the Pidgeon process for magnesium production. Papers will be presented on all aspects of extraction and processing, physical and mechanical properties, alloy development, and applications. Potential session topics include but are not limited to the following: Lloyd Pidgeon Memorial Session: Magnesium Reduction; Fundamentals of Magnesium Production; Materials for Magnesium Production; Environmental Issues; Casting and Solidification; Alloy Development: Structural, Thixo, and Wrought Alloys; Magnesium and Corrosion: Cathodic Protection and Corrosion Resistant Alloys; Alloy Properties and New Applications; and Magnesium and the Automotive Industry. *Sponsored by: Light Metals Division, ASM International: Materials Science Critical Technology Sector, Structural Materials Division, Jt. Corrosion and Environmental Effects Committee, International Magnesium Association, Reactive Metals Committee, Magnesium Committee*

Materials Issues in Microelectronics

This symposium will explore various aspects of electronic interconnection technology that are of current concern. Topics to be emphasized will be: interfacial reactions at all levels of packaging including connector, solder & metallization interfaces; optical interconnection & packaging; packaging for MEMS. In addition, presentations will include areas related to material issues for high conductivity connector alloys, wire-bonding, BGA, MCM, microwave and antenna devices, various thermal management technologies, and future approaches to high-density packaging. *Sponsored by: Electronic, Magnetic and Photonic Materials Division, Electronic Packaging and Interconnection Materials Committee*

Materials Processing Fundamentals

This symposium will cover all aspects of the fundamentals, synthesis, analysis, design, monitoring, and control of metals, materials, and metallurgical processes and phenomena. Topics include the experimental, analytical, and computer-modeling aspects of the physical chemistry, thermodynamics, and transport phenomena in materials and metallurgical processes as well as monitoring and control methodologies involved in these processes. Research relating to processes involving iron and steel, nonferrous metals, or lightweight alloys and topics that relate to process monitoring and control involving laboratory or in-plant validation are especially encouraged. *Sponsored by: Extraction and Processing Division, Materials Processing and Manufacturing Division, Process Fundamentals Committee, Jt. Processing Modeling Analysis and Control Committee*

Materials & Processes for Submicron Technology

The purpose of the symposium is to provide an interactive forum of multidisciplinary discussion on the science and technology of advanced materials and processing issues in microelectronic device fabrication. Specific topics include, but are not limited to: Advanced Metallization: new materials and processes for metallization and interconnects, deposition kinetics, film properties related to performance, process control and integration; Advanced Dielectrics: new organic and inorganic dielectrics, low-dielectric constant materials; High-K Materials for Gate Dielectrics: processing and characterization of barium strontium titanate, tantalum pentaoxide, titanium oxide, etc.; Chemical Mechanical Polishing: CMP theory, modeling and simulation, parametric analysis of polishing sensitivities and integration of CMP into process flow; Silicides: formation kinetics and stability of silicides phases, silicide processing, process integration, and next-generation silicide technology; Silicon Contact Technology: barrier processing, metal fill processes, and process integration for high-aspect ratio contacts and shallow-junction devices; Reliability Issues: gate dielectrics, electromigration in contacts and substrates; and Integrated Processing: sequential multichamber processing, real time monitoring, ultraclean processing, low temperature epitaxy. *Sponsored by: Electronic, Magnetic and Photonic Materials Division, ASM International: Materials Science Critical Technology Sector, Jt. Thin Films and Interfaces Committee*

Modeling of High Temperature Alloys

This symposium examines the use of computation techniques to model the processing, microstructural stability, modeling of deformation processing, alloy design, prediction of mechanical properties and industrial applications. *Sponsored by: Structural Materials Division, High Temperature Alloys Committee*

Properties of Nanocrystalline Materials

In recent years, a wide range of nanocrystalline materials has been synthesized to engineer desired properties such as mechanical, chemical, catalytic, electrical, magnetic, and optical properties. These properties have shown a strong processing dependence. This symposium will provide a forum to address characterization of these properties, processing-property relationship, structure-property relationship, and the relationship among properties in a broad spectrum of nanocrystalline materials. This symposium will include presentations in related areas of theories, computer simulations, industrial applications, new characterization techniques and approaches, etc. *Sponsored by: ASM International: Materials Science Critical Technology Sector, Structural Materials Division, Electronic, Magnetic and Photonic Materials Division, Jt. Mechanical Behavior of Materials, Jt. Chemistry and Physics of Materials Committee*

Reactive Metals-General Sessions

Papers will be presented on all aspects of the extractions, separation, purification prepara-

tion, production and application of reactive metals, including alkali metals, alkaline-earth metals, groups 4-6 refractory metals (Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W) rare earths, actinides, and the elements Ga, Ga, As, Se In, Sb, Ta, Tl, Bi and Be. *Sponsored by: Light Metals Division, Reactive Metals Committee*

Review and Optimization of Actual Copper Electrowinning Practice

This symposium will review the practice of copper electrowinning and recent implementation of improvements in copper electrowinning plant operations. The topics addressed are: the control of iron, minimization of electrolyte bleed-off and its treatment, effects of presence of manganese, reduction of cobalt losses, nitrate and chloride in copper electrolyte, effects on anodes, addition agents and acid mist control, etc. *Sponsored by: Extraction and Processing Division, Aqueous Processing Committee, Copper, Nickel, Cobalt Committee*

Sampling, Sensors & Control for High Temperature Metallurgical Processes

This symposium will consider current difficulties and new developments such as: representative sampling, subsequent analysis and data reconciliation; sensors (including physical as well as inferential or soft sensors); modeling for control and the integration of sampling, sensors and control as applied to high temperature metallurgical processes utilizing molten metals, mattes, slags, molten salts and gases. *Sponsored by: Light Metals Division, Extraction and Processing Division, Materials Processing and Manufacturing Division, Aluminum Committee, Pyrometallurgy Committee, Jt. Processing Modeling Analysis and Control Committee*

Second Global Symposium on Innovations in Material Processing & Manufacturing: Sheet Materials

The purpose of this inter-disciplinary conference is to bring together worldwide state-of-the art developments in the field of science and technology in the processing and manufacturing of sheet materials. Emphasis will be given to new sheet materials made from ferrous and non-ferrous metals, laminates, polymers, composites and reinforced plastics. The manufacturing and processing of sheet material should be related to applications in the automotive, aerospace and appliance industries. The conference will provide a forum for presenting advances in sheet processing and manufacturing by researchers and engineers from industry, research centers and academia. *Sponsored by: Materials Processing and Manufacturing Division, Powder Materials Committee, Shaping and Forming Committee, Solidification Committee*

Solution Concentration and Purification in Aqueous Processing

This symposium will cover all aspects of solution concentration and purification in aqueous processing of metals and minerals. The symposium will focus on the fundamental and practical aspects in the processing of non-ferrous metals (Ni, Co, Cu, Zn, Pb, etc.) and precious metals (Ag, Au, etc.). Topics of special emphasis will include solvent extraction, ion exchange, precipitation, cementation, adsorption, electrochemical methods, and environmental issues. A general session will be devoted to all other general applications of solution concentration and purification in hydrometallurgy. *Sponsored by: Extraction and Processing Division, Aqueous Processing Committee*

Structural Biomaterials for the 21st Century

This symposium is intended to provide an overview of the latest technologies and applications of structural metallic, ceramic, plastic, and composite biomaterials leading into the next millennium. The scope of the presentations can include discussions of materials, special processes, specific applications, or biological environment and fatigue/wear response. *Sponsored by: Structural Materials Division, ASM International: Materials Science Critical Technology Sector, Jt. Corrosion and Environmental Effects Committee, Structural Materials Committee, Titanium Committee*

Synthesis of Lightweight Metals IV

The symposium will address recent advances in the synthesis and processing of lightweight metallic materials. Thus the focus of papers will be on the methods used to develop new and improved materials. It is envisioned that the majority of the presentations will consider the low-density materials aluminum, magnesium, titanium and beryllium and composites based on these metals. Synthesis methods such as rapid solidification, mechanical alloying and vapour deposition will be addressed. Spray methods including co-spraying will be included. Plasma and other high-energy techniques such as electron beam techniques will be addressed. Nanostructured materials, combustion synthesis and metal matrix composites will be covered. Other synthesis/processing methods will include thermochemical processing (use of hydrogen as a temporary alloying element) and other methods under the general umbrella of the theme of the symposium. The synthesis/processing methods to be covered will also encompass advances in ingot/casting techniques such as direct production of sheet/strip and melting methods such as electron beam and plasma melting. Innovative "conventional" processing techniques such as rolling, extrusion, forging, and drawing will also be included. *Sponsored by: Light Metals Division, Structural Materials Division, Aluminum Committee, Titanium Committee*

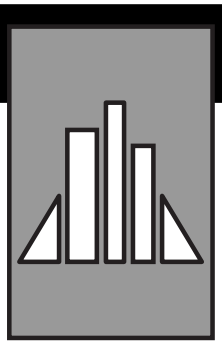
Teaching and Learning Solid State Diffusion

Solid-state diffusion is a critical process in many manufacturing operations including: the formation and adhesion of coatings, liquid-solid phase transformations, corrosion and solid-state transformations. Atom movements, solutions of the diffusion equation, measurement of diffusion coefficients and mulitcomponent diffusion are taught in introductory materials courses and in higher-level undergraduate courses dealing with kinetics and phase transformations. The purpose of this symposium is to create a forum for the exchange of ideas and information among faculty who teach solid-state diffusion at both the undergraduate and graduate level. *Sponsored by: ASM International: Materials Science Critical Technology Sector, Atomic Transport Committee*

Hundreds of publications. Thousands of articles.

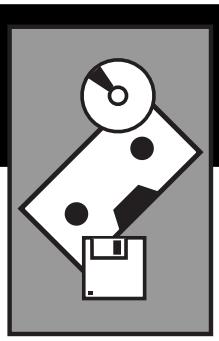
Search them all at http://doc.tms.org.

The TMS Document Ordering Center (DOC) is your complete, 24-hour resource for TMS publications. Find the information you seek in any one of its departments.



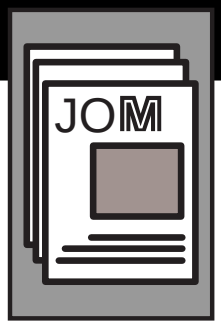
Books

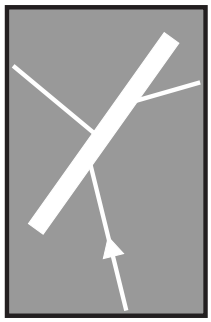
- Search the TMS archive of upcoming, current, and out-of print books
- View each book's table of contents
- Choose from 50 Roskill Reports
- Place your order online

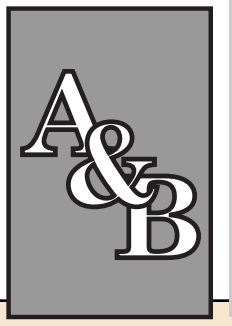


Videos & Software

- View the TMS selection of videos and software
- Order software packages in single or multiple user formats







Journals

- Search the comprehensive journal archive back until November 1997
- View each issue's table of contents
- Order individual issues of *JOM*, the *Journal of Electronic Materials*, and *Metallurgical and Materials Transactions A* and *B*.
- Download individual articles in portable document format

Subscriptions

- Place your order for an annual subscription to any of the TMS technical journals
- Choose between a print subscription or an electronic subscription
- Read each issue on-line with your electronic subscription

TMS Publications

Leaders in the Dissemination of Materials Science and Engineering Knowledge

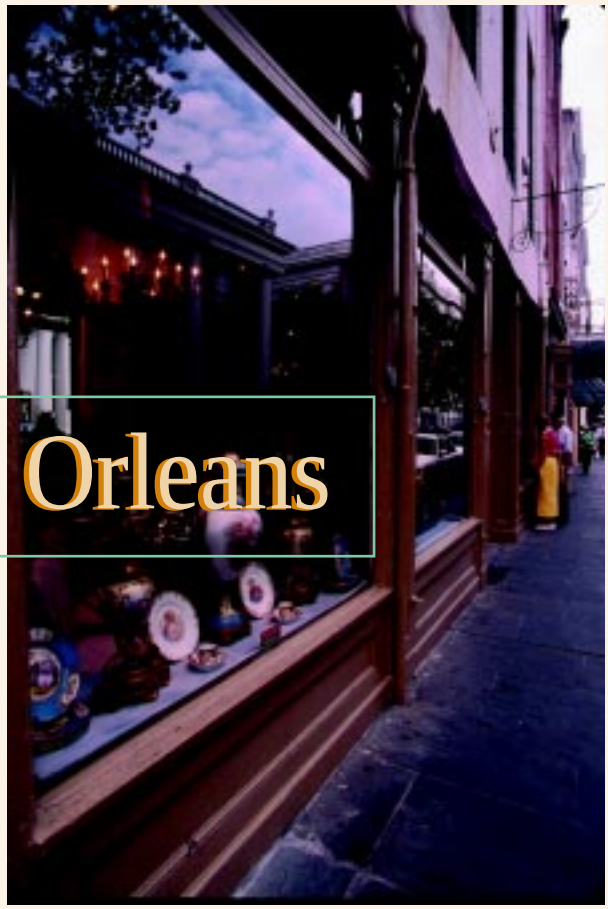
telephone (724) 776-9000

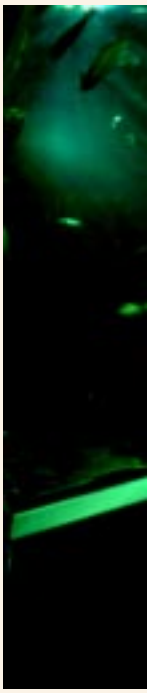
publications@tms.org

http://doc.tms.org

On Location: New Orleans

NEW ORLEANS IS ONE OF THE FEW CITIES THAT will capture your fascination with such vigor that you will dread the day you have to leave. The city's extraordinary past and present promises a fun filled visit. New Orleans is pulsating with energy of its European, Anglo and African heritage and spells its magic of excitement on all its visitors. Explore the city's heritage from impressive architecture, art, music, and antique shops to the delicious dining. Start your tour of New Orleans at its world famous **French Quarter**. The French Quarter is a ten block square area that encompasses New Orleans's rich and colorful historic background. Stroll leisurely through the streets and let the sounds of the city's jazz and zydeco rhythm sweep you away. Stop by **Jackson Square** and be entertained by jugglers, musicians, and dancers. Local artists display their art and let you watch them as they capture the city's essence in their paintings. Make sure not to skip **Bourbon Street**. Bourbon Street is one of the most well-known streets of the New Orleans French Quarter. Bourbon Street is lined with many shops, pubs, and galleries and is buzzing with activity 24 hours a day, 7 days a week.





Museums are plentiful in New Orleans and let you discover history, art, music, and sciences. Take a time out and visit any of the museums near the French Quarter - the New Orleans Museum of Art, the Old U.S. Mint, the Cabildo Museum, Presbytere, the 1850 House, Madam John's Legacy, or the Arsenal. **The Blaine Kern's Mardi Gras World** displays many of the Mardi Gras Carnival floats and will provide visitors a behind the scenes look at the legendary celebration. See page 28 for a special tour to this fanciful, colorful world.

A visit to the **Aquarium of the Americas** (the aquarium is ranked among the top five aquariums in the country!) offers an abundance for you to choose from and see—discover more than 15,000 animals from habitats of North and South America, Carribean Sea, Amazon Rainforest, Mississippi River, and the Gulf of Mexico.

If you feel more like a walk through the Asian Domain, African Savanna, Australian Outback and the Louisiana Swamp, visit the **Auduborn Park & Zoo** and be amazed at the wonders of more than 1,500 specimens. Take a trip to the **Louisiana Superdome** located less than a mile from New Orleans's French Quarter. The Louisiana Superdome is the site of the annual Sugar Bowl and the home of New Orleans's football team **The Saints**. While in New Orleans enjoy yourself and take advantage of all that the city has to offer. As they say in New Orleans: **Laissez les bons temps roule!**

TOURS EXPLORING the city of New Orleans and the surrounding areas are available year round. Check out the accompanying persons' tours on page 28 for more information!

The Meeting, in General

Location
The 2001 TMS Annual Meeting & Exhibition will take place in New Orleans, Louisiana. The Hilton New Orleans Riverside Hotel will be the headquarters hotel for the event. All conference events, including registration, technical sessions, and the exhibition will take place at the Ernest N. Morial Convention Center.

ATTENTION ORGANIZERS, EDITORS AND TECHNICAL COMMITTEE CHAIRS
At a one-hour workshop on Tuesday, February 13, 12:30 pm, TMS will demonstrate its Conference Management System and review the organizers' responsibilities. This presentation will familiarize organizers with the direct electronic submission of abstracts and the organization of symposia via the TMS World Wide Web site. All organizers of present and future symposia, as well as technical committee members are strongly encouraged to attend. Contact Peggy Weiss for additional information at (724) 776-9000, ext. 227 or E-mail weissp@tms.org.

Registration Policy
All attendees and authors must register for the meeting. Non-member authors may register at the special non-member author rate. Badges are required for admission to all technical sessions, the exhibition, and social functions.

Advance Registrant Packet Pick Up
Advance registrants should pick up their registration packets at the La Louisiane Ballroom A in the Ernest N. Morial Convention Center during the registration hours. Full payment of registration fees and social function tickets must accompany the completed Advance Registration form. For questions on advance registration, please contact:

TMS Meeting Services / 184 Thorn Hill Road / Warrendale, PA 15086
Telephone: (724) 776-9000, ext. 243 / Fax: (724) 776-3770 / E-mail: mtgserv@tms.org

On-site Registration
Registration will be held in the La Louisiane Ballroom A in the Ernest N. Morial Convention Center during the following hours:

Sunday, February 11	11:00 am–6:00 pm
Monday, February 12	7:00 am–5:00 pm
Tuesday, February 13	7:00 am–5:00 pm
Wednesday, February 14	7:00 am–5:00 pm
Thursday, February 15	7:00 am–10:00 am

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 compliance with this Act, we ask that those requiring specific equipment or services as an attendee of the TMS Annual Meeting 2001, contact the Meeting Services Department, at telephone 724-776-9000, ext. 243, and advise of any specific requirements in advance.

Advance Registration

TAKE ADVANTAGE OF ADVANCE REGISTRATION DISCOUNTS!

Take advantage of the discounted advance registration fees. Complete the Advance Registration form in this brochure and return it to The Minerals, Metals & Materials Society no later than January 22, 2001. Advance registration is encouraged. For your convenience, you may charge your registration fees on MasterCard, VISA, American Express, or Diner's Club credit cards. Full payment of registration fees and social function tickets must accompany the completed Advanced Registration form. Complete the registration form in this brochure and fax or mail it today. **Advance Registration Deadline: January 22, 2001**

REGISTER VIA TMS ONLINE

You may register any time day or night via the 2001 TMS Annual Meeting & Exhibition Home Page on the World Wide Web at http://www.tms.org/Meetings/Annual-01/AnnMtg01Home.html. TMS OnLine also provides detailed information on this and all TMS sponsored conferences.

Technical Sessions

Technical sessions will begin on Monday, February 12, and end on Thursday, February 15, 2001. Technical sessions will be held at the Ernest N. Morial Convention Center. Abstracts will be printed in the November 2000 issue of JOM and will also be available via TMS OnLine on the World Wide Web at *http://www.tms.org/Meetings/Annual-01/AnnMtg01Home.html.*

Audio/Video Recording Policy

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

Employment Referral Board

An employment referral board will be located at the TMS Member Services Desk. Attendees may leave their resumes and employers may post job openings. Also look for the tabletop display promoting the TMS resume Link service. Information and resume forms are available at the display.

Guest Hospitality

A special guest hospitality area will be hosted each day of the meeting from 7:00am–10:00am in the Hilton New Orleans Riverside Hotel. TMS will sponsor a continental breakfast for the convenience of spouses and accompanying persons of meeting attendees. The Guest Hospitality Room will be a good place to meet, socialize, and gather for tour departures.

To "register" an accompanying person, please provide your guest's name on your meeting registration form. They will receive a complimentary badge identifying them as a Conference Guest, which will allow admission to the TMS Exhibition and Reception, and the Guest Hospitality Room.

Note: The Conference guest badge is intended for spouses and accompanying persons of registered attendees and for identification only. It does not permit access to technical presentations.

POSTER SESSION

A technical, noncommercial poster session will be held in conjunction with the 2001 Annual Meeting. Presentations will be displayed on 4x8-foot poster boards; no formal presentation is required. Individuals should refrain from the use of brand names and specific product endorsements. The Poster Session will begin on Monday, February 12 and remain in place through Wednesday, February 14. Abstracts of 150 words or less must be submitted to the Conference Management System (CMS) at http://cms.tms.org by January 5, 2001. If you do not have access to the World Wide Web, abstracts may be mailed to: Peggy Weiss, TMS, 184 Thorn Hill Road, Warrendale, PA 15086, Fax: 724-776-3770.

Housing Accommodations

The TMS headquarters hotel will be the Hilton New Orleans Riverside Hotel. Special conference rates have been contracted at all the hotels listed on the housing form found in this brochure. To receive the special convention rate, please use the enclosed form to make your hotel reservation.

Reservations are processed on a first-come, first-served basis until **Thursday, January 4, 2001**.

About the Hilton New Orleans Riverside Hotel

In the "center of it all." The Hilton New Orleans Riverside, where distance is measured in footsteps, not cab fare, is in a prime downtown location with easy access to the excitement and variety only New Orleans has to offer. Immediately on the banks of the Mississippi River, this full-service luxury complex is actually a "city within itself."

With 3 outstanding restaurants, 3 spacious lounges, an extensive gift shop, R.J. Sutton Jewelry and Antiques, R.J. Sutton Art Gallery, a full service business center, CC's Coffee House, 2 outdoor pools, Pete Fountain's Club, and the Rivercenter Racquet and Health Club with 8 indoor tennis courts and more—it definitely happens at the Hilton. And, it's all under one roof!

The Ernest N. Morial Convention Center is at the hotel's doorstep, as are Harrah's Casino, the Riverwalk Festival Marketplace (140+ shops and food outlets), the French Quarter, the Aquarium of the Americas, the IMAX Theatre, the Arts District, the National D-Day Museum, the Louisiana Children's Museum, and the Riverfront Streetcar.

EASY Registration Process!

IF YOU REGISTERED IN ADVANCE, AND ADVANCE REGISTRATION IS RECOMMENDED…

- Have your meeting registration confirmation letter, TMS membership card, or your business card ready when you pick up your registration packet.
- Proceed directly to the Advance Registration area located at the La Louisiane Ballroom A in the Ernest N. Morial Convention Center and go to the registration desk that is marked with the first letter of your last name. A friendly meetings representative will then provide you with your badge and meeting package.

IF YOU PLAN TO REGISTER AT THE MEETING…

- You must complete a Meeting Registration Form. Registration forms are available in the meeting registration area at the Ernest N. Morial Convention Center.
- Proceed directly to the On-site registration counter where a friendly meetings representative will process your payment and registration form. The representative will print your badge and will provide you with your meeting package, as well as print your receipts.

If you have questions about your registration, badge, or need assistance, please go to the Assistance Counter located in the registration area at the Ernest N. Morial Convention Center.

THE FOLLOWING TITLES WILL BE AVAILABLE AT THE MEETING. RESERVE YOUR COPY ON THE ENCLOSED REGISTRATION FORM.

On the Bookshelf

Light Metals 2001

Joe Anjier, editor

The *Light Metals* series is the definitive source for recent developments in the international aluminum production community. *Light Metals 2001* includes papers on cast shop technology, alumina and bauxite, carbon technology, aluminum reduction, recycling, and more.

Approx. 1,000 pp., illus., index, hardcover & CD-ROM

Order No. 4801

Member Price: $164

Chemistry and Electrochemistry of Corrosion and Stress Corrosion Cracking

Russell Jones, editor

This book includes papers from the symposium on the chemistry and electrochemistry of corrosion and stress corrosion cracking. It covers a variety of topics related to stress corrosion cracking including chemistry differences between crack initiation and propagation.

Approx. 680 pp., illus., index, hardcover

Order No. 478X

Member Price: $96

Cyanide: Social, Industrial, and Economic Aspects

Courtney Young, Larry Twidwell, and Corby Anderson, editors

This proceedings volume will focus on five major issues concerning cyanide: production and uses, processing practices and innovations, recovery and destruction, fundamentals, and alternatives. Specific topics also include the cyanide cycle, natural and synthetic sources, precious metal leaching, alternative industrial uses, non-industrial uses, chemistry, thermodynamics, spent potliners, detection, and analysis. In addition, this volume will include presentations on politics and spills, as well as a subsequent section about the environmental movement that has targeted the use of cyanide in the mining industry.

Approx. 630 pp., illus., index, hardcover

Order No. 4798

Member Price: $86

Elevated Temperature Coatings

Narendra Dahorte, Janet Hampikian, and John Morral, editors

This reference book focuses on processing and characterization of high temperature coatings with regard to engineering, physical, and chemical properties. It includes synthesis of new and unconventional coating materials and addresses various existing methods along with novel and innovative techniques of producing coatings and their applications.

Approx. 372 pp., illus., index, CD-ROM

Order No. 4895

Member Price: $60

PDF through Document Ordering Center

Member Price: $60

EPD Congress 2001

Patrick Taylor, editor

The Extraction & Processing Division Congress has become the definitive annual forum for new technological developments in the process metallurgy community. *EPD Congress 2001* contains general abstracts and covers materials processing fundamentals, purification of nonferrous elements, granulation of molten materials, review and optimization of actual copper electrowinning practice, and general recycling of materials. Also included in this edition are papers presented in the Sampling, Sensors, and Control of High Temperature Materials symposium and the Emerging Technologies for Metal Production symposium.

Approx. 1,000 pp., illus., index, hardcover

Order No. 4887

Member Price: $125

Innovations in Processing and Manufacturing of Sheet Materials

Mahmoud Demeri, editor

The proceedings from this inter-disciplinary symposium brings together worldwide state-of-the-art developments in the field of science and technology in the processing and manufacturing of sheet materials. Emphasis is placed on new sheet materials made from ferrous and non-ferrous metals, laminates, polymers, composites, and reinforced plastics. This volume presents advances in sheet processing and manufacturing by researchers and engineers from industry, research centers, and academia.

Approx. 500 pp., illus., index, hardcover

Order No. 4909

Member Price: $97

Magnesium Technology 2001

John Hryn, editor

This second annual symposium proceedings addresses science and technology issues associated with all aspects of magnesium production and use. The broad scope of this volume covers all aspects of extraction and processing, physical and mechanical properties, alloy development, and applications.

Approx. 400 pp., illus., index, hardcover

Order No. 481X

Member Price: $124

Attention All Non-Member Registrants!

All attendees of the 130th TMS Annual Meeting who register at the non-member fee, will automatically receive a one-year, complimentary, introductory associate membership for 2001!

Associate members receive all of the same benefits as members, including a subscription to JOM, discounts on TMS publications and meeting fees, inclusion in, and access to, the TMS Membership Directory on TMS OnLine, plus an array of other personalized membership benefits and services.

Your membership card and new member packet, along with a postal card asking for additional vital information for our records will be sent to you immediately after the meeting.

Your associate membership will be activated upon completion of your registration form and payment of the non-member registration fee. If you have any questions, please contact the TMS Member Services Department at (724) 776-9000 Ext. 241.

Advance Registrants: Your year 2001 TMS Membership will be processed immediately. At the meeting, stop by the TMS Membership Desk to receive your free gift and enter our grand prize drawing!

On-Site Registrants: Proceed directly to the Non-Member Only Registration Area, where your form will be processed quickly. Receive your new member sticker on the spot; then stop by the TMS Membership Desk to receive your free gift and enter our grand prize drawing!

Properties of Nanocrystalline Materials

Sung H. Wang and Robert Shull, editors

In recent years, a wide range of nanocrystalline materials has been synthesized to engineer desired properties such as mechanical, chemical, catalytic, electrical, magnetic, and optical properties. This symposium proceedings addresses characterization of these properties, processing-property relationship, structure-property relationship, and the relationship among properties in a broad spectrum of nanocrystalline materials. This volume also includes papers from related areas that include theories, computer simulations, industrial applications, and new characterization techniques and approaches.

Approx. 500 pp., index, hardcover
Order No. 4828
Member Price: $74

Structural Biomaterials for the 21st Century

Henry Rack, Don Lesuer, and Eric Taleff, editors

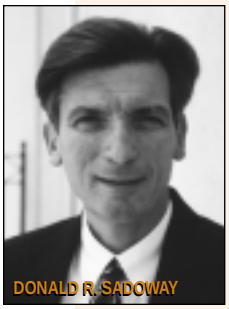
This volume provides an overview of the latest technologies and applications of structural metallic, ceramic, plastic, and composite biomaterials leading into the next millennium. The scope of this book includes discussions of materials, special processes, and specific applications, as well as biological environment and fatigue/wear response.

Approx. 250 pp., illus., index, hardcover
Order No. 4879
Member Price: $65

Young Leaders

ATTENTION PROFESSIONAL MEMBERS UNDER AGE 35!

You are invited to attend the TMS Young Leaders Receptions on Sunday, **February 11, 5:30 pm–6:30 pm.** Check the calendar of events for room location.


DONALD R. SADOWAY


GEORGES J. KIPOUROS


C. EDWARD ECKERT


MURAT TIRYAKIOGLU


AMES T. STALEY


ROBERT C. ANTONELLI

In the Classroom

THE MINERALS, METALS & MATERIALS SOCIETY (TMS) WILL OFFER A SELECTION OF THREE (3) LEARNING INTENSIVE COURSES designed to enhance your technical and professional expertise. Programmed in conjunction with the 130th TMS Annual Meeting & Exhibition, these courses were developed in response to the training and information needs of today's engineering professional.

With such diverse and carefully selected topics, you may select one or both of the courses suited to your needs:

- Molten Salt Chemistry and Process Design: from Smelter to Casthouse
- Heat Treatment of Wrought and Cast Aluminum Alloys
- Excellence in Professional Communications

We invite you to read over this brochure carefully and consider the merits of each course, as well as the qualifications of the respective presenters, and you are sure to find something of benefit to you and perhaps one of your colleagues.

1 MOLTEN SALT CHEMISTRY AND PROCESS DESIGN: FROM SMELTER TO CASTHOUSE

Saturday, February 10, 2001 and Sunday, February 11, 2001 ..... 8:30 am–5:00 pm

Sponsored by: TMS Light Metals Division
Presented by: Donald R. Sadoway, Massachusetts Institute of Technology, Georges J. Kipouros, Dalhousie University, and C. Edward Eckert, Apogee Technology

COURSE OVERVIEW

Molten salts are found in a wide variety of industrial applications.

- Molten salt electrolysis is used extensively in the primary extraction of metals (electrowinning) including aluminum, magnesium, lithium and the lanthanides.
- Molten salts are used as fluxes in casting a variety of reactive metals including aluminum and magnesium.
- Molten salts are by-products of reaction in a wide variety of processes ranging from metal purification (e.g., chlorination of light metals) to metal extraction by metallothermic reduction (e.g., titanium and tantalum).
- Molten salts are used as fluxes in the electroslag welding of titanium and other reactive metals.
- Molten salts are important in certain embodiments of fuel cell technology, as for example in the molten carbonate fuel cell.
- Molten salts are used as fluxes in brazing aluminum and other reactive metals.
- Beyond this, molten salts have unexplored potential as media for environmentally sound new processes for metal production and for treatment of waste from the metallurgical and the chemical process industries.

The course begins with a comprehensive overview of the field of molten salts including resources in the literature, databases, *etc*. Then, ***using as case studies (1) the electrolytic production of magnesium, lithium, and aluminum and (2) the processing of molten magnesium and aluminum, including purification, casting, and waste treatment***, the course presents the physical and chemical properties of molten salts and discusses how to tailor melt chemistry in order to meet the requirements of process design. Each day, the course ends with a ***clinic***, *i.e.*, an open forum in which ***the instructors field questions*** from the participants. A complete set of notes along with an exhaustive bibliography will be provided.

WHO SHOULD ATTEND?

Anyone engaged in the processing of light metals or reactive metals will find this course useful. The course is aimed at practicing engineers and laboratory scientists who wish to acquire a rudimentary understanding of this unique but very important class of liquids. Instruction is systematic, self-contained, and presumes no prior specific knowledge of molten salts on the part of the participants. The presentation is designed to show how to interpret contemporary industrial practice in the light of the underlying basic science. Participants can customize the course by raising questions during two lengthy open-forum discussions which serve as clinics.

The course is structured so that those interested exclusively in molten salt electrolysis can finish in one day. For those interested in a broader range of applications, including extraction of reac-

tive metals, casting, and purification of reactive metals, these topics along with more of the relevant science are presented on the second day.

ABOUT THE PRESENTERS

Donald R. Sadoway is John F. Elliott Professor of Materials Chemistry in the Department of Materials Science and Engineering at the Massachusetts Institute of Technology. He obtained the B.A.Sc. in Engineering Science, the M.A.Sc. in Chemical Metallurgy, and the Ph.D. in Chemical Metallurgy, all from the University of Toronto. After a year of postdoctoral study at MIT as a NATO Fellow, Dr. Sadoway joined the faculty in 1978. The author of over 100 scientific papers and holder of 11 U.S. patents, his principal research interests are high-temperature physical chemistry, electrochemical processes in molten salts and cryogenic liquids, and rechargeable lithium solid polymer batteries. Recent research has focused on nonconsumable anodes for aluminum production, the kinetics of perfluorocarbon generation in aluminum cells, process fundamentals of tantalum and titanium extraction, and performance testing of block copolymer electrolytes for solid-state lithium batteries. In 1995 he was named a MacVicar Faculty Fellow, MIT's highest award for excellence in undergraduate education, and in 1997 he won the Bose Award which is given to the outstanding teacher in MIT's School of Engineering.

Georges J. Kipouros is a professor and Head of the Department of Mining and Metallurgical Engineering at DalTech-Dalhousie University (formerly Technical University of Nova Scotia). He obtained his Dipl. Eng. from the National Technical University of Athens, Greece and the M.A.Sc and the Ph.D. in chemical/process metallurgical engineering from the University of Toronto. After three years as a Post-doctoral Research Associate at the Massachusetts Institute of Technology (MIT), he joined the Physical Chemistry Department of the General Motors Research Laboratories in Warren, Michigan as a Senior Research Scientist, where he worked in the development of processes for the production of neodymium-iron alloys and magnesium metal. The author of over 60 scientific papers, books, and proprietary research reports his principle research interests are in the development of industrial processes for the extraction, refining, and recycling of materials based on high temperature physical chemistry and electrochemistry in molten salt environments. He is currently the Vice-Chair of the Dalhousie University Senate.

C. Edward Eckert is President of Apogee Technology, Inc. and Quantum Environmental Dynamics, Inc. He is also an Adjunct Professor of Mechanical Engineering at Worcester Polytechnic Institute and provides retained consulting services for several companies. Dr. Eckert's primary research interests include fluid flow and phase separation, phase equilibria and reaction kinetics in metal treatment reactions, plasma based materials processing, aqueous phase oxygen dissolution, and aerospace propulsion. Dr. Eckert performed his undergraduate work in Metallurgical Engineering at the University of Pittsburgh, and received his Ph.D. in Materials Engineering from Drexel University. Prior to his current positions, he managed the metal quality program at ALCOA for 11 years (1979-1990), and was an engineering general supervisor at General Motors-Central Foundry Division (1976-1979). Dr. Eckert currently holds 122 US and international patents, has 39 technical publications, is Editor of the TMS book and CD-ROM, *Light Metals 1999*, and is a member of Sigma XI, Alpha Sigma Mu, TMS-AIME, The American Foundryman's Society (AFS), ASM International, and the Society of Automotive Engineers (SAE). He was the 1998-99 Chairman of the TMS/LMD Aluminum Committee, and continues to serve on a number of committees for these organizations.

2 HEAT TREATMENT OF WROUGHT AND CAST ALUMINUM ALLOYS

Saturday, February 10, 2001 and Sunday, February 11, 2001 ..... 8:30 am–5:00 pm

Sponsored by: TMS Light Metals Division
Presented by: Murat Tiryakioglu, Western Kentucky University, and James T. Staley, Consultant

COURSE OVERVIEW

The course combines theory with many practical examples. Strengthening mechanisms in aluminum alloy products are first reviewed. Then the general principles of precipitation hardening including phase diagrams are discussed. This is followed by an overview of the metallurgy of heat treatment. The hardening precipitates in the major alloys will be identified. A major element of the course is a description of how to use simple kinetic equations to predict effects of quenching and aging on properties. Graphical computer programs that illustrate these points will be demonstrated.

Contents of the course include solution heat treatment of castings with emphasis on homogenization and rounding of Si particles and effects of time and temperature. Discussion of the important step of quenching will include quench sensitivity; water quenching and geometry; and effects of quench on residual stress, distortion, corrosion, strength, and fracture toughness. Ex-

Registration

To register for a course, please use the registration form in this brochure. All courses will be held at the Hilton New Orleans Riverside Hotel the weekend prior to the meeting, Saturday and Sunday, February 10-11, 2001.

You may register any time prior to the Annual Meeting and on-site, but if you register by the advanced registration deadline of January 22, 2001, you will save an additional $50 late registration penalty. Course size is limited and a sufficient number of pre-registered attendees are necessary to offer each course, so please register early!

Cancellation Policy

TMS reserves the right to cancel any courses due to low pre-registration. All pre-registered attendees will be notified of the cancellation and offered either a transfer or a full refund.

Refund Policy

Written requests must be sent to TMS Headquarters, 184 Thorn Hill Road, Warrendale PA 15086, postmarked no later than January 22, 2001. A $25 processing fee will be charged for all cancellations; this processing fee is separate from and in addition to the fee charged for cancellation of meeting registrations. Absolutely no refunds will be issued after the January 22, 2001 deadline.

Note to US residents: A tax deduction may be taken for expenses of continuing education (including registration fees, travel, meals, and lodging) undertaken to maintain and improve professional skills. For more information concerning applicability, contact your local Internal Revenue Service office.

If you need additional information on a particular course, please contact:

TMS – Christina Raabe
184 Thorn Hill Road
Warrendale, PA 15086 USA
Tel: (724) 776-9000, ext. 212
Fax: (724) 776-3770
E-mail: raabe@tms.org

amples will be taken from 3XX, 2XXX, 7XXX, and 6XXX alloys. A method of predicting the properties using a Time-Temperature-Property C-Curve and a cooling curve will be described, and the difference between T-T-P and C-C-P (Continuous Cooling Property) Curves will be explained. Interactions between quenching and aging will also be covered. Examples of natural aging and effects of time and temperature of artificial aging will then be discussed. Examples of the contrasting effects of cold work prior to aging 2XXX and 7XXX alloy products will be shown and reasons for the behaviors discussed. Multi-step aging treatments will also be discussed with emphasis on T7 aging of 7XXX alloy products and low-high temperature aging of Al-Si castings.

WHO SHOULD ATTEND?

This 2 day course is intended for metallurgists, engineers, and technicians employed in either research or operations at facilities where cast or wrought aluminum alloy products are heat treated. Operations both at producers and users will be covered.

ABOUT THE PRESENTERS

Murat Tiryakioglu received his Bachelor of Science degree in Mechanical Engineering from Bogazici University in 1990. He received his Master's and Doctorate degrees in Engineering Management from the University of Missouri-Rolla in 1991 and 1993 respectively. Dr. Tiryakioglu has been active in the Board of Directors of Tiryakioglu Metal, Inc. (Istanbul, Turkey). He also worked at Boeing Commercial Airplane Group, Wichita Division, as an Advanced Technology Development Analyst. He is the founding director of the Advanced Manufacturing Institute which oversees the Heat Treatment Research Laboratory at Western Kentucky University. He is involved in research on the mechanical behavior and heat treatment of cast aluminum alloys, and also serves as a quality consultant.

James T. Staley Dr. James T. Staley, Sr. recently retired after 35 years at Alcoa in R&D and operations. There he deepened his experience in developing and applying heat treatments for aluminum alloy products. He led teams which wrote the chapters on *Metallurgy of Heat Treatment and General Principles of Precipitation Hardening* in **Aluminum: Properties and Physical Metallurgy** and *Heat Treatment of Aluminum* in an ASM International **Metals Handbook**. He continues to teach the metallurgy of heat treatment to Alcoa employees. He was awarded the James Douglas Gold Medal for distinguished achievement in nonferrous metallurgy by AIME and is a Fellow of ASM Internationsl.

3 EXCELLENCE IN PROFESSIONAL COMMUNICATIONS

Saturday, February 10, 2001 ..... 8:30 am–5:00 pm

Sponsored by the TMS Light Metals Division
Presented by: Robert Antonelli

COURSE OVERVIEW

- Introduce the three modes of communication and the relative importance of each.
- Briefly introduce the basic parts of speech including nouns, pronouns, adjectives, adverbs, prepositions, conjunctions and verbs.
- Explain Demonstratives, Interrogatives, Numericals, and Indefinites and observe how they function as both pronouns and adjectives.
- Learn how to simplistically differentiate among the twenty verb tenses and understand the characteristics of linking and action verbs.
- Briefly discuss the differences among direct and indirect objects as well as predicate nominatives and predicate adjectives.
- Go over introductory adverb phrases and learn how to write and punctuate them correctly.
- Observe the importance of introductory adverb clauses and introductory noun clauses in writing. Learn how to write and punctuate them correctly.
- Differentiate among the four types of sentences—simple, compound, complex, and compound-complex—and discover how and when to punctuate them. Learn the differences between a phrase and a clause.
- Learn how to present past, irregular, and very irregular past participles in eight different writing variations and learn how to punctuate them correctly.
- Introduce gerund and infinitive phrases used as the subject of a sentence and learn three short steps involved in writing them.
- Go over appositive phrase and discover how to write and punctuate it in two separate writing variations.
- Learn about commonly misused words and how to use them correctly.
- Utilize Nominative and Objective Case Pronouns correctly.
- Learn the thirteen key rules for subject-verb agreement.
- Discover how to vary sentence structures in fifteen different ways and learn how to punctuate them correctly.
- Utilize the process of Brainstorming to write thoughts, organize them, and develop them into cohesive, well-structured sentences by writing a paragraph.
- In an open forum, instructor will field questions from course participants, and he will supply notes and worksheets.

WHO SHOULD ATTEND?

Individuals should take the Excellence in Professional Communications course as a means of enhancing an overall ability to communicate effectively. This course will stress the importance of communication through correct grammar usage, effective verbal skills, and particularly an ability to write cohesively and coherently. In today's competitive environment, professionals must possess the ability to verbalize key ideas and thoughts effectively. They must evince specificity, accuracy, clarify, and lucidity in relaying ideas and thoughts regardless of the mode of communication utilized. Professionals must display and espouse the efficiency that today's corporate world demands. The course will elucidate many of the complex and often ambiguous grammatical rules that exist today. Many of these grammatical rules covered in this course contain original, simple, effective, and comprehensive language.

Once individuals develop a confident sense of understanding simplistically made grammar rules, we will proceed by learning how to express hidden thoughts and ideas through a process called brainstorming. This unique process will teach professionals how to collect thoughts, put them on paper, organize them, and begin to develop them into cohesive, well-structure sentences. Participants will master the ability to fill sentences with a plethora of strong vocabulary by actually learning the correct method of writing a paragraph, and they will learn the two voices in writing—passive voice and active sentences. By eliminating all linking verbs entirely and by writing actively, professionals will automatically begin to see an improvement in their writing skills. Participants will learn all comma rules merely through learning how to vary sentence structures in fifteen different ways. This one-day program will fortify the ability to communicate effectively and professionally.

ABOUT THE PRESENTER

Robert C. Antonelli is the Gifted Support Coordinator for the Plum Borough School District in Pittsburgh, Pennsylvania. He performed his undergraduate work in English and Italian at the University of Pittsburgh and achieved a Masters Degree in Italian in 1976. Mr. Antonelli joined the faculty of the Plum Borough School District in 1977 as an English teacher and has been involved in the education and teaching process for twenty-six years. Mr. Antonelli taught advanced Italian grammar and literature courses at the University of Pittsburgh between 1974 and 1983. He completed his Elementary certification in 1990 from Duquesne University in Pittsburgh. The Pennsylvania Congress of Parents and Teachers presented him an Honorary Lifetime Membership Award for Excellence in Teaching in 1998.

Scholar Notes

THE 2001 TMS ANNUAL MEETING offers students, interested in materials science and engineering, a variety of opportunities to gather technical information, explore career possibilities, and network with students and professionals in the field.

Non-Member Students Receive a Free Year of TMS Membership!

Student members of TMS may attend the technical sessions, exhibits and lectures held Monday through Thursday on a complimentary basis. Registration for students who are not members is $25, which will be applied toward a TMS Student Membership in 2001.

3rd Annual TMS Student Poster Session

Ernest N. Morial Convention Center

This students-only Poster Session will be held in conjunction with the 2001 TMS Annual Meeting. Presentation will be displayed on 4' by 4' poster boards; no formal presentation is required. The Poster Session will begin Monday, February 12, and remain in place through Wednesday, February 14. Annual Meeting attendees will have the opportunity to vote for the "Best Poster", with the winning poster receiving $500.

To enter, contact the TMS Member Services Department for a submittal form or visit the student pages of TMS OnLine. All forms must be received at TMS by December 15, 2000.

Student Travel Assistance

TMS Technical Division Student Travel Scholarships

This program sponsored by the TMS technical divisions can help pay your travel expense.

Students receiving travel scholarships are responsible for making their own travel and hotel arrangements and registering for the meeting. To apply for travel assistance, send a letter of application and state why you wish to attend the 130th TMS Annual Meeting and Exhibition in New Orleans, LA. Name the TMS division in whose technical programming you are most interested and include complete information on how you can be contacted. You must be a TMS student member to qualify. If we cannot contact you, your award will be forfeited. A subcommittee of the appropriate sponsoring division will review your letter, and this group will select the applicants to receive the travel scholarships. Those receiving travel scholarships will be contacted by TMS shortly after a decision is made. Deadline is December 15, 2000.

Send letters of application to:
TMS Student Travel Scholarships
184 Thorn Hill Road
Warrendale, PA 15086 USA
Fax: (724) 776-3770
E-mail: tbraden@tms.org

TMS Student Chapters—Don't forget to select a representative and submit the TMS Travel Reimbursement Program form, granting each chapter up to $500 per year to send student(s) to TMS conferences!

Student 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 that they are scheduled to monitor sessions. Monitors positions are limited and will be assigned on a first-come basis. To obtain work forms and schedule, contact Peggy Weiss, Phone: (724) 776-9000, ext. 227, Fax: (724) 776-3770, E-mail weissp@tms.org. The deadline to submit completed work forms is February 5, 2001.

Graduate Students!

Attend the 3rd TMS Graduate Student Leaders Program meeting on Monday, February 12, in the Ernest Morial Convention Center from 12:00–1:30 pm Meet with members of the Student Affairs Committee and your peers to assist in the development of this TMS student program geared specifically toward graduate students. Attendance is limited to graduate students who must register in advance by January 26, 2001.

Please send registrations to: Tara Braden, TMS Membership Coordinator, (724) 776-9000 ext. 220, tbraden@tms.org

The TMS Student Leaders Career Forum

Hilton New Orleans Riverfront Hotel

Sunday, February 11, 2001 ..... 1:00–5:00 pm

This forum will be of particular interest to graduating students who will soon be making the transition into the materials industry.

The seminars will feature key figures from both academia and industry that will provide personal insight into landing a job in today's market.

JOIN IN THE FUN AND ATTEND THE

Student Faculty Mixer

Hilton New Orleans Riverfront Hotel

Sunday, February 11, 2001 ..... 8:00–10:00 pm

Sponsored by the TMS Student Affairs Committee

The traditional TMS Student/Faculty Mixer is scheduled for Sunday evening, February 11, from 7:30–9:30 pm. Beer*, soft drinks, and snacks will be provided. This event is intended to welcome students to the TMS Annual Meeting, and all students and university faculty are invited to attend!

Display school pride! Everyone—even faculty!—is encouraged to display school pride by wearing school colors to this casual event.

Donate a door prize! Student Chapters are encouraged to use their creativity and donate an item as a door prize! TMS will also be donating items, with a grand prize surprise! The more prizes donated, the better your chance to win!

Dance and enjoy! The DJ will play the tunes, the beer* will be flowing, and snacks will be all around! Come see old friends and make new ones!

**Note: In accordance with the Louisiana State Law, alcoholic beverages will be served only to attendees who are 21 years of age or older; proper photo identification with birth date must be presented upon entry.*

Watch your student chapter mail for further details.

In Recognition of Merit

Congratulations!

TMS is proud to announce the year 2001 award winners!

FELLOW CLASS OF 2001
Stan A. David, *Oak Ridge National Laboratory*
Gregory B. Olson, *Northwestern University*
Sungho Jin, *Lucent Technologies*
John W. Morris, Jr., *University of California*
Carl C. Koch, *North Carolina State University*

APPLICATION TO PRACTICE AWARD
Edward A. Loria, *Metallurgical Consultant*

JOHN BARDEEN AWARD
Alex Zunger, *National Renewable Energy Lab.*

BRUCE CHALMERS AWARD
William J. Boettinger, *National Institute of Standards and Technology*

DISTINGUISHED SERVICE AWARD
Carl J. McHargue, *University of Tennessee*

EDUCATOR AWARD
Lawrence H. Van Vlack, *Posthumously*

ROBERT LANSING HARDY AWARD
Michael J. Vinarcik, *Ford Motor Company*

WILLIAM HUME-ROTHERY AWARD
Larry Kaufman, *Alcan Aluminum Ltd*

INSTITUTE OF METALS/ ROBERT FRANKLIN MEHL AWARD
Frans Spaepen, *Harvard University*

LEADERSHIP AWARD
John A.S. Green, *The Aluminum Association*

CHAMPION H. MATHEWSON AWARD
Dr. Kwai Chan, *Southwest Research Institute*

ACTA METALLURGICAL GOLD MEDAL
Chain-Tsuan Liu, *Oak Ridge National Laboratory*

2001 HUME-ROTHERY AWARD SYMPOSIUM
Monday, February 12, 2001

On the Quasi-Particle Spectra of Superconducting Random Alloys

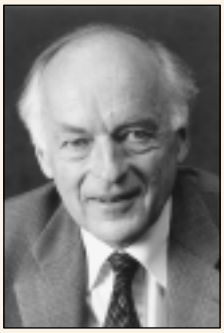
Prof. B.L.Gyorffy, *H.H.Wills Physics Lab., Univ. of Bristol*

Sponsored by: Jt. EMPMD/SMD Alloy Phases Committee

About the topic: A description of disorder is central to the theory of Superconductivity. Although the pioneering works of Abrikosov and Gorkov(AB)[1] and Anderson[2] explains the principle puzzle of why it does not lead to finite resistance they do not add up to a complete Mean Field Theory of disordered superconductors. In this talk Professor Gyorffy will review recent progress in combining the Hartee-Fock-Gorkov and Coherent Potential Approximations to provide such a theory[3]. The discussion will be based on a simple tight-binding model Hamiltonian which features effective, attractive interactions between electrons on the same, or nearest neighbor, sites and random site energies. Whilst the meaning and the breakdown of the Andersen Theorem will be examined in detail, the emphasis will be on cases of exotic, p-and d-wave, pairing relevant to recent experiments. The novel consequences of alloy type of disorder on the quasiparticle spectra in these interesting cases will be illustrated by explicit calculations.

[1] A.A. Abrikosov and L.P. Gorkov, Sov.Phys. JETP8, 1090 (1959) [2] P.W. Anderson J. Phys. Chem. Solids 11,26 (1959)
[3] A.M. Martin, G. Litak, B.L. Gyorffy, J.F.Annett and K.I. Wysokynski Phys.Rev.B60,7523(1999)

About the Presenter: Prof. Balazs L. Gyorffy received his B.S. and Ph.D. from Yale University. He has held the following positions at the University of Bristol: 1970-1980 Lecturer, 1980-1987 Reader, 1987 – present Professor of Theoretical Physics. He has held visiting positions at Oakridge National Laboratory, Brookhaven National Laboratory, Institute Laue-Langevan, University of Toronto and Technical University of Vienna. In collaboration with many, but particularly with G.M. Stocks and J.S. Faulkner, he invited and pioneered the application of the Korringa-Kohn-Rostoker-Coherent-Potential-Approximation (KKR-CPA), a first-principles method for calculating the electronic structure of metallic alloys. Advances made using the KKR-CPA are summarized in Gyroffy *et al (Phil. Trans. R. Soc.Lond.A* (1991) 334 515-516). Prof. Gyorffy has been elected an external member of the Hungarian Academy of Sciences (1995), Fellow of the Institute of Physics (1998) and was co-recipient of the Gordon Bell Prize (1998). He has authored or co-authored 220 publications.



INSTITUTE OF METALS LECTURE & ROBERT F. MEHL MEDALIST
Wednesday, February 14, 2001 ..... 12:00 Noon

New Discoveries in Deformed Metals

Niels Hansen, *The Riso Research Establishment*

About the Topic: Deformed metals have in the last decade been extensively studied by many new and advanced microscopical techniques. This has allowed the structural evolution at increasing strain to be modeled based on general principles. An outcome has been new relationships between processing parameters, structure and macroscopic properties.

About the presenter: Dr. Hansen has been the head of the Materials Research Department at The Riso Research Establishment under the Danish Atomic Energy Commission since 1964 with a staff of about 100 working on a broad range of problems in the materials field.

He received his M.Sc. in chemistry from the Technical University of Denmark, a DEA in metallurgy from the Institute of National Sciences and Technology Nuclear of France and a Dr. of Technology in materials from the Technical University of Denmark.

Dr. Hansen has been recognized for his outstanding research contributions and accomplishments by many major awards, including: Member of the Danish Academy of Technical Sciences (1968), Fellow of the Institute of Materials, UK (1973), Danish Knighthood (1978), Fellow of ASM International (1988), Member of Academia Europaea (1993), Foreign Associate, US National Academy of Engineering (1995) and Advisory Professor, Harpin Institute of Technology, China (1995).

EXTRACTION & PROCESSING DIVISION DISTINGUISHED LECTURER
Tuesday, February 13, 2001 ..... 12 Noon

Recycling at U.S. Plants Operated Solely to Recycle Metal-Rich Wastes

Dr. Paul B. Queneau, P.E., *P.B. Queneau & Associates, Inc.*

About the topic: Some twenty U.S. plants are solely devoted to the recovery of values from metal-rich wastes. Each plant has established a market niche based on one or more competitive advantages: superior process technology, access to key feedstocks, equipment not affordable to the competition, special knowledge of markets for alternative plant outputs, and an economic, environmentally sound sink for outfall water containing alkali-metal sulfates and chlorides. This lecture examines recycling plant methodology and competitiveness. Particular attention is given to feedstocks, process technologies, products, and specialties. These metal recycling plants perform a valuable role in our nation, and are cause for pride.

About the presenter: Paul B. Queneau earned his B.S. in metallurgical engineering at Cornell University in 1964, and his Ph.D. in metallurgical engineering at the University of Minnesota in 1967. For over 30 years he has developed extractive processes for primary and secondary feedstocks, and participated in plant startups and plant operations to maximize output, yield, and product quality. Dr. Queneau began his career in copper and molybdenum metallurgy at the Kennecott Copper Research Center in Salt Lake City, followed by 10 years at AMAX R&D Laboratory and 14 years at Hazen Research in Golden, Colorado. Research at AMAX was principally on nickel, cobalt, tungsten, and molybdenum, and at Hazen a on broad range of nonferrous metals. His current firm (1997 to date), P.B. Queneau & Associates, focuses on pyrometallurgy and hydrometallurgy for the extraction and recycling of primary and secondary raw materials, resource location and product marketing.

Dr. Queneau, Cornell Tau Beta Pi, is a registered Professional Engineer in Colorado, Past President of the Denver Section, AIME Chapter ('87-'88), Chairman of the TMS/EPD Copper, Nickel, Cobalt Committee ('91-'92), Plenary Speaker at the Wadsworth Hydrometallurgy Symposium ('93), General Meeting Chairman for the Third International Recycling Symposium ('95), Chairman of the EPD Award Committee ('95-'96), and Recycling Short Course Organizer (TMS, CIM, CSM and U.S. EPA; '92 to date). Dr. Queneau is an Adjunct Professor at the Colorado School of Mines, has authored 33 technical papers and holds 26 U.S. patents.

SPECIAL FEATURE

Who's Who in TMS?

JOHN E. JACOBY

Mr. Jacoby, a TMS members since 1985, is a metallurgical engineering graduate from Lehigh University. He retired from the Aluminum Company of America in 1994 after 38 years of service. He worked in various production plants in metallurgical assignments for 19 years and performed continuous casting research and explosion testing for 19 years. Mr. Jacoby continues to be active in the aluminum industry as a consultant. Cast shop safety has been a major focus of his consulting work.

Mr. Jacoby has published three papers in the TMS *Light Metals* publication entitled "Design of Molds to Minimize Internal Shrinkage Cavities", "Macrosegregation Characteristics of Commercial Size Aluminum Alloy Ingot by the Direct Chill Method", and "Direct Chill Casting of Aluminum Lithium Alloys". He has made presentations during all twelve of the Aluminum Association "Casthouse Safety Workshops" conducted throughout the United States and is the lead instructor of the TMS Short Course "Safe Practices for Handling Molten Metal" that has been presented in the United States, Western Europe and Australia. He has presented molten metal safety seminars for workers in numerous aluminum plants in the United States, Canada, Western Europe, South Africa and Australia. His latest endeavor as an active member of the Aluminum Committee and the Continuing Education Committee includes teaching TMS's popular short course "Safe Practices for Handling Molten Metal" online in the late spring of 2001. TMS Members and nonmembers can complete the on-line course conveniently at their offices or homes at their own pace. Mr. Jacoby will be available for the duration of the course to answerer questions and guide participants through the course material.

TO FIND OUT MORE ABOUT TMS On-line short courses.

Contact:
Christina Raabe
Technical Division and C.E. Coordinator
184 Thorn Hill Road
Warrendale, PA 15086
Phone: (724) 776-9000 ext. 212
Fax: (724) 776-3770
E-mail: raabe@tms.org

VISIT
http://www.tms.org/Education/internetcourses.html.

Special Events

130TH TMS BANQUET AND AWARDS PRESENTATION WITH INSTALLATION OF 2001 TMS PRESIDENT

THE TMS ANNUAL DINNER AND AWARDS Presentations will be held at 7:00 pm Tuesday, February 13, 2001, at the Hilton New Orleans Riverside. The highlight of the 130th TMS Annual Meeting will begin with a cash bar reception at 6:00 pm and dinner at 7:00 pm. Dark business suits are appropriate attire for the gentlemen.

Following dinner, 2000 TMS President Y. Austin Chang will present the TMS awards. The presentations will be followed by a short address by incoming 2001 President Wayne R. Hale.

Wayne R. Hale is Vice President of Smelting, Refining & Power Generation at Rennecott Utah Copper in Magna, Utah. He is an active, long-term member of the Light Metals Division (LMD) and the Aluminum Committee. During his membership he has served as *JOM* advisor, chair of the LMD Aluminum Committee and the LMD, and editor of Light Metals 1996. He also served as the principal organizer for the TMS-sponsored 1997 industrial aluminum electrolysis course in Charleston, South Carolina.

Y. AUSTIN CHANG 2000 TMS PRESIDENT

WAYNE R. HALE 2001 TMS PRESIDENT

Young Leaders Extractive Metallurgy Tutorial

Monday, February 12, 2001 ..... 12:00 Noon–1:30 pm

Patrick R. Taylor, *University of Tennessee*
Funsho Ojebuoboh, *Asarco*
Corby G Anderson, *Montana Tech*

Extractive Metallurgy as a discipline is explained from a Professor's, Consultant's and Manager's point of view. Dr. Funsho Ojebbuoboh is Manager of Technical and Business Development with Asarco' Globe Plant Specialty Metals. Dr. Corby Anderson is Principal Process Engineer with the Center for Advanced Mineral and Metallurgical Processing at Montana Tech and Dr. Patrick Taylor is Professor & Head of Materials Science and Engineering at the University of Tennessee.

Extractive Metallurgy may be defined as the physical and chemical principals of metals recovery and refining. Typically the field is divided into three parts: pyrometallurgy, hydrometallurgy and electrometallurgy. Many of the unit operations are utilized in materials synthesis and the fundamental principles are applicable to materials processing by chemical reactions.

Light Metals Division Luncheon

Wednesday, February 14, 2001 ..... 12:00 Noon

MAGNESIUM—A CHALLENGE FOR ALUMINUM IN THE FUTURE?

Svein Richard Brandtzaeg, *Hydro Magnesium Marketing*

About the Topic: The global Magnesium market is small compared to Aluminium, but growing at 2-3 times higher rate. Magnesium together with Aluminium are competing with plastics and still in highly demanding segments. Magnesium and Aluminium are in some areas complimentary, and as an alloying element Magnesium is improving the properties of Aluminium, but the inherent properties of these light metals are also exposed to direct competition. The industrial structure and production technologies are very different and are influencing the competitiveness of the metals.

About the Presenter: Dr. Brandtzaeg eamed his Master of Science degree in 1981 at the Norwegian University of Science and Technology, NTNU. He went on to receive degrees as Economist. He was PhD student for Professor Harald Oye at Institute of Inorganic Chemistry, Norwegian University of Science and Technology and awarded his PhD in 1985. He finished his education with a Post. Doc. Fellowship for Professor Barry Welch at Department of Chemical and Materials Engineering, University of Auckland, in 1987-1988. He is currently the President of Norsk Hydro's Magnesium Division. Former positions at Hydro Aluminium included Vice-President Casthouses, Casthouse and Marketing Manager, Technical Manager, HR Training and Education Manager and Cathode Workshop Manager.

Extraction & Processing Division Luncheon

Tuesday, February 13, 2001 ..... 12:00 Noon

PROCESSES, PRODUCTS AND PROFITS: THE ART OF MODERN SMELTING

Theo Lehner, *Boliden Mineral*

About the Topic:
The business of smelting is experiencing both new and old challenges: cutting costs and emmissions exemplify old ones, defending our products and recycling of post-consumer wastes are new ones. Recent European experience will be shared.

About the Presenter:

Theo Lehner earned his dipl. ing. of metallurgy degree in 1972 at the Swiss Federal Institute of Technology, ETH, Zurich. He went on to work with injection metallurgy at MEFOS (1973), the Metallurgical Pilot Plant at Lulea, Sweden. From steel research he continued to stainless steel production at Avesta Stainless (1980) and moved on to extraction of base metals at Boliden Minerals AB (1982). The fascinating world of pyrometallurgy and the challenges caused by it have kept him busy since. Recent challenges include objetcs such as consequences of producer responsibility acts, sustainability discussions, benchmarkings and attacks on metals. He is currently the Metallurgical Supervisor at the Raw Materials Department of Boliden's Rönnskär smelter.

In conjunction with the Computational Thermodynamics in Materials Design Symposium

Larry Kaufman Honorary Dinner

Monday, February 12, 2001

Sponsored by: MPMD, EMPMD, SMD, and ASM-MSCTS

On the occasion of his 70th birthday, a symposium dedicated to Dr. Larry Kaufman is being organized. Dr. Kaufman has pioneered the fields of calculation of phase diagrams (CALPHAD), which is a key component in today's computational materials design. Topics to be covered in the symposium include, but will not be limited to, the following: lattice stability, computational thermodynamics, calculation of phase diagrams, computational kinetics, materials design, and industrial applications. The symposium will consist of a keynote talk by Dr. Larry Kaufman and oral presentations.

Dinner tickets are $55 and may be purchased via the TMS Annual Meeting Registration form in the attached registration form packet.

In conjunction with the Chemistry and Electrochemistry of Corrosion and Stress Corrosion Symposium

Roger Staehle Honorary Dinner

Wednesday, February 14, 2001

Sponsored by: SMD and ASM-MSCTS

This conference will include papers on the chemistry and electrochemistry of corrosion and stress corrosion cracking. A wide range of topics in stress corrosion cracking including chemistry differences between crack initiation and propagation will be presented.

Dinner tickets are $55 and may be purchased via the TMS Annual Meeting Registration form in the attached registration form packet.

Hertz Rent-a-Car system

Has been selected as the official car rental company for the 2001 TMS Annual Meeting, February 11–15, 2001, in New Orleans, Louisiana.

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 Louisiana 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 Annual Meeting and reference the following CV number: CV#010P0008. **You must give the reservations agent the Hertz Number.**

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

	DAILY	WEEKEND	WEEKLY
CAR CLASS	**PER DAY**	**PER DAY**	**5–7 DAY**
A Economy 2DR	$34.99	$21.99	$129.99
B Compact 4DR	$39.99	$25.99	$149.99
C Midsize 2/4DR	$42.99	$27.99	$164.99
D Sporty 2DR	$45.99	$32.99	$179.99
F Fullsize 4DR	$49.99	$34.99	$194.99
I Luxury	$65.99	$62.99	$294.99
L 4Wheel Drive	$65.99	$62.99	$274.99
T Premium and SU*	$70.99	$67.99	$324.99
N Premium and SU X-cap*	$75.99	$72.99	$374.99
R Minivan	$65.99	$62.99	$274.99

**Car classes T and N not available from all locations.*

US Airways

...Official Carrier for the 2001 TMS Annual Meeting

SPECIAL AIRFARE

US Airways has been designated as the official carrier for the attendees of The Minerals, Metals & Materials Society 2001 Annual Meeting, February 11–15, 2001 in New Orleans, Louisiana, 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 February 8–18, 2001. 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.

REFER TO GOLD FILE NO. 60671635

On the Floor

ERNEST N. MORIAL CONVENTION CENTER ■ HALL A

SHOW DATES AND HOURS:

Monday, February 12, 2001 .... 12:00 Noon–6:00 pm
Tuesday, February 13, 2001 ..... 9:30 am–5:30 pm
Wednesday, February 14, 2001 .... 9:30 am–3:00 pm

SPECIAL ATTRACTIONS AT THE 2001 EXHIBITION

Hosted Grand Opening
Monday, 5:00–6:00 pm
An opportunity for all meeting registrants to join the exhibitors at the Wine & Cheese Reception

Complimentary Lunch
Tuesday, 12:00–1:30 pm
Meeting registrants can enjoy a hosted lunch on the exhibit floor while visiting the booths

Ice Cream Treat
Wednesday, 12:15–2:15 pm
Join us in the exhibit hall for a New Orleans treat!

Make plans

to attend the Annual Meeting Exhibition, featuring:

- 30,000 square feet of exhibits
- over 200 exhibiting companies
- over 30 categories of equipment, materials, services and technology, including:
  - Aluminum production technology
  - Automation and Computer Simulation
  - Carbon Technology
  - Casting
  - Filtration
  - Furnaces
  - Grain Refiners & Master Alloys
  - Engineering and Consulting Services
  - Measurement, Testing & Analysis Equipment & Services
  - Process Equipment
  - Recycling Technology
  - Refractory & Insulating Supplies

Product & Technology Mini-Sessions

Monday, February 12, and Tuesday, February, 13 ■ 11:45 am–2:00 pm

Attendance to the Mini-Sessions is included with meeting registration.

Location: The products and technology mini-sessions are held in the Ernest N. Morial Convention Center in meeting areas convenient to the Exhibition and technical program.

Special Exhibitor Presentations Feature:

- New and innovative technology
- Equipment and process innovations

Technical areas featured in the Mini-Sessions include:

- Casting Technology
- Refractory Technology
- Furnaces
- Carbon Technology
- Aluminum Processing and Technology

Attendees of the Mini-Sessions have an opportunity to:

- Learn the latest techniques, products, and processes directly from producer, manufacturer, and suppliers.
- Gain additional details regarding products and services featured on the exhibit floor.
- Identify and locate the experts—companies who provide specific solutions.

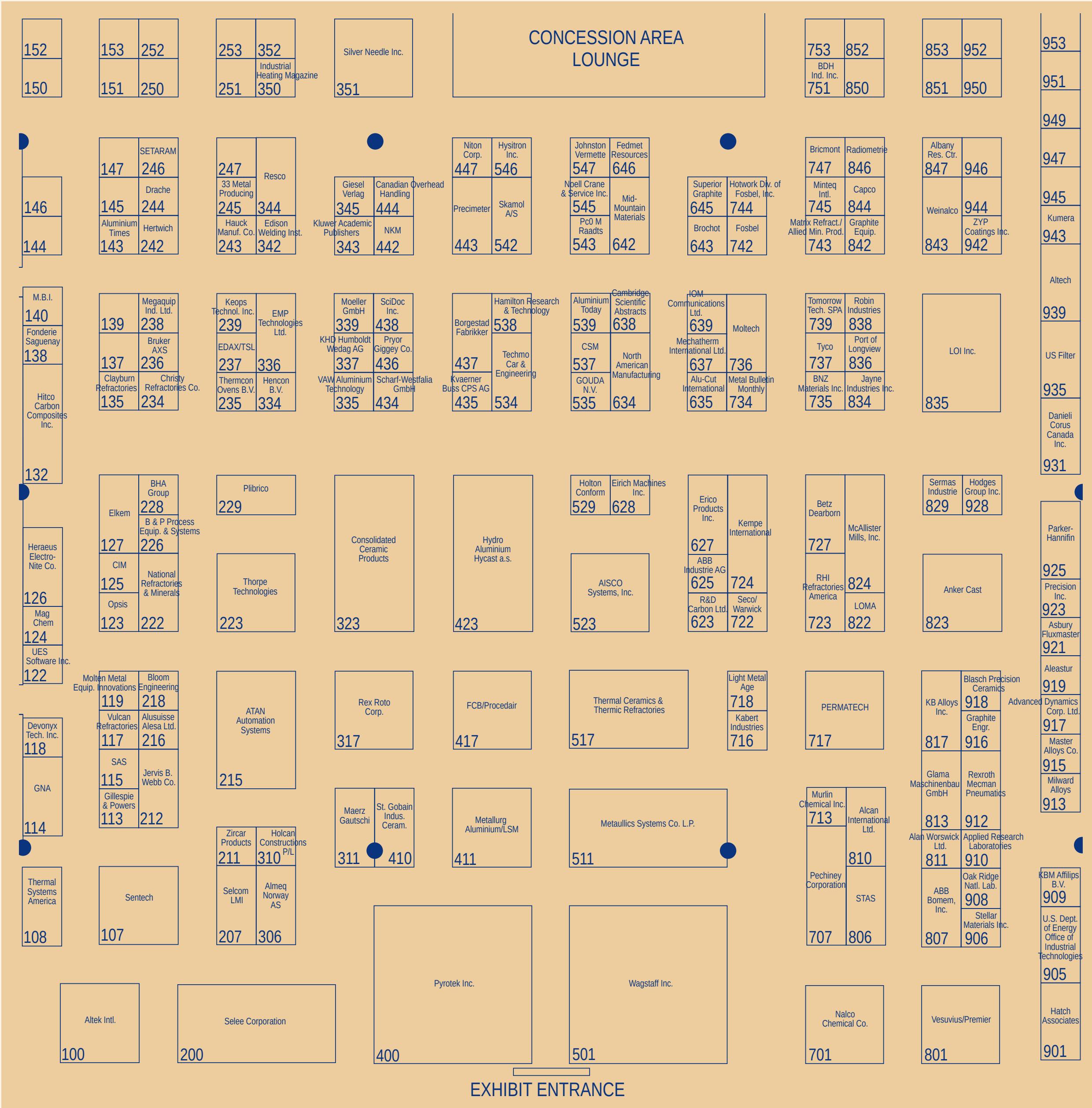
To take part in the Exhibition and Mini-Sessions or for more details, contact Cindy Wilson at

Phone: (724) 776-9000 x231.
E-mail: wilson@tms.org

EXHIBITING ORGANIZATIONS

COMPANY	BOOTH #
33 Metal Producing	245
ABB Bomem, Inc.	807 (2 sp)
ABB Industrie AG	625
Advanced Dynamics Corp Ltd.	917
AISCO Systems, Inc.	523 (4 sp)
Alan Worswick Ltd	811
Albany Research Center	847
Alcan International Ltd	810 (2 sp)
Aleastur	919
Almeq Norway AS	306 (2 sp)
Altech	939 (2 sp)
Altek	100 (4 sp)
Alu-Cut International	635
Aluminium Times	143
Aluminium Today	539
Alusuisse Alesa Ltd.	216
Anker Cast	823 (4 sp)
Applied Research Laboratories	910
Asbury Fluxmaster	921
ATAN Automation Systems	215 (6 sp)
B & P Process Equip & Systems	226
BDH Industries	751
BetzDearborn	727 (2 sp)
BHA Group Inc	228
Blasch Precision Ceramics	918
Bloom Engineering	218
BNZ Materials Inc	735
Borgestad Fabrikker	437 (2 sp)
Bricmont Inc	747
Brochot SA	643
Bruker AXS	236
Cambridge Scientific Abstracts	638
Canadian Overhead Handling	444
Capco Machinery Systems Inc	844
Christy Refractories Co	234
Clayburn Industries Ltd.	135
Consolidated Ceramic Products	323 (8 sp)
CSM Industries Inc	537
Danieli Corus Canada Inc	931
Devonyx Technologies Inc	118
Drache	244
EDAX/TSL	237
Edison Welding Inst	342
Eirich Machines Inc	628
Elkem Metals	127 (2 sp)
EMP Technologies Ltd.	336 (2 sp)
Erico Products Inc	627 (2 sp)
FCB/Procedair	417 (2 sp)
Fedmet Resources Corp	646
Fonderie Saguenay	138
Fosbel	742
Giesel Verlag/Aluminium	345
Gillespie & Powers	113
Glama Maschinenbau GmbH	813 (2 sp)
GNA	114 (2 sp)
GOUDA VUURVAST N.V.	535
Graphite Engineering & Sales	916
Graphite Equipment Mfg Inc	842
Hamilton Research & Technology	538
Hatch Associates	901 (2 sp)
Hauck Manufacturing Co	243
Hencon B.V.	334
Heraeus Electro-Nite Co	126, 128
Hertwich Engineering	242
Hitco Carbon Composites Inc.	132 (3 sp)
Hodges Group Inc.	928
Holcan Constructions P/L	310
Holton Conform	529
Hotwork Div of Fosbel, Inc.	744
Hydro Aluminium Hycast a.s.	423 (8 sp)
Hysitron Inc	546
IOM Communications Ltd.	639
Industrial Heating	350
Jayne Industries Inc.	834
Jervis B Webb Co.	212 (2 sp)
Johnston-Vermette	547
Kabert Industries	716
KB Alloys Inc	817 (2 sp)
KBM Affilips B.V.	909
Kempe International	724 (3 sp)
Keops Technologies Inc.	239
KHD Humboldt Wedag AG	337
Kluwer Academic Publishers	343
Kumera	943
Kvaerner Buss CPS AG	435
Light Metal Age	718
LOI Inc	835 (6 sp)
Loma Machine Mfg. Co.	822
London & Scandinavian Metal.	411 (4 sp)
M.B.I.	140
maerz-gautschi Indust. Furnaces	311 (2 sp)
Mag Chem	124
Master Alloys Co.	915
Matrix Refract./Allied Mineral Prod.	743
McAllister Mills, Inc.	824 (3 sp)
Mechatherm International Ltd	637
Megaquip Ind Ltd	238
Metal Bulletin Monthly	734
Metallurg Aluminium	411 (4 sp)
Metallurgical Society Of CIM	125
Metaullics Systems Co. L.P.	511 (8 sp)
Mid-Mountain Materials	642 (2 sp)
Milward Alloys	913
Minteq International Inc	745
Moeller GmbH	339
Moltech	736 (2 sp)
Molten Metal Equip Innovations	119
Murlin Chemical Inc	713
Nalco Chemical Co	701 (4 sp)
National Refract. & Minerals	222 (2 sp)
NITON Corporation	447
NKM	442
Noell Crane & Service Inc	545
North American Manuf.	634 (2 sp)
Oak Ridge National Lab	908
Opsis	123
Pc + 0 M Raadts	543
Parker-Hannifin	925 (2 sp)
Pechiney Corporation	707 (3 sp)
Permatech	717 (4 sp)
Plibrico	229 (2 sp)
Port of Longview	836
Precimeter, Inc.	443 (2 sp)
Precision Inc.	923
Procedair Industries / FCB	516 (2 sp)
Pryor Giggey Co.	436
Pyrotek Inc.	400 (16 sp)
R&D Carbon Ltd.	623
Radiometrie Corp	846
Resco Products Inc	344 (2 sp)
Rex Roto Corp	317 (4 sp)
Rexroth Mecman Pneumatics	912 (2 sp)
RHI Refractories America	723 (2 sp)
Robin Industries	838
St. Gobain Ceram. & Plas. Inc.	410 (2 sp)
Scharf-Westfalia GmbH	434
SciDoc Inc	438
Seco/Warwick	722
Selcom LMI	207 (2 sp)
Selee Corporation	200 (8 sp)
Sentech Corporation	107 (4 sp)
Sermas Industrie	829
SETARAM	246
Silver Needle Inc	351 (4 sp)
Skamol A/S	542 (2 sp)
STAS	806 (2 sp)
Stellar Materials Inc	906
Stein Atkinson Stordy Ltd.	115
Superior Graphite Co	645
T.T. Tomorrow Technology SPA	739
Techmo Car & Engineering	534 (2 sp)
Thermal Cer. & Ther. Refract.	517 (6 sp)
Thermal Systems America	108 (2 sp)
Thermcon Ovens BV	235
Thorpe Technologies	223 (4 sp)
Tyco Flow Control – Terry	737
UES Software Inc.	122
US Dept. of Energy	905 (2 sp)
US Filter	935 (2 sp)
VAW Aluminium Technology	335
Vesuvius/Premier	801 (4 sp)
Vulcan Refractories	117
Wagstaff Inc	501 (16 sp)
Wienalco	843 (2 sp)
Zircar Products	211
ZYP Coatings Inc	942

REFER TO EXHIBIT FLOORPLAN ON FOLLOWING PAGE

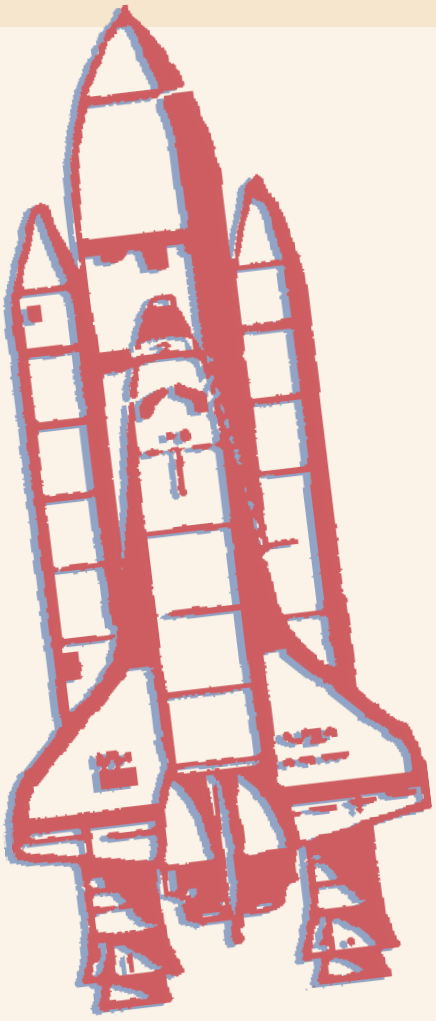


To visit the exhibition, complete and return the enclosed registration form.

For information on becoming an exhibitor, contact TMS to obtain the Exhibition Prospectus.

Cindy A. Wilson
Telephone: (724) 776-9000, ext. 231
Fax: (724) 776-3770
E-mail: wilson@tms.org

321 Blastoff



A SPECIAL PLANT TOUR OPPORTUNITY

Lockheed Martin Space Systems Company's NASA MICHOUD ASSEMBLY FACILITY

Thursday, February 15, 2001
9:00 am–12:00 Noon ■ Fee: $35

Just 15 miles from New Orleans's French Quarter, 5,000 employees at the NASA Michoud Assembly Facility work to conquer man's final frontier, *space*, by designing and assembling the massive external propellant tank for America's dependable space transportation vehicle, the space shuttle.

The External Tank (ET) has a dual role in NASA's space shuttle system. It provides the structural backbone of the shuttle during launch operations, absorbing 6,610,000 pound thrust loads generated by the Orbiter's three main engines and two solid rocket boosters. The ET also contains and delivers liquid hydrogen (LH2) and liquid oxygen (LO2) propellants to the two main engines.

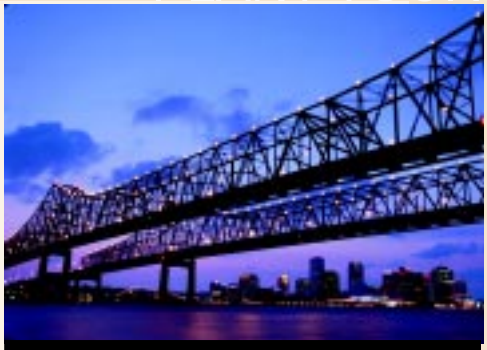
The ET separates from the Orbiter just short of orbital velocity at Main Engine Cutoff (MECO), approximately 8 minutes after launch. Then the ET pitches away from the Orbiter and breaks up and burns as it reenters the Earth's atmosphere. Debris falls within a designated area of the Pacific or Indian Ocean.

The ET is the only expendable element of the Space Shuttle System. The only active components on the ET are the vent/relief valves. All operational instrumentation is hardwired to the Orbiter.

Three structures comprise the ET:

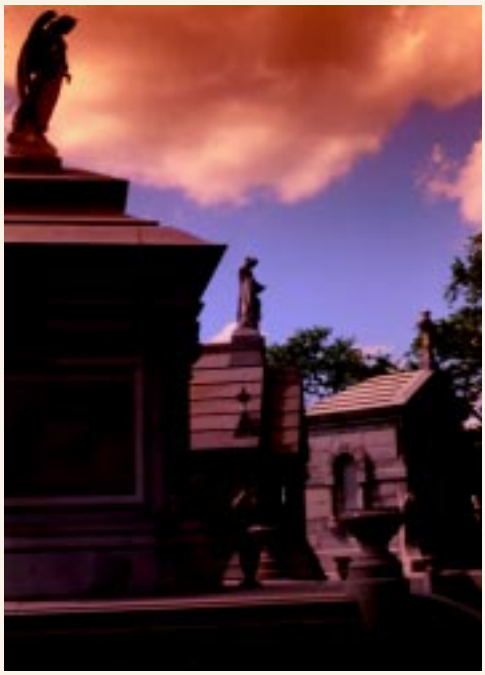
- LO2 Tank – The LO2 tank is a fusion-welded assembly of preformed, chem-milled gores and panels, machined fittings and ring chords.
- LH2 Tank – The LH2 tank is a fusion-welded assembly of forward and aft-modified ellipsoidal domes, and four cylindrical barrel sections joined by five main ring frames.
- Intertank – The Intertank is the ET structural connection joining the LO2 and LH2 tanks to provide structural continuity between these assemblies. The LO2 and LH2 are constructed of aluminum alloy skins with support/stability frames.

The tour to the NASA Michoud Assembly Facility will include roundtrip transportation on a private motorcoach, one and a half hour narrated tour of the facility, and a box lunch.



ADVANCE REGISTRATION for this tour is strongly recommended, as seating is limited. You may register via the conference registration form found in this brochure. The tour will depart from the Ernest N. Morial Convention Center.

On the Town



DESTINATION MANAGEMENT, Inc. has been designated the official tour company of The Minerals, Metals & Materials Society (TMS) and has scheduled the following tours for your enjoyment. Tours will depart from the Ernest Morial Convention Center. You may reserve the tour of your choice in advance by completing the enclosed registration form. **DO NOT MAIL THE FORM TO TMS.** Please complete the form and mail along with check to: Destination Management, Inc., 610 South Peters, Suite 200, New Orleans, Louisiana 70130. Tickets will not be mailed in advance. Upon arrival in Louisiana, your tickets will be ready for you to pick up at the Tour Desk located near the conference registration desk at the Ernest N. Morial Convention Center. In order to guarantee operation of tours, please make your reservation before coming to Louisiana.

New Orleans City Tour

Monday, February 12, 2001

9:30 am–12:30 pm ■ **$18 per person**

The past and present co-exist in New Orleans, the City Tour is a thorough and fascinating introduction to the endless variety of sights found in America's most European City.

This narrated tour includes historic Esplanade Avenue where you will see the mansions of Creole merchants nestled among 100-year-old oak trees. The tour continues to St. Louis III Cemetery, often called "the city of the dead" because of its above ground tombs. The tour proceeds along Lake Pontchartrain and the city's fine yacht harbor. Then through the old town of Carrollton to St. Charles Avenue following the streetcar route where you'll see Tulane and Loyola Universities, Audubon Park and beautiful restored mansions.

You will also pass the spectacular Superdome and travel the fringes of the French Quarter.

Jean Lafitte Swamp Adventure

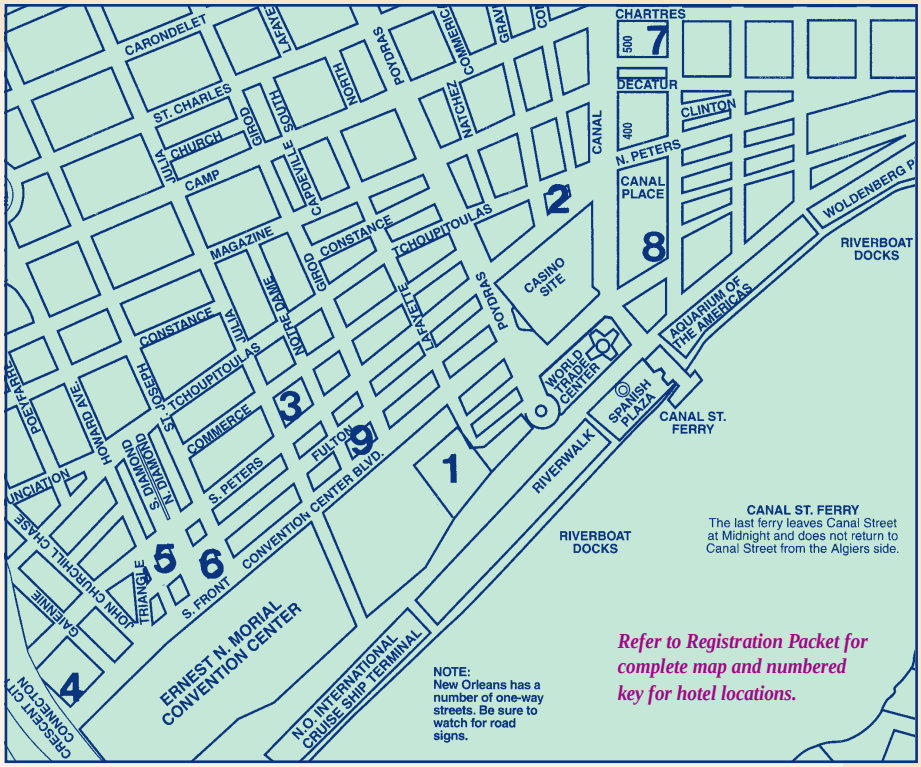
Tuesday, February 13, 2001

9:30 am–12:30 pm ■ **$35 per person**

Enjoy a journey by boat, Cajun style, into the heart of Louisiana's beautiful and natural swamplands.

Your boat will travel deep into the swamps and meandering bayous of this exciting region. Be sure to bring your camera as you may encounter exciting and beautiful animals at any time. Alligators, snakes, nesting eagles, egrets, white-tailed deer, mink and nutria all flourish in this untamed land. Your guide is a native of the area who knows firsthand, the various sources of food and plant life that thrive throughout the year in this "virgin" area.

History comes alive as your guide recounts the exploits of the pirate Jean Lafitte, and his band that plied these waters during the infancy of our country. Come see for yourself, Louisiana's mysterious waters and moss-draped bayous made famous in song and story. The adventures of Jean Lafitte await you!



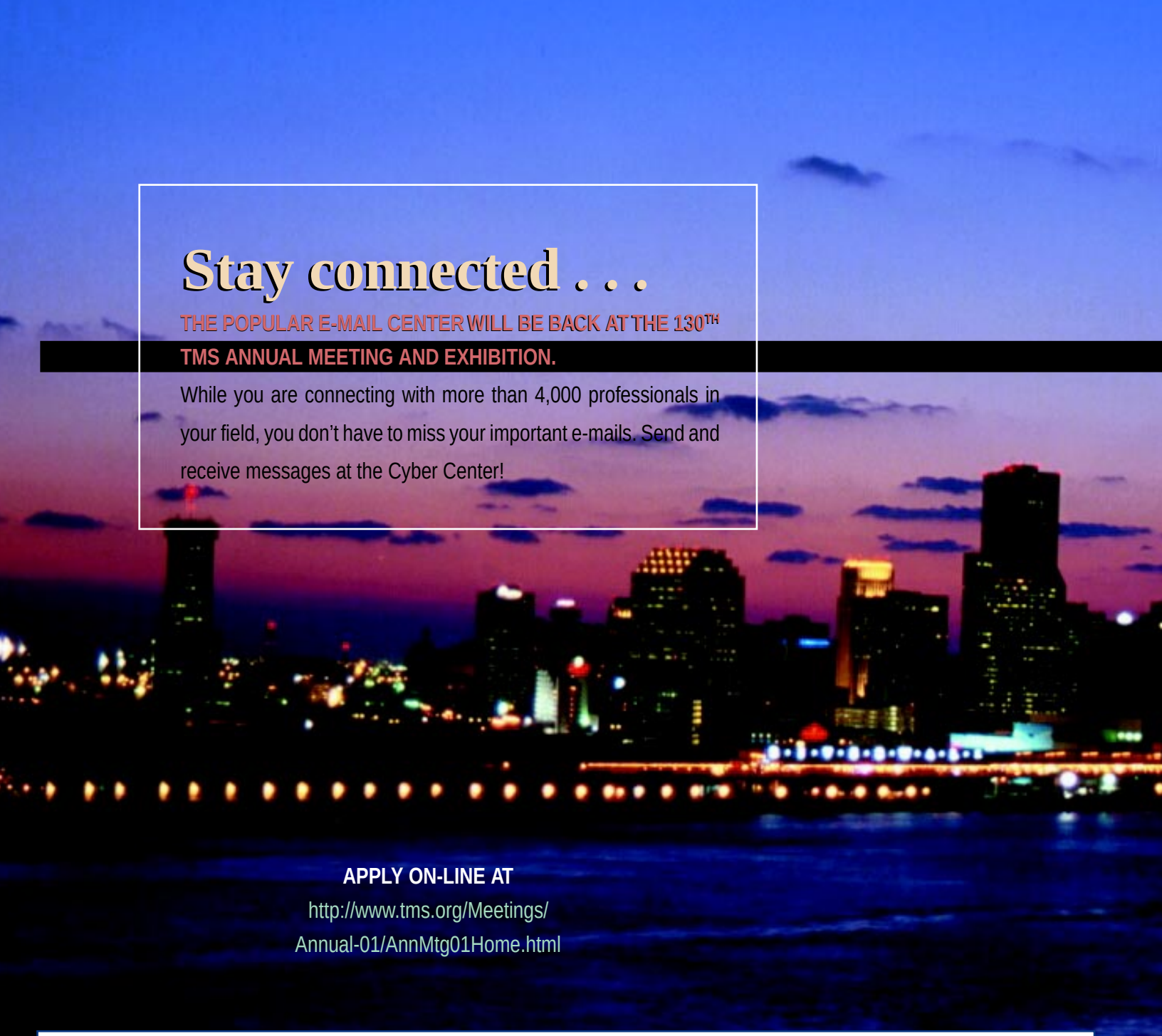
Mardi Gras World & New Orleans Mint Museum

Wednesday, February 14, 2001 12:30 pm–4:00 pm ■ **$28 per person**

New Orleans is famous for many things; but, perhaps the most famous is the greatest free show on earth, "Mardi Gras". You will have a chance to feel some of the excitement and color of Mardi Gras with a visit to Blain Kern's Mardi Gras World and the New Orleans Mint Museum.

Your first stop will be Mardi Gras World. Blaine Kern, "Mr. Mardi Gras", as he is known in New Orleans, opens his den to you where the floats of most of the major parades are built and housed.

At this full-time facility, you will see a short film on the history of Mardi Gras and float production, and then be escorted through the den by Mardi Gras World's professional guides. You will have a chance to see these magnificent colorful pieces of moving art – up close and discuss with the year-round artists their preparations for next year's Mardi Gras.



Stay connected . . .

THE POPULAR E-MAIL CENTER WILL BE BACK AT THE 130TH TMS ANNUAL MEETING AND EXHIBITION.

While you are connecting with more than 4,000 professionals in your field, you don't have to miss your important e-mails. Send and receive messages at the Cyber Center!

APPLY ON-LINE AT

http://www.tms.org/Meetings/Annual-01/AnnMtg01Home.html

TMS

www.tms.org

184 THORN HILL ROAD
WARRENDALE, PA 15086-7514 USA

REMEMBER, THE ADVANCE REGISTRATION DEADLINE IS JANUARY 22, 2001.

PLEASE BE SURE TO FULLY COMPLETE THE REGISTRATION FORMS.

Registration Form Packet

This Packet Includes:

Fourth Annual TMS Foundation Golf Classic Registration Form

- The TMS Foundation Golf Classic will take place at the Eastover Country Club on Sunday, February 11, 2001. Compete for prizes or just enjoy the scenic woodlands and native bayous surrounding the course.

Advance Registration Form

- Take advantage of low pre-conference registration rates, ensure that the latest publications are reserved for you, and register for the NASA Michoud Assembly Facility Plant Tour.

Housing Registration Form

- Make reservations now and begin to plan your stay in the exciting city of New Orleans. Choose from nine hotels conveniently located near the Ernest N. Morial Convention Center. A map of New Orleans indicating the location of each hotel can be found on the back of the Housing Registration Form.

Accompanying Persons Registration Form

- Register early to ensure your inclusion in fun-filled sightseeing tours! For more details on the tours please refer to the special Accompanying Persons' Tour section on page 28 of this brochure.

Continuing Education Short Course Registration Form

- Plan to attend one of the three informative courses designed to enhance your technical and professional expertise.

. . . critical information for surviving the aggressive pace of 21st Century business.

Advance Registration Form

FOR THE TMS ANNUAL MEETING AND EXHIBITION ■ FEBRUARY 11–15, 2001 ■ NEW ORLEANS, LOUISIANA

PLEASE CHOOSE ONLY ONE OPTION FOR SENDING FORM

WEB Take advantage of the convenience of on-line pre-registration via the TMS website: **http://www.tms.org** Web registration requires credit card payment.

FAX Fax this form to TMS Meeting Services **USA (724) 776-3770** Fax registration requires credit card payment.

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

TMS2001 130TH ANNUAL INTERNATIONAL MEETING & EXHIBITION

Advance Registration Deadline: January 22, 2001

PAYMENT MUST ACCOMPANY FORM.
Forms received past this date will be processed at the on-site fee.
Instructions: Check your selections and fill in the necessary information. Please print or type.

MEMBER OF: ☐ TMS ☐ ISS ☐ SME ☐ SPE Member Number: _____

THIS ADDRESS IS: ☐ Business ☐ Home Employer/Affiliation: _____

☐ Dr. ☐ Prof. ☐ Mr.

☐ Mrs. ☐ Ms. _____
LAST NAME FIRST NAME MIDDLE INITIAL

Address: _____

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

Telephone: _____ Fax: _____
COUNTRY AREA/CITY LOCAL NUMBER COUNTRY AREA/CITY LOCAL NUMBER

E-Mail Address: _____ Guest/Spouse Name: _____
GUESTS DO NOT RECEIVE ADMISSION TO TECHNICAL SESSIONS.

REGISTRATION FEES:

	ADVANCE FEES (until 1/22/01)	ON-SITE FEES (after 1/22/01)
☐ Member	$390 M	$490 ML
☐ Non-Member Author	$390 NMA	$490 NMAL
☐ Non-Member *	$520 NM	$600 NML
☐ Student Member ##	$0 STU	$0 STUL
☐ Student Non-Member ## *	$25 STUN	$25 STUNL
☐ TMS Retired Member	$200 RM	$200 RML
☐ Exhibit Booth Personnel	$0 E	$0 EL
☐ Exhibit Attendee	$35 EO	$35 EOL

* Includes TMS membership for 2001
Students must attach a copy of their school's student identification card.

PUBLICATION ORDERS:

ALL pre-ordered books not indicated for shipment MUST be picked up at the Publications Sales area in the convention center.

Please ship to the above address: No. of books _____
$15 per book $_____(SB)

- ☐ 4801 Light Metals 2001 (CD-ROM & Book Set) $164
- ☐ 478X Chemistry and Electrochemistry of Corrosion and Stress Corrosion Cracking $96
- ☐ 4798 Cyanide: Social, Industrial, and Economic Aspects $86
- ☐ 4895 Elevated Temperature Coatings CD-ROM $60
- ☐ 4887 EPD Congress 2001 ..... $125
- ☐ 4909 Innovations in Processing and Manufacturing of Sheet Materials $97
- ☐ 481X Magnesium Technology 2001 ..... $124
- ☐ 4828 Properties of Nanocrystalline Materials $74
- ☐ 4879 Structural Biomaterials for the 21st Century $65

TUTORIAL LUNCHEON LECTURE TICKETS:

OPTIONAL BOX LUNCHES — FEE — NO. — TOTAL

Monday 2/12/01 (SPONSORED BY YOUNG LEADERS)

☐ Young Leaders Extractive Metallurgy ..... $15 _____ $_____EM

SOCIAL FUNCTION TICKETS: FEE NO. TOTAL

Monday 2/12/01

☐ Larry Kaufman Honorary Dinner ..... $55 _____ $_____KD

Tuesday 2/13/01

☐ TMS Banquet ..... $60 _____ $_____AD

☐ Tables of 8 ..... $480 _____ $_____AD8

Table Sign to Read: _____

☐ Extraction & Processing Division Luncheon ..... $25 _____ $_____EP

☐ Tables of 8 ..... $200 _____ $_____EP8

Table Sign to Read: _____

Wednesday 2/14/01

☐ Light Metals Division Luncheon ..... $25 _____ $_____C

☐ Tables of 8 ..... $200 _____ $_____L8

Table Sign to Read: _____

☐ Roger Staehle Honorary Dinner ..... $55 _____ $_____SD

PLANT TOUR: FEE NO. TOTAL

Thursday 2/15/01

☐ Nasa Michoud Assembly Facility ..... $35 _____ $_____NT

2001 MEMBERSHIP DUES—FOR CURRENT TMS MEMBERS ONLY:

Advanced registrations received after December 31, 2000 must be accompanied by your 2001 dues payment to be processed at the member fee.

- ☐ Full Member ..... $90 FM
- ☐ Junior Member ..... $55 JM
- ☐ ASM/TMS Joint Student Member ..... $25 ST

TOTAL FEES PAID: $ _____

PAYMENT ENCLOSED:

☐ Check, Bank Draft, Money Order
Make checks payable to TMS. Payment shall be made in US dollars drawn on a US bank.

☐ Credit Card Expiration Date: _____

Card No.: _____

☐ Visa ☐ MasterCard ☐ Diners Club ☐ American Express

Cardholder Name: _____

Signature: _____

REFUND POLICY: Written requests must be mailed to TMS, post-marked no later than January 22, 2001. A $50 processing fee will be charged for all registration cancellations.

Housing Registration Form

FOR THE TMS ANNUAL MEETING AND EXHIBITION ■ FEBRUARY 11–15, 2001 ■ NEW ORLEANS, LOUISIANA

RESERVATIONS MUST BE RECEIVED AT THE HOUSING BUREAU BY JANUARY 4, 2001

RETURN HOUSING FORM: (choose only one option)
Hours of operation: 8:00 am–5:00 CST Monday–Friday
- VISIT www.tms.org
- CALL 847-940-2153 (International); 800-424-5250 (Domestic)
- FAX to 847-940-2386 (International); 800-521-6017 (Domestic)
- MAIL to TMS Housing Bureau, 108 Wilmot Road, Suite 400, Deerfield, IL 60015-0825

TMS 2001 130TH ANNUAL INTERNATIONAL MEETING & EXHIBITION

Arrival Date _____ Departure Date _____

Last Name _____ First Name _____ MI _____

Company _____

Street Address _____

City _____ State/Country _____ Zip/Postal Code _____

Daytime Phone _____ Fax _____

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

Accompanying Person _____

☐ Non-Smoking Room Requested ☐ Special Needs

INDICATE 1st, 2nd AND 3rd HOTEL CHOICE AND TYPE OF ACCOMMODATION

1. _____
2. _____
3. _____

If all three (3) requested hotels are unavailable, please process this reservation according to: (check one) ☐ Room Rate ☐ Location

Accommodations (check one)

☐ 1 person/1bed ☐ 2 people/1 bed
☐ 2 people/2 beds ☐ 3 people/2 beds
☐ 4 people/2 beds ☐ One bedroom suite
☐ Two bedroom suite

Hotels

Headquarters
Hilton Riverside
$188/Classic s/d
$208/Deluxe s/d
$243/Towers s/d

Doubletree Hotel
$169/single
$189/double

Embassy Suites
$179/single
$199/double

Hampton Inn & Suites
$164/single
$164/double

Hilton Garden Inn
$182/single
$202/double

Holiday Inn Select
$165/single
$165/double

Marriott Hotel
$199.00/single
$199.00/double

Wyndham Canal Place
$195/single
$195/double

Wyndham Riverfront Hotel
$179/single
$199/double

CONFIRMATIONS
Confirmation will be mailed, faxed or e-mailed to you from the TMS Housing Bureau once your reservation has been secured with a deposit. You will not receive a confirmation from your hotel. If you do not receive a confirmation within 2 weeks, please call the Housing Bureau.

CHANGES/CANCELLATIONS
All changes and cancellations in hotel reservations must be made with the TMS Housing Bureau on or before January 4, 2001 to avoid a $16 processing fee. After January 4, 2001 and prior to 72 hours before arrival date, changes and cancellations must be made with your assigned hotel. Your deposit will be refunded less a $16 processing fee. Any cancellations made within 72 hours of the arrival date will result in forfeiture of the full deposit.

RESERVATIONS/DEPOSITS
All reservations are being coordinated by the TMS Housing Bureau. Arrangements for housing must be made through the TMS Housing Bureau and NOT with the hotel directly. All housing reservation forms must be received by Thursday, January 4, 2001. Deposits: A $150 per room deposit is required to make a reservation; a $300 deposit is required for a one-bedroom suite and a $450 deposit is required for a two-bedroom suite. The deposit amount is payable by credit card or check (mail only). The credit card will be charged immediately. If paying by check, mail your payment with this completed housing form. All checks must be made payable to the TMS Housing Bureau in US funds drawn on a US bank. No wire transfers will be accepted.

CREDIT CARD:

☐ Visa ☐ MasterCard ☐ Diners Club ☐ American Express ☐ Discover

Expiration Date: _____

Card No.: _____

Cardholder Name: _____

Authorized Signature: _____

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

Accompanying Tour Registration Form

FOR THE TMS ANNUAL MEETING AND EXHIBITION ■ FEBRUARY 11–15, 2001 ■ NEW ORLEANS, LOUISIANA

DESTINATION MANAGEMENT, INC. NEW ORLEANS has arranged tours for members/guests of the TMS Annual Meeting & Exhibition, February 11–15, 2001.

Please make your reservation by noting choice of tour, day, and time. Pre-sold tickets will be held at the tour desk located in La Louisiane Ballroom A in the Ernest N. Morial Convention Center.

TMS 2001
130TH ANNUAL INTERNATIONAL MEETING & EXHIBITION

DESCRIPTION	DATE/TIME	PRICE	NO.	AMT DUE
New Orleans City Tour	Monday, February 12, 2001 ■ 9:30 am–12:30 pm	$18	_____	$_____
Jean Lafitte Swamp Tour	Tuesday, February 13, 2001 ■ 9:30 am–12:30 pm	$35	_____	$_____
Mardi Gras World/ New Orleans Mint Museum	Wednesday, February 14, 2001 ■ 12:30 pm–4:00 pm	$28	_____	$_____
			Total:	**$**_____

Name: _____

Address: _____

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

Phone: _____ Fax: _____

PAYMENT OPTIONS

☐ Check Enclosed (Remit in U.S. Funds)

☐ Charge My Account: ☐ Visa ☐ MasterCard ☐ Discover ☐ American Express

Card No.: _____ Expiration Date: _____

Cardholder's Name: (please print) _____

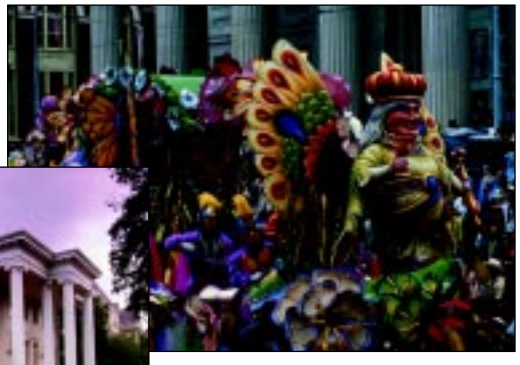
Signature: _____

WE CANNOT ACCEPT PHONE ORDERS

Please make checks payable to and mail to:

Destination Management, Inc. New Orleans
610 South Peters Street, Suite 200
New Orleans, Louisiana 70130
Fax: (504) 592-0529
Attn: Cheryl

- Please have your reservations in by January 29, 2001.
- Cancellations must be received in writing by February 5, 2001.
- You will receive a full refund for any cancellations received by this date.
- Credit card orders may be faxed to 504/592-0529.
- All tours, unless otherwise indicated, are based on 30 participants.
- DMI reserves the right to cancel any of these tours should minimum number not be met.



Continuing Education Registration Form

FOR THE TMS ANNUAL MEETING AND EXHIBITION ■ FEBRUARY 11–15, 2001 ■ NEW ORLEANS, LOUISIANA

PLEASE CHOOSE ONLY ONE OPTION FOR SENDING FORM.

WEB	Take advantage of the convenience of on-line pre-registration via the TMS website: **http://www.tms.org** Web registration requires credit card payment.	**FAX**	Fax this form to TMS Cont. Education Dept. **USA 724-776-3770** Fax registration requires credit card payment.	**MAIL**	**Return this form with payment to** Cont. Education Dept. TMS 184 Thorn Hill Road Warrendale, PA 15086

TMS2001 130TH ANNUAL INTERNATIONAL MEETING & EXHIBITION

Advance Registration Deadline: January 22, 2001
PAYMENT MUST ACCOMPANY FORM.
Forms received past this date will be processed at the on-site fee structure.
Please print or type

Member of: ☐ TMS ☐ ISS **Member Number:** _____
☐ SME ☐ SPE

☐ Dr. ☐ Prof. ☐ Mr. ☐ Mrs. ☐ Ms. _____
LAST NAME FIRST NAME MIDDLE INITIAL

Employer/Affiliation: _____

Address: _____

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

Telephone: _____ Fax: _____

E-Mail Address: _____

CONTINUING EDUCATION SHORT COURSES	ADVANCE TO 1/22/00		ON-SITE AFTER 1/23/00	
Check your selections. *See brochure for cancellation and refund policies.*	**MEMBER**	**NON-MEMBER**	**MEMBER**	**NON-MEMBER**
Excellence in Professional Communications				
☐ Sunday, 2/11/01	$260	$310	$260	$310
Molten Salt Chemistry and Process Design: from Smelter to Casthouse				
☐ Saturday, 2/10/01 & Sunday, 2/11/01	$645	$735	$695	$785
Heat Treatment of Wrought and Cast Aluminum Alloys				
☐ Saturday, 2/10/01 & Sunday, 2/11/01	$645	$735	$695	$785
Total	$ _____			

PAYMENT ENCLOSED:

☐ **Check, bank draft, or money order made payable to TMS**—Payment shall be made in US dollars drawn on a US bank.

☐ **Credit Card**—Card No.: _____ Expiration Date: _____

☐ Visa ☐ MasterCard ☐ Diners Club ☐ American Express

Cardholder Name: _____

Signature: _____

REFUND POLICY:
Written request must be mailed to TMS, post-marked no later than January 22, 2001. A $50 processing fee will be charged for all registration cancellations.

Make plans now to participate in the

FOURTH ANNUAL

TMS FOUNDATION GOLF CLASSIC

TMS FOUNDATION

SUNDAY, FEBRUARY 11, 2001

Eastover Country Club • New Orleans, Louisiana

ATTENDEES OF THE 2001 TMS ANNUAL MEETING & EXHIBITION ARE INVITED TO PARTICIPATE IN THE FOURTH ANNUAL TMS FOUNDATION GOLF CLASSIC AT EASTOVER—THE GOLF CLUB OF NEW ORLEANS.

This annual fundraiser has become one of the most popular events at the conference.

The Eastover course has been called by Golf Digest Places to Play, "the best course in New Orleans." It's only 15 minutes from downtown New Orleans and is a qualifying site for the PGA Tour, US Open, US Senior Open, US Amateur, and US Mid Amateur.

The Rabbit's Foot course, which we will be playing for the TMS Foundation Golf Classic, is the shorter and tighter of the two, eighteen-hole courses Eastover has to offer. The 6,740-yard course is surrounded by splendid woodlands and native Louisiana bayous. Your skills will be tested on the 545-yard, 16th hole, with its challenging dogleg right and tight finish. No wonder this hole has been rated "the best par 5 in New Orleans."

Tournament play will be a scramble format with teams of foursomes. We will get under way with a shotgun start at 7:30 a.m. There will be prizes for Longest Drive, both men's and ladies', and Closest-to-the-Pin contests, as well as a random drawing for door prizes. A Hole-in-One Contest with a grand prize of an automobile is also planned.

FEES: All fees include bus transportation to and from the course, green fees, carts, continental breakfast, refreshments, and a post-tournament barbecue luncheon.

TOURNAMENT FEE: $160 per golfer; $575 per foursome

The registration deadline is January 12, 2001, however, the field is limited to 144 players, so register today!

NOTE: Written cancellations must be received prior to January 26, 2001. No refunds will be issued after January 26, 2001. A $30 processing fee will be charged on all cancellations.

Sponsorship opportunities are available. Please contact Cindy Wilson at (724) 776-9000, ext. 231 or Dan Steighner, ext. 210. You may also contact us via e-mail at wilson@tms.org.

All proceeds benefit the TMS Foundation.

2001 TMS FOUNDATION GOLF TOURNAMENT REGISTRATION FORM

CHECK ONE: ☐ Individual Golfer $160 (Individuals will be assigned to a foursome) ☐ Foursome $575

Name: _____ Handicap/Avg. Score: _____

Organization: _____ Address: _____

City: _____ State: _____ Country _____

Zip/Postal Code: _____ Telephone: _____

Fax: _____ E-mail: _____

If registering as a foursome, the other golfers are:

1. _____ Handicap/Avg. Score: _____

2. _____ Handicap/Avg. Score: _____

3. _____ Handicap/Avg. Score: _____

Payment must accompany registration.

METHOD OF PAYMENT: ☐ Check or money order *(Make checks payable to TMS. Payment shall be made in US dollars drawn on a US bank.)*
Charge my: ☐ VISA ☐ MasterCard ☐ American Express ☐ Diners Club

Account Number: _____ Expiration Date: _____

Cardholder's Name: _____ Signature: _____

Send to: **TMS FOUNDATION, 184 THORN HILL ROAD, WARRENDALE, PA 15086 FAX: (724) 776-3770**