



ANNOUNCEMENTS & CALL FOR PAPERS

Materials Science & Technology 2004 Where Theory Meets Application

Co-sponsored by the Association for Iron & Steel Technology (AIST) and
The Minerals, Metals & Materials Society (TMS)

September 26–29, 2004

New Orleans Marriott Hotel • New Orleans, Louisiana, USA

MS&T '04 is the second in a series of multidisciplinary annual conferences held by and for professionals in the metals and materials community. The meeting's scope is broad, embracing issues both practical and theoretical. The program will reflect the traditions established by the TMS Fall Meeting and AIST's former Mechanical Working and Steel Processing Conference.

The conference will be held at the New Orleans Marriot in New Orleans, Louisiana. With the great success of the 2003 event, you won't want to miss this opportunity to again come together in this excellent forum that provides opportunity for:

- *presenting and discussing research*
- *examining new products and services*
- *exchange of ideas*
- *enjoyment of networking and social functions*
- *saving money with one registration price*

The technical program will focus on theoretical and practical concepts, ferrous and nonferrous technologies, advanced and fundamental applications, proposed and hands-on processing methodologies, and the present and future of metals and materials industries.

Abstracts may be submitted easily – day or night – utilizing the TMS Conference Management System at <http://cms.tms.org>. If you have questions or need assistance while using CMS, please contact Christina Raabe at 724-776-9000, Ext 212. or via email at raabe@tms.org.

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TMS



3-Dimensional Materials Science

Sponsored by: TMS Structural Materials Division

Abstract due date: 3/15/04

In recent years, significant advances have been made in materials characterization, representation, and modeling. In particular, serial sectioning techniques and X-ray microtomography methods have been increasingly used to probe the 3-D microstructures of advanced materials such as structural foams, metallic and non-metallic composites, and ferrous and non-ferrous alloys. These newer experimental techniques have had a powerful influence on the rapidly-advancing field of computational materials science, where microstructural data can be input into models to gain new insight into deformation, processing, and phase transformations in these complex multi-phase materials systems. Computerization brings to the forefront a new problem, that of mathematical representation and manipulation of the data sets. An additional emphasis of the symposium will therefore be the development of methods for microstructural representation that will allow rapid diffusion of data throughout the materials science community, provide for automated data generation and handling and to allow for machine based decision making from microstructural information.

This symposium is the third of a series of annual TMS symposia focusing on 3-dimensional aspects of materials science and its associated problems. It intends to bring together experimentalists and computational materials scientists with experts in 3-D techniques, virtual reality and advanced computer graphics, and representation. From this, it is intended to build a common basis for research topics that is truly interdisciplinary. Topics Covered:

- Serial sectioning techniques: manual and automated
- X-ray microtomography methods
- 2-D and 3-D modeling of deformation and phase transformations
- Mathematical representation of microstructural information
- Virtual reality and computer graphics
- Toward a Web-based virtual microstructural database

Submit abstracts electronically at <http://cms.tms.org/> or to: Marc J. De Graef, Carnegie Mellon University, Department Material Science & Engineering, Pittsburgh, PA 15213-3890 USA T: 412-268-8527 F: 412-268-7596 Email: mdg@andrew.cmu.edu. Co-Organizers: Jeff P. Simmons, Air Force Research Laboratory, Materials & Manufacturing Directorate, Dayton, OH 45433 USA T: (937) 255-1346 Email: jeff.simmons@wpafb.af.mil; Jonathan E. Spowart, UES Incorporated, Dayton, OH 45432 USA T: 937-255-1340 Email: Jonathan.Spowart@wpafb.af.mil.

Advancements in Mechanical Property Characterization at the Micro- and Nano-Scale

Sponsored by: TMS Structural Materials Division

Abstract due date: 3/15/04

The intent of this symposium is to highlight the current state-of-the-art for mechanical property characterization of ultra-small volumes of materials, specifically where the feature dimension overlaps with fundamental material length scales controlling physical properties. Recent advancements in micro-



fabrication methods, micro-manipulation technologies, and mechanical testing instrumentation provide strategies for direct measurement of micron scale material volumes. This symposium focus is motivated by the continued development of technologies utilizing structural materials with micron-size dimensions (such as MEMS devices), the growing need for characterization methods to measure fundamental physical properties on micro-size volumes (potentially for combinatorial/rapid property evaluation programs), and the continuing scientific interest in the dimensional scaling effects on deformation processes. Topics of interest include, but are not limited to:

- Development and application of micro-mechanical testing methods
- Application of novel characterization methods to study micro-mechanical processes
- Characterization of materials with dimensional features that result in a deviation from bulk deformation processes
- Modeling, simulation, and theory of dimensional size effects for deformation

Submit abstracts electronically at <http://cms.tms.org/> or to: Mike Uchic, Air Force Research Laboratory, Dayton, OH 45433-7817 USA T: 937-255-4784 F: 937-255-3007. Co-Organizers: Kevin J. Hemker, Johns Hopkins University, Department of Mechanical Engineering, Baltimore, MD 21218 USA T: 410-516-4489 F: 410-516-7254 Email: hemker@jhu.edu; Marc Zupan, University of Maryland, Baltimore, MD 21250 USA T: (410) 455-6822 F: (410) 455- 1052 Email: mzupan@umbc.edu.

Applications of Orientation Microscopy Techniques to Phase Transformations

Sponsored by: TMS Materials Processing & Manufacturing Division - Phase Transformation Committee

Abstract due date: 2/15/04

Recent advances in techniques that determine (by x-ray or electron diffraction) the distribution and crystallographic orientation of phases within a material have greatly enhanced the ability to correlate microstructural phase distributions with their crystallography. This symposium focuses on the application of these techniques to advance the understanding of phase transformations, including solidification, precipitation, eutectoid decomposition, martensite formation and tempering, and massive transformations. Studies dealing only with recrystallization and other single phase microstructures are outside the scope of this symposium. Submit abstracts electronically at <http://cms.tms.org/> or to: Robert Hackenberg, Los Alamos National Laboratory, Los Alamos, NM 87545-0001 USA . Co-Organizers: Richard W. Fonda, Naval Research Laboratory, Washington, DC 20375 USA ; Milo V. Kral, University of Canterbury, Department of Mechanical Engineering, Christchurch New Zealand T: '64-3-364-2987 x7392 Email: m.kral@mech.canterbury.ac.nz.

Continuous Casting Fundamentals

Sponsored by: AIST - Division VI, AIST - Division VII, TMS Materials Processing & Manufacturing Division, Solidification Committee, Process Modeling Analysis & Control Committee

Abstract due date: 3/15/04

Process technology advances are often based on improved knowledge of the underlying fundamentals gained through plant trials, laboratory experiments, and computations. This symposium intends to bring together researchers, engineers, operators, and suppliers from industry and academia to discuss recent fundamental and technological developments in the continuous casting of steel and other metal products.

Topics include all aspects of continuous casting, including, but not limited to: clean steel technologies, metal delivery systems, nozzle and refractory design, mold powders, clogging, fluid flow, cooling, containment and control systems, solidification, oscillation practices, mold design, metallurgy, quality monitoring, and defect prevention. Papers are especially sought on the mechanisms, detection, and control of surface defects, inclusions, internal cracks, segregation, microstructure, and shape changes that arise during the continuous casting of billets, blooms, slabs, thin slabs, strip, and other shapes. Submit abstracts electronically at <http://www.cms.tms.org> or to: Brian G. Thomas, University of Illinois, Department of Mechanical and Industrial Engineering, Urbana, IL 61801 USA T: 217-333-6919 F: 217-244-6534 Email: bgthomas@uiuc.edu. Co-Organizers: Michael Byrne, International Steel Group, Homer Rsch Labs, Bethlehem, PA 18016 USA T: 610-694-6859 F: 610-694-2981 Email: michael.byrne@intlsteel.com.

Computational Microstructure Evolution in Steel

Sponsored by: TMS Structural Materials Division, Chemistry & Physics of Materials Committee, Computational Materials Science & Engineering Committee

Abstract due date: 3/15/04

A wide spectrum of computational methods is being developed to study the evolution of microstructures during thermo-mechanical treatment. This symposium will survey the state of the art computational modeling of microstructure evolution in steels. Topics include, but are not limited to, the study of deformation, recrystallization, grain growth, phase transformation and precipitation processes during manufacturing and application of steel using any computational approach from the atomic to the continuum scale. Of particular interest are presentations that focus on meso- or micro-scale modeling. Authors have the option to submit a paper for publication in a special edition of Computational Materials Science. Submit abstracts electronically at <http://www.cms.tms.org> or to: Koenraad G.F. Janssens, Sandia National Laboratories, Albuquerque, NM 87185-1411 USA T: (505) 844-6678 F: (505) 844-9781 Email: kgjanss@sandia.gov ; Co-Organizers: Mark T. Lusk, Colorado School of Mines, Mechanical Engineering Program, Division of Engineering, Golden, CO 80401 USA T: 303-273-3675 F: 303-273-3675 Email: mlusk@mines.edu.

Development and Application of Hot Rolled Flat Products

Sponsored by: AIST Division VI - Process Metallurgy and Product Application

Abstract due date: 3/15/04

Hot rolled flat steel products find wide use in structural, pipe, tubing, and formed applications, and there is a continuing effort to convert cold roll applications to hot roll. Papers are sought regarding recent advancements in the control of microstructure and mechanical properties, as well as dimensions and surface quality, to meet the demands of final applications. Topics may include high strength, formability, weldability, dimensions and shape, scale and surface quality. Submit abstracts electronically at <http://cms.tms.org/> or to: Mark Blankenau, Rouge Steel Company, Process Metallurgy, Dearborn, MI 48121-1631 USA T: 313-390-1402 Email: mblanken@rougesteel.com. Co-Organizers: Brian J. Allen, AK Steel Corp., Middletown, OH 45043 USA T: 513-425-2402 F: 513-425-2866 Email: brian_allen@aksteel.com.

Development and Application of Long Products and Forgings

Sponsored by: AIST Division VI - Process Metallurgy and Product Application

Abstract due date: 3/15/04

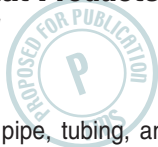
Papers are solicited in the area of long products and forgings including manufacturing, applications, and physical metallurgy of all long product types and their resultant applications. Bar, shape, and seamless tubing manufacturing optimization and quality improvement papers are specifically sought as are papers highlighting forging bar stock and resulting forged products. Submit abstracts electronically at <http://cms.tms.org/> or to: Amy Bailey, TXI - Chaparral Steel, Midlothian, TX 76065 USA T: 972-779-1847 F: 972-775-3324 Email: abailey@txi.com. Co-Organizers: Per A. Munther, Hatch, Iron & Steel, Mississauga, Ontario L5K 2R7 Canada Email: pmunther@hatch.ca.

Engineered Steel Surfaces

Sponsored by: AIST Division VI - Process Metallurgy and Product Application; TMS Structural Materials Division - Corrosion and Environmental Committee

Abstract due date: 3/15/04

A broad spectrum of engineered surfaces and surface treatments can be applied to steel systems to achieve unique properties that are not obtainable via conventional finish processing methods. Surface treatments can be designed to improve product service performance and life, reduce friction in manufacturing, or increase aesthetic appeal. The selection of an appropriate engineered surface depends highly on the steel product category and application. For example, sheet steels are often coated for lubricity or to accept paint. Gear or bearing steels may be carburized to improve fatigue and coated to reduce wear, friction or chemical attack. Papers by authors that work with any variety of steel product type are solicited in the areas of; development and application of the surface treatment to the steel substrate, characterization of engineered surface systems,



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performance evaluation of engineered surface systems. Submit abstracts electronically at <http://cms.tms.org/> or to: Debanshu Bhattacharya, Ispat Inland T: (219) 399-6323 F: (219) 399-3899 Email: dxbhat@inland.com. Co-Organizers Ryan Evans, Timken Research e-mail ryan.evans@timken.com, Jim Maloney, Timken Research e-mail james.l.Maloney@timken.com; Raul Rebak, Lawrence Livermore National Laboratory: (925) 422-1854 F: (925) 422-2105 Email: rebak1@llnl.gov.

General Abstracts

Sponsored by: AIST, TMS

Abstract due date: 3/15/04

The AIST has generated a range of specific calls for papers related to topics that are current, and selected by committee. However, steel manufacturing, processing, research and product development fields are rich with exciting technology. General abstracts on steels, steel processing, and steel products will be considered. Some examples might include papers on the manufacture or implementation of long, sheet or plate products, ferrous physical metallurgy in casting, rolling or product application, steel process or product modeling, advanced quality inspection and control systems, ladle metallurgy, inclusion control, slag chemistry, solidification theory and modeling.

The TMS Program Committee invites you to make plans now to present your research as part of its most extensive program of general abstract sessions ever. In an effort to present a more comprehensive view of current work being carried on in materials science research, particularly new and emerging technologies and techniques, TMS is soliciting general abstract submission for sessions. Submit abstracts electronically at <http://cms.tms.org/> or to: Dennis M. Dimiduk, Air Force Research Laboratory, Materials & Manufacturing Directorate, WPAFB, OH 45433 USA T: 937-255-9839 F: 937-255-1321 Email: dimidudm@ml.wpafb.af.mil. Co-Organizers: E. Buddy Damm, The Timken Company, Canton, OH 44706-0930 USA T: 330 471 2703 F: 330 471 2282 Email: Damme@Timken.com; James C. Foley, Los Alamos National Laboratory, Los Alamos, NM 87545 USA T: 505-665-2856 Email: foley@lanl.gov.

High Strain Rate Deformation and Deformation Mechanisms of Structural Steels

Sponsored by: AIST Division VI - Process Metallurgy and Product Application

Abstract due date: 3/15/04

High strain rate behavior of structural steels is considered relevant to crash worthiness of automotive steels, ballistic armor, and manufacturing of steel components (both at ambient and elevated temperatures). Papers are solicited in the area of high strain rate deformation of structural steels with special emphasis on the characterization of deformation properties and mechanisms high strain rate deformation. For this symposium, high strain rates are considered to be greater than 1×10^2 . Submit abstracts electronically at <http://cms.tms.org/> or to: James R. Fekete, General Motors, Materials Applications, Metal Fabricating Division, Troy, MI 48084 USA T: (248) 696-1176 F: (248) 696-1240 Email: jim.fekete@gm.com. Co-Organizers: Benda Yan T: 219 399 6922 Email: benda.yan@ispat.com.



Intellectual Property Fundamentals for Materials Scientists and Managers

Sponsored by: TMS

Abstract due date: 3/15/04

This symposium will present a range of intellectual property matters of interest to practitioners in the materials field. Specific topics to be presented include: Patent basics; How to get a patent; Licensing and tech transfer; Tips and anecdotes from a patent examiner; Patent disputes—litigation and arbitration; Technical experts and witnesses in litigation; A judge's view of patent cases; Trademark fundamentals. Submit abstracts electronically at <http://cms.tms.org/> or to: Steven P. Marsh, Naval Research Laboratory, Code 6325, Washington, DC 20375 USA T: 202-767-1676 F: 202-767-2623 Email: marsh@anvil.nvl.navy.mil.

Materials Damage Prognosis

Sponsored by: TMS Structural Materials Division

Abstract due date: 3/15/04

This symposium will highlight scientific tools and approaches for development of a comprehensive damage prognosis technology for materials. The objective of such a prognosis capability is to enable continual assessment and prediction of the current and future health of materials in complex mechanical systems or subsystems, such as a turbine engine, helicopter drive train, or aircraft. The ultimate goal is the development of quantitative models that relate a system's-level structural response to material's-level microstructural conditions and events. Areas of emphasis include: (1) methods for in situ interrogation of the damage state of a material, such as that from fatigue and/or creep, (2) physically-based models of the formation and growth of material damage under realistic loading, and (3) coupled state-awareness and life models, including probabilistic and uncertainty approaches. The symposium is expected to attract participants from diverse but interdependent disciplines including materials science, mechanical engineering, mechanics, and physics, and electrical engineering. Topics of relevance include, but not limited to:

- Prognosis opportunities & applications
- Probabilistic, risk, and uncertainty methods
- Local and global methods and sensors for interrogation of materials damage state
- Multi-scale modeling and simulation
- Data management, data fusion, and signature analysis

Submit abstracts electronically at <http://cms.tms.org/> or to: James M. Larsen, Air Force Research Laboratory, Materials and Manufacturing Directorate, Wright-Patterson AFB, OH 45433-7817 USA T: (937) 255-1357 F: (937) 656-4840 Email: james.larsen@wpafb.af.mil. Co-Organizers: Jeffrey R. Calcaterra, Air Force Research Laboratory, Materials and Manufacturing Directorate, Wright-Patterson Air Force Base, OH 45433-7817 USA T: 937-255-1360 F: 937-656-4840 Email: Jeffrey.Calcaterra@wpafb.af.mil; Leo Christodoulou, Defense Advanced Research Agency, Arlington, VA 22203-1714 USA T: 703-696-2374 F: 703-696-3999 or (703) 696-0218 Email: lchristodoulou@darpa.mil; William J. Hardman, Naval Air Systems Command, Propulsion and Power Directorate



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Mechanical Behavior of Body-Centered-Cubic (BCC) Metals and Alloys

Sponsored by: TMS Structural Materials Division - Mechanical Behavior of Materials (Jt. ASM-MSCTS) Committee, Refractory Metals Committee, and Structural Materials Committee

Abstract due date: 3/15/04

This symposium will address the mechanical behavior of body-centered-cubic (BCC) metals and alloys. The objective of the symposium is to provide a forum for discussion between researchers from broad backgrounds on the mechanical behavior (including static, dynamic, and time dependent), constitutive modeling, and model validation of BCC-structured metals and alloys. Papers relating the chemistry, processing, microstructure, and loading variables to the macroscopic performance are of particular interest. Submit abstracts electronically at <http://cms.tms.org/> or to: George T. Gray III, Los Alamos National Laboratory, Dynamic Properties Team, Los Alamos, NM 87545-0001 USA T: 505-667-5452 F: 505-667-8021 Email: rusty@lanl.gov. Co-Organizers: Thomas R. Bieler, Michigan State University, Department of Chemical Engineering and Materials Science, East Lansing, MI 48824-1226 USA T: 517-353-9767 F: 517-432-1105 Email: bieler@egr.msu.edu; John J. Lewandowski, Case Western Reserve University, Department of Materials Science and Engineering, Cleveland, OH 44106 USA T: 216-368-4234 F: 413-431-9519 Email: jjl3@po.cwru.edu; Eric M. Taleff, University of Texas, Mechanical Engineering Department, Austin, TX 78712-1063 USA T: 512-471-5378 F: 512-471-7681 Email: taleff@mail.utexas.edu.

Microbiologically Influenced Corrosion

Sponsored by: TMS Structural Materials Division - Corrosion and Environmental Effects Committee (Jt. ASM-MSCTS)

Abstract due date: 3/15/04

The presence and activities of microbes can alter both the rates and types of electrochemical reactions resulting in several forms of localized corrosion, including pitting, crevice corrosion, differential aeration cells, selective dealloying, and enhanced galvanic corrosion. A three-session symposium will be organized under the sponsorship of the ASM-TMS Corrosion and Environmental Effects Committee to cover in-depth phenomena associated with Microbiologically Influenced Corrosion (MIC). Aspects to be covered will include: biofilm formation on metallic surfaces, corrosion promoting mechanisms, and microbiologically induced corrosion control. Both invited and contributed papers will be sought. Submit abstracts electronically at <http://cms.tms.org/> or to: James



C. Earthman, University of California, Department of Chemical and Materials Science, Irvine, CA 92697-2575 USA T: 949-824-5018 F: 949-824-2541 Email: earthman@uci.edu.

Modeling and Computer Applications in Metal Casting, Shaping & Forming Processes

Sponsored by: AIST Division VI - Process Metallurgy and Product Application; TMS Extraction & Processing Division, TMS Materials Processing & Manufacturing Division - Process Modeling Analysis & Control Committee, Shaping and Forming Committee, Solidification Committee

Abstract due date: 3/15/04

This symposium intends to bring researchers and engineers together from industry and academia to discuss recent fundamental and technological developments in the manufacturing of ferrous and non-ferrous products, obtained from computer applications including numerical modeling of thermal, mechanical and metallurgical phenomena. Work will feature simulation, optimization, and on-line control of both current and novel processes to improve quality in the casting, rolling, shaping and forming of long metal products.

Specific topics include, but are not limited to: 1) Continuous casting processes; 2) Casting of ingots and complex shapes; 3) Rolling, radial forging, cogging, and other manufacturing processes for long products; 4) Piercing, elongating, planetary rolling, reducing, stretch reducing, rotary sizing, straightening, and other manufacturing processes for tube products; 5) Controlled thermo-mechanical processing to obtain desired grain sizes, microstructures and mechanical properties in metal products; 6) Optimization of processes to produce defect free products; 7) Material property characterization to improve computational analysis programs, such as flow stress models, metallurgical models, etc. Submit abstracts electronically at <http://cms.tms.org/> or to: Krich Sawamiphakdi, The Timken Company, R&D Manufacturing Technology, Canton, OH 44706 USA T: (330) 471-2137 F: (330) 471-2282 Email: SAWAMIPH@timken.com. Co-Organizers: Praveen Pauskar, The Timken Company, Advanced Process Technology, Timken Research, Canton, OH USA Email: Praveen.Pauskar@timken.com; Maciej Pietrzyk, Akademia Gorniczo-Hutnicza, Department of Computer Methods in Metallurgy, Krakow Poland Email: pietrzyk@metal.agh.edu.pl; Raghavan Srinivasan, Wright State University, Department of Mechanical & Materials Engineering, Dayton, OH 45435 USA T: 937-775-5040 F: 937-775-5009 Email: rsrin@cs.wright.edu; Brian G. Thomas, University of Illinois, Department of Mechanical and Industrial Engineering, Urbana, IL 61801 USA T: 217-333-6919 F: 217-244-6534 Email: bgthomas@uiuc.edu.

Pb-Free and Pb-Bearing Solders

Sponsored by: TMS Electronic, Magnetic & Photonic Materials Division - Electronic Packaging and Interconnection Materials Committee

Abstract due date: 3/15/04

This symposium will be aimed at providing a forum for exchange of ideas and recent findings in the currently popular field of electronic solders. It will

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consist of invited and contributed papers from leading research groups in the Universities, National Laboratories and Industrial Manufacturing facilities in U.S. and abroad Submit abstracts electronically at <http://cms.tms.org/> or to: C. Robert Kao, National Central University, Department of Chemical and Materials Engineering, Chungli City 32054 Taiwan T: 011 886 3 4227382 F: 011 886 3 4227382 Email: crkao@ncu.edu.tw. Co-Organizers: W. Plumbridge, Open University, School of Engineering Materials, Milton Keynes MK7 6AA UK T: 01908 - 653271 Email: w.plumbridge@open.ac.uk; K. N. Subramanian, Michigan State University, Chemical Engineering & Material Science, East Lansing, MI 48824 USA T: 517-353-5397 F: 517-353-9842 Email: subraman@egr.msu.edu.

Precipitation in Steels - Physical Metallurgy and Property Development

Sponsored by: AIST Division VI - Process Metallurgy and Product Application

Abstract due date: 3/15/04

Development of the appropriate microstructure is fundamental in the design of modern steels with desired mechanical properties for a given application. A factor playing a critical role in this development is the precipitation of desired or undesired species throughout the material's processing stages. This Symposium is aimed to revise the classical theory and examine new developments on the role of precipitation phenomena in the Processing/Property/Performance relationships of steels. Papers focusing on the fundamental metallurgy of the effect of ferritic or austenitic precipitation on the material mechanical properties such as strength, toughness, ductility, formability and weldability are invited. Papers delineating the difference between the mere presence of precipitates and precipitation hardening are of particular interest. Emphasis should be placed on novel approaches to understanding, analyzing and/or exploiting precipitation in sheet products (e.g., ultra-low carbon, bake-hardenable, HSLA, motor-lamination and enameling steels), or plate products (e.g., linepipe, structural, off-highway vehicles, etc.) Submit abstracts electronically at <http://cms.tms.org/> or to: Luis Ruiz-Aparicio, University of Pittsburgh, Pittsburgh, PA 15261-2208 USA T: 412-624-9763 Email: ljr5+@pitt.edu. Co-Organizers: Dengqi Bai, IPSCO Inc., Muscatine, IA 52761 USA T: 563-381-5727 F: 563-381-5324 Email: dbai@ipsco.com.

The Effect of Primary Operations on Product Quality

Sponsored by: AIST Division VI - Process Metallurgy and Product Application

Abstract due date: 3/15/04

Product quality can be significantly affected by the distribution of non-metallic inclusions inherited from liquid steel processing, the chemical segregation during solidification, the dimensions established during solidification, and by mechanical disturbances after solidification. Papers are sought presenting operational techniques to improve quality, improved methods to measure quality in the semi-finished state, novel investigations into specific issues, or general schemes for investigation and classification. Scientific as well as plant level papers regarding the effect of slags, refractories, steel chemistry, and equipment as well as the interaction with down-stream operations are welcome. Submit abstracts electronically at <http://cms.tms.org/> or to: Mark Blankenau, Rouge Steel



Company, Process Metallurgy, Dearborn, MI 48121-1631 USA T: 313-390-1402
Email: mblanken@rougsteel.com. Co-Organizers: Amy Bailey, TXI - Chaparral
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abailey@txi.com; John G. Speer, Colorado School of Mines, Metallurgical and
Materials Engineering, Golden, CO 80401 USA T: 303 273 3897 F: 303 273
3016 Email: jspeer@mines.edu.

Product Application and Development

*Sponsored by: AIST Division VI - Process Metallurgy and
Product Application*

Abstract due date: 3/15/04

New or improved steel products are frequently designed either in direct partnership with customers, or to address a market need for a customers segment. Development of products, which meet application demands, requires interaction between raw material and equipment suppliers, mill/engineering activities, research and development, marketing and customers. Technological development is accelerated when customer needs are well understood and the customer is actively engaged. Papers are solicited in the areas of successful product development across a broad range of products. Co-Authorship between customer and supplier is desired, but not required. Examples could include, but are not limited to; university or national lab partnerships with industry, development and application of bar products for forged and heat treated components, development and application of automotive flat rolled products, development and application of weldable plate steels, development and application of ferrous based aerospace alloys. Submit abstracts electronically at <http://cms.tms.org/> or to: E. Buddy Damm, The Timken Company, Canton, OH 44706-0930 USA T: 330 471 2703 F: 330 471 2282 Email: Damme@Timken.com. Co-Organizers: Amy Bailey, TXI - Chaparral Steel, Midlothian, TX 76065 USA T: 972-779-1847 F: 972-775-3324 Email: abailey@txi.com.

The Accelerated Implementation of Materials & Processes

*Sponsored by: TMS Structural Materials Division - Chemistry & Physics of
Materials Committee, Computational Materials Science &
Engineering; ASM/MSCTS -Thermodynamics & Phase
Equilibria Committee*

Abstract due date: 3/15/04

Emerging efforts in materials modeling are leading to incremental improvements in specific areas, e.g., materials processing and mechanical behavior. There is growing belief that the time scale between development of a new material and its implementation into production can be significantly shortened only through a revolutionary change in materials-development methodologies, which builds on such materials modeling. The resulting pay-off will be a substantial reduction in the time required for the development of cost-competitive automotive and aerospace systems with higher performance and greater fuel efficiency. This is to be accomplished by using the required technical content and fidelity of the "designer knowledge base" to drive the optimized development/use of models and experiments.



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Critical to this effort will be understanding how to effectively use materials models, link them across various length and time scales and couple them with experiments to yield the appropriate information for the designer. In addition, methodologies to warrant the contents of the designer knowledge base against the uncertainties inherent in materials processing, characterization and testing must be developed. This symposium offers a view of approaches toward accelerated implementations of materials, and key technical limitations needing attention. Six sessions are anticipated with a number of invited speakers for each session. Topics of relevance include, but not limited to:

- Strategic development decisions for all materials
- Development and reduction of insertion risk for new materials
- Improvement of workflow and productivity through digitization
- Enhanced linkage of materials to design and customer requirements
- Assessment and quantification of key uncertainty sources in materials processing, characterization and testing

Submit abstracts electronically at <http://cms.tms.org/> or to: Rollie Dutton, Air Force Research Laboratory, AFRL/MLLMP, WPAFB, OH 45433 USA T: 937-255-1305 F: 937-656-4840 Email: rollie.dutton@wpafb.af.mil. Co-Organizers: John E. Allison, Ford Motor Company, Scientific Research Laboratory, Dearborn, MI 48124-2053 USA T: 313-845-7224 F: 313-390-0514 Email: jalliso2@ford.com; John J. Schirra, Pratt & Whitney, East Hartford, CT 06108 USA T: 860-565-6870 F: 860-565-5635 Email: schirrij@pweh.com; Axel van de Walle, Northwestern University, Materials Science and Engineering, Evanston, IL 60208-3108 USA T: (847) 491-4226 F: (847) 491-7820 Email: avdw@alum.mit.edu.

The Effects of Microstructure and Property Homogeneity/Variability on Product Performance

Sponsored by: AIST Division VI - Process Metallurgy and Product Application

Abstract due date: 3/15/04

The supply of steels with more and more homogeneous (consistent) mechanical properties is becoming a main demand in steel industry. This implies the achievement of some minimum homogeneity both at macroscopic and microscopic scale in the microstructural parameters affecting mechanical behavior. Papers that cover aspects related to chemistry and process parameters for developing routes to achieve the aforementioned objectives are encouraged. Property and microstructural homogeneity/variability papers are solicited for all product types and applications. Specific sessions are targeted in the areas of automotive flat rolled products and bar stock for forged components.

Long Products and Forged Components

Reduction of product variability for long products is critical both from a final property and processing consistency standpoint. Because of the complicated or variant cooling rate cross sections experienced in many long products and forgings, homogeneity must be addressed both in the cross sectional or part design as well as throughout the manufacturing process. Papers are sought that address process controls from chemistry to final forgings to reduce variability both microscopically and macroscopically, or that discuss innovative ways



to reduce the effects of chemistry and processing variability on final product properties. Papers are also solicited which address the effect(s) of homogeneity on downstream processing, or end product performance.

Flat Rolled Automotive Steels

Several factors contribute towards a robust (i.e., near-zero rejection rate) automotive stamping process. One factor is the consistency of the sheet steel products, not only in terms of the mechanical properties, but also the coating weight and structure, surface texture and lubrication. Another factor is the die design, for example, to control springback in high-strength steels. Papers that address the following topics are invited for participation in these technical sessions; relationships between mechanical properties and steel processing (including chemistry effects), performance characteristics (e.g., springback, hole expansion) of various high-strength steel grades, effects of coating structures, surface textures and lubrication on formability and stamping behavior, effect of post treatments, and developments in die design aimed at stamping new high-strength grades. Submit abstracts electronically at <http://cms.tms.org/> or to: Roger Pradhan, International Steel Group, email rpradhan@intlsteel.com or J. M. Rodriguez Ibabe, CEIT Spain T: +34 943212800 Email: jmribabe@ceit.es.

Third International Symposium on Railroad Tank Cars

Sponsored by: AIST Division VI - Process Metallurgy and Product Application

Abstract due date: 3/15/04

This symposium will include papers and presentations on developments and trends in railroad tank car technology. The focus will be on where the industry is heading with respect to design, materials, fabrication, and inspection of tank cars. Topics include ferrous and welding metallurgy, weldability, damage tolerance, inspection, new materials and manufacturing methods. Submit abstracts electronically at <http://cms.tms.org/> or to: Murali Manohar, ISG T: (610) 694-1368 F: (610) 694-5025 Email: mmanohar@intlsteel.com.

Titanium for Healthcare, Biomedical, and Dental Applications

Sponsored by: TMS Structural Materials Division - Titanium Committee, Corrosion and Environmental Effects Committee

Abstract due date: 3/15/04

In addition to the aerospace, automotive, and sports and recreation industries, uses of titanium and its alloys are expanding within the biomedical industry due to its exceptional properties and biocompatibility. This symposium will address uses of titanium for biomedical, dental, and healthcare applications. Abstracts are sought for papers addressing such uses of titanium, and investigations relating processing, microstructure, properties, and behavior of titanium and titanium alloys, including beta, alpha+beta, intermetallic alloys as well as titanium matrix composites will be applicable. In addition, titanium used at the interface of biomedical components will be addressed. Submit abstracts electronically at <http://cms.tms.org/> or to: Carl Boehlert, New York State College of Ceramics at Alfred University, School of Ceramic Engineering and Materials Science, Alfred,



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Use of Bainitic and Bainitic-Martensitic Steels in Current or Developing Applications

Sponsored by: AIST Division VI - Process Metallurgy and Product Application

Abstract due date: 3/15/04



Recent developments on the heat treatment of steels for bearing and other wear resistant parts have shown interesting properties associated with bainitic and bainitic-martensitic structures. Similarly, bainitic steels are being considered for power generation service at elevated temperature or cyclically loaded components. Conventional austempering, sub-Ms isothermal and multiple temperature isothermal heat treatments are being tried and tested against conventional quench and temper heat treatments. Papers are solicited dealing with the structure and properties of steels, as related to novel heat treatment procedures leading to bainitic and bainitic - martensitic structures both on the surface and in the bulk, on mechanical components subject to severe service conditions. Submit abstracts electronically at <http://cms.tms.org/> or to: Helio Goldenstein, University of San Paulo, Cidade Universitaria, 05508-900 - Sao Paulo Brazil T: +55 (11) 3091 5460 F: +55 (11) 3091 5243 Email: hgoldens@usp.br. Co-Organizers: Dengqi Bai, IPSCO Inc., Muscatine, IA 52761 USA T: 563-381-5727 F: 563-381-5324 Email: dbai@ipsco.com; E. Buddy Damm, The Timken Company, Canton, OH 44706-0930 USA T: 330 471 2703 F: 330 471 2282 Email: Damme@Timken.com.



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