

# TMS



## First TMS-ABM International Materials Congress

July 26-30, 2010 • Intercontinental Rio Hotel • Rio de Janeiro, Brazil

*To be held in conjunction with the  
65th Annual Congress of ABM and the 18th IFHTSE Congress*

### Organizing Committee

S. Neves Monteiro (overall coordinator of the 2010 ABM meeting), G. T. Gray III (TMS president, 2010), R. Peterson (TMS president, 2009), M. A. Meyers (ABM representative at TMS)

### About the Congress

Held in conjunction with [65th Annual Congress of ABM \(Brazilian Metallurgical, Materials and Mining Association\)](#) and the [18th IFHTSE Congress](#), this inaugural congress will feature seven proposed symposia covering important contemporary issues in materials science and engineering. This congress builds on the TMS Alliance of the Americas initiative to work together with Society partners in South America and Canada. The congress will be held at the [Intercontinental Rio Hotel](#). A host of social events will be organized, including a conference banquet, networking reception, and an afternoon excursion. Also, industrial tours will be offered, as well as a number of local sight-seeing tours (Ilha Grande, Parati). Details will be added to the 2010 TMS-ABM conference website as they become available, please visit <http://www.tms.org/meetings/specialty/ABM-TMS/home.aspx>.

### Symposium Themes

#### *Computational Modeling and Advanced Characterization*

**Organizers:** Michael J. Kaufman (Colorado School of Mines), Rajarshi Banerjee (Univ. of North Texas), Andre Costa e Silva (EEIMVR- Universidade Federal Fluminense - IBQN), Fernando C Rizzo (PUC Rio de Janeiro RJ)

The synergy between computational modeling and experimental verification is becoming increasingly important to the efficient development of advanced materials. The recent developments in atomic scale characterization tools (TEM, atom probe, helium ion microscopy, 3D characterization, etc.) have made it possible to probe materials at resolutions not possible previously so as to cover the modeling length scales ranging from the atomic (ab-initio calculations, molecular dynamics) to the continuum (finite element). Computational tools that link modeling of phenomena occurring at different scales are now able to give new insights into the relationships between processing, properties and performance in complex systems of industrial interest. The synergy between modeling and experimental characterization manifests itself in different ways: critical experiments to better understand relevant systems can be identified through modeling and simulation while experimental characterization can lead to better understanding and measurement of relevant phenomena, thus making possible model and simulation tool improvement. These advances will continue to impact a broad range of areas including structural materials, semiconductors, energy related materials (solar, nuclear, etc.) and functional materials (e.g., shape memory alloys).

Researchers are encouraged to share their results in the field of modeling and simulation of materials- from ab-initio calculation to computational thermodynamics as well as process simulation and modern characterization techniques, highlighting the synergistic effects between these tools. The main goals of the symposium are: to present successful examples of the coordinated use of modeling and advanced characterization tools to enhance material or process development; to highlight areas in which advances are needed, in order to bridge the information needed either in modeling or in characterization and, finally, to promote and enhance interactions between scientists and researchers from the Americas to generate new synergies between modelers and the experimentalists.

#### *Other Topics Include:*

#### *Characterization and Application of Biomaterials*

**Organizers:** S.N. Monteiro (UENF, Brazil), K.G. Satyanarayana (UFPR, Brazil), R. O. Ritchie (U C Berkeley), P. Rohatgi (U. Wisconsin-Milwaukee), K. G. Satyanarayana (UFPR, Brazil)

#### *Composite Materials*

**Organizers:** N. Chawla (Arizona State University, United States), R.D. Toledo Filho (Universidade Federal do Rio de Janeiro, Brazil), K.K. Chawla (University of Alabama at Birmingham, United States), J.R. D'Almeida (Pontificia Universidade Catolica do Rio de Janeiro, Brazil)

#### *Dynamic Behavior of Materials*

**Organizers:** G. T. Gray III (LANL), M.A. Meyers (UC San Diego), Joao Carlos Miguez Suarez and Ricardo Pondé Weber, (Instituto Militar de Engenharia, Rio de Janeiro, Brasil)

#### *Light Weight Materials for Transportation: Processing and Properties*

**Organizers:** Carlos de Moura Neto (ITA), Ray D. Peterson, (Aleris International), Diran Apelian (WPI), Helio Goldenstein (USP)

#### *Materials and Society*

**Organizers:** M. Meyers (U. C. San Diego), T. Massalski (Carnegie-Mellon University), Fernando Rizzo (PUC, Brazil), Diran Apelian (WPI)

#### *Mechanical Properties of Materials with Emphasis on Grain-size Effects*

**Organizers:** M.E. Kassner (USC), P.R. Cetlin (Univ. Federal de Minas Gerais)

### To submit an abstract:

Abstracts must be submitted by November 30, 2009 via ProgramMaster featured on the 2010 TMS-ABM home page at <http://www.tms.org/meetings/specialty/ABM-TMS/home.aspx>