

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

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)

The dynamic behavior of materials encompasses a broad range of phenomena with important technological applications in transportation (e.g., crash worthiness of vehicles), energy generation (e.g., applications of lasers in fusion energy), fabrication (e.g., machining, explosive welding, forming, cutting), defense industries (e.g., armor and armor defeat, explosive effects). This field comprises diverse phenomena such as deformation, fracture, fragmentation, shear localization, displacive phase transformations, chemical reactions under extreme conditions, and processing (combustion synthesis; shock compaction; explosive welding and fabrication; shock and shear synthesis of novel materials). The experimental techniques involved are numerous, including explosives, gas guns, lasers, Hopkinson pressure bars. The evolution of the field has placed it a level of recognition comparable to fatigue, creep, and fracture.

It is recognized today, as evidenced by the contributions herein, that materials aspects are of utmost importance in dynamic events. The macromechanical and physical processes that govern the phenomena manifest themselves, at the micro structural level, by a dazzling complexity of defect configurations and effects. Nevertheless, these processes/mechanisms can be quantitatively treated on the basis of accumulated knowledge. We are entering an exciting stage where our capabilities, from continuum and molecular dynamics computations, enable realistic predictions of material performances and are starting to guide not only the design process but also our further micromechanical understanding of deformation processes at every level, including the basic dislocation mechanisms. The organizers hope to attract researchers from the Americas to share their results in this field and enhance their interactions.

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)

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)

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>