

# 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** (Technical 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

#### 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** (Pontifícia Universidade Católica do Rio de Janeiro, Brazil), **Pedro Portella** (Federal Institute for Testing and Materials BAM, Germany)

Composite materials are being used in a variety of areas, such as in transportation, electronic packaging, structures, and in nature. Understanding the synthesis, deformation, and/or thermal behavior of composites has always been a complex problem. One must take into consideration the behavior of the reinforcement (particle, fiber, or whisker), matrix, and, of course, the interface or interphase formed between these components. The unique properties observed in natural fibers and composites, designed by mother nature, are intriguing and can be used to synthesize better fibers and composites. Composites with components at small length scale, i.e., nanocomposites, are also quite interesting and have unique properties. Finally, with the advent of new computational methodologies and techniques, not to mention the shear increase in efficiency and speed of computer processors, multiscale modeling has become an important part of understanding the behavior of composite materials.

In this symposium, we hope to attract researchers working in the field of composites, with contributions in, but not limited to, the following areas:

- Reinforcements – continuous fibers (including natural and synthetic reinforcement), short fibers, whiskers, particles, nanoparticles, and nanotubes.
- Matrix materials – metal, cementitious, ceramic, and polymer.
- Interfaces and interphases in composites – reaction products, characterization of interface strength, and frictional sliding.
- Novel characterization techniques for composites – focused ion beam (FIB), x-ray tomography, 3D atom probe, nanoindentation, and micro-force testing.
- Mechanical behavior of composites – creep, mechanical fatigue, thermal fatigue, and monotonic behavior.
- Modeling and simulation of composite behavior – finite element modeling, dislocation dynamics, and first-principle calculations.

#### Other Topics Include:

##### Characterization and Application of Biomaterials

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

##### 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>