

## **Symposium A: From Theory to Experiment: Advances in Materials Engineering**

### **Scope of the symposium**

This symposium aims to discuss the impact of joining researches in the theoretical and experimental areas and the understanding of intrinsic and extrinsic properties of materials. The main idea is to induce discussions involving the fundamental and technological aspect that may lead to the improvement, understanding and forecast of the properties of technological devices.

This symposium had its first edition in 2004, at Foz do Iguaçu. In this occasion, the national organization was carried out by Prof. Dr. Elson Longo known by his innovative personality in science area. Prof. Longo invited Prof. Julio Ricardo Sambrano (chair) in cooperation with Prof. João Batista Lopes Martins (co-chair) to organize the symposium “Computational simulation as a technique to the development of new materials”. The symposium was successful with more than 80 abstracts accepted and with the presence of national and international speakers.

The second symposium was held in Florianópolis and organized by Prof. João Batista Lopes Martins (chair) and Prof. Julio R. Sambrano (co-chair) with about 80 abstracts submitted.

The third edition was held in Natal/RN with an interdisciplinary format in agreement to the SPBMat philosophy. In this edition a greater interaction between theoretical and experimental researches was proposed and a higher amount of works were submitted, with 198 abstracts and 10 national and international speakers. This was one of the largest symposium in SBPMat.

In 2008, the symposium was maintained due to its importance and capacity to join researchers, always with high qualified speakers and works presented by recognized researchers, coordinated by Prof. Julio Ricardo Sambrano. In 2009, during the ICAM, the symposium was presented one more time, with the same high level, being coordinated by Prof. Dr. Carlton Taft.

In 2010, the symposium received about 500 abstracts, approximately 60% of the total number of abstracts of the entire Congress and it was coordinated by Prof. Julio R. Sambrano and Profa. Ieda M. G dos Santos. The latest symposium was held in Gramado/RS and it was coordinated by Prof. Elson Longo and Prof. Julio R. Sambrano. 313 abstracts were received and various qualified national and international speakers were present.

### **Abstracts will be solicited in (but not limited to) the following topics:**

- ✧ Simulation application for structural properties of nanostructured materials, surfaces and bulk;
- ✧ Theoretical analysis on energetic and dynamic factors in technological materials;

- ✧ Development and application of art state methodologies (classic, statistic and quantic) applied to new materials;
- ✧ Reactions and interactions molecule-surface;
- ✧ Influence of synthesis in the extrinsic properties controlled by grain boundary and material structure;
- ✧ Materials with potential application in energy generation and environment;
- ✧ Nanomaterials with differential extrinsic properties – theoretical and experimental aspects;
- ✧ Classical materials revisited and enhanced based on novel scientific advances

## **Symposium Organizers**

**Victor Carlos Pandolfelli** (DEMA – UFSCar, São Carlos, SP, Brazil)

**Elson Longo** (Instituto de Química – UNESP, Araraquara, SP, Brazil)

**Julio Ricardo Sambrano** (DM –UNESP, Bauru, SP, Brazil)

**Ieda Maria Garcia dos Santos** (UFPB CCEN DQ – Campus I, João Pessoa, PB, Brazil)

## **Invited speakers (tentative list)**

**Carlton Tafft** (CBPF, Brazil)

**Oscar Ventura**(Universidad del Oriente)

**Juan Andrés** (Universitat Jaume I, Spain)

**Jean Marie Dubois** (Universite Mancy, France)

## **Members of Scientific Committee**

### **1- Lista tentativa de membros do Comitê Científico**

Os membros do Comitê Científico devem ser os mesmos das edições anteriores. Na última edição contamos com mais de 40 revisores.