



Symposium C : Advanced Materials and Surface Treatments for Biological, Dental and Medical Applications

Scope of the Symposium

The ongoing development of biomaterials semi-synthetic, nanomaterials and soft materials continue to offer innovative, biological, dental and medical applications. These "materials for life" express the challenge which the field of biomaterials is currently facing: to provide effective and affordable biomaterials-based methods to repair and regenerate damaged and diseased tissues and organs and/or to interact with the specific biological target. This challenge can only be overcome by converging breakthrough developments from the fields of chemistry, physics, materials science, biology and engineering to address real clinical needs, while also considering the translational pathway from bench to bedside. Surface modifications techniques are currently used in order to tailor the surface of materials to obtain desired properties for several applications, in special to biological, dental and medical. Thus, materials that possess excellent bulk properties can be used in the aggressive environment where will be in service with appropriate surface. The symposium focuses on the development of new materials for biological, dental and medical applications and on the fundamental understanding of biological and biomimetic-solid interfaces as well as their implementation into biological, dental and medical applications. Interfacing biological molecules predictably with solid materials at the nanoscale is the key for hybrid materials design leading to innovative functional properties. Exploiting such properties towards developing functional materials and devices depends on a better understanding and control of the interfacial interactions at the atomic to nanoscale. Selected papers will be published in a special issue of Revista Matria.

Abstracts will be solicited in (but not limited to) the following areas

- *Synthesis and characterization of novel biomaterials for biomedical applications;*
- *Surface biofunctionality: the interface between the material and living cells and tissues;*
- *Corrosion, tribocorrosion, and degradation of materials;*
- *Mechanical behavior of materials for biomedical applications;*
- *Biocompatibility of materials for biomedical applications;*
- *Tissue regeneration: Advanced biomaterial approaches for promoting healing and restorative repair process;*
- *Results of clinical evaluations of implantable materials.*

Tentative list of invited speakers (To be confirmed)

Prof. Thomas J. Webster (Northeastern University, USA) **Ketul C. Popat** (Colorado State University, USA) **Geetha Manivasagam** (Vellore Institute of Technology, India) **Lakshmi S. Nair** (University of Connecticut Health Center) **Janaina de Andra Dernowsek** (Centro de Tecnologia da Informao Renato Archer, Brazil) **Hernandes Faustino de Carvalho** (Universidade Estadual de Campinas, Brazil) .

Symposium Organizers

Carlos Roberto Grandini, FBSE (UNESP/Bauru) **Ana Paula Rosifini Alves Claro** (UNESP/Guaratinguet) **Paulo Noronha Lisboa Filho** (UNESP/Bauru) **Rossana Mara da Silva Moreira Thir** (UFRJ/COPPE) **Rodrigo Silveira Vieira** (Universidade Federal do Cear) .

XVIII Brazil MRS Meeting