



Symposium R : 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 offers innovative, biological, dental, and medical applications. These "materials for life" express the challenge 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 interact with the specific biological target. This challenge can only be overcome by converging breakthrough developments from 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 to tailor the surface of materials to obtain desired properties for several applications, special to biological, dental, and medical. Thus, materials that possess excellent bulk properties can be used in the aggressive environment in service with an appropriate surface. The symposium focuses on developing 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 to 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 the nanoscale.

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 biomaterials;*
- *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)

Paulo Jorge da Silva Bartolo (*University of Manchester*) **Caroline Richard** (*Universite de Tours*) **Huinan Liu** (*University of California Riverside*) **Matthew Tophil Matthew** (*University of Illinois at Chicago*) **Yusuf Khan** (*University of Connecticut*) **Teun de Vries** (*University of Amsterdam*) .

Symposium Organizers

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

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