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TMS 2017
146th Annual Meeting & Exhibition



February 26 – March 2, 2017
San Diego, California, USA

BIO-NANO INTERFACES AND ENGINEERING APPLICATIONS

Interfacing biological molecules predictably with solid materials is the key for hybrid composite materials, surface organization, and biomaterials. Bio-nano interfaces, therefore, is of interest for many engineering areas ranging from designing bioactive materials to nanodevices for a wide range of technological applications.

This symposium on bio-nano interfaces and their design, tailoring, and engineering applications emphasizes the basic understanding of these soft interfaces and their implementation into practical medical and technological applications such as catalysis, sensors, electronics, and photonics. While the solids may include metals, ceramics, semiconductors, polymers, and their composites, biopolymers include proteins, peptides, DNA, RNA, polysaccharides, glycans, lipids, and membranes, as well as cells and viruses. A special emphasis will be given to assembly processes at solid liquid interfaces that lead to surface phenomena and designed biomolecular and nanosolid self organizations towards functional materials and devices.

The symposium will encompass the following themes:

- Fundamentals on bio-nano interfaces
- Biomolecular recognition of solids
- Surface phenomena: thermodynamics and kinetics
- New trends in surface characterization, in situ and ex situ
- Computational modeling of soft interfaces
- Assembly rules and design criteria
- Applications to electronics and photonics devices
- Implementations in regenerative and restorative medicine

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