ANNUAL MEETING
150th
TMS2021
SINCE 1871
AND EXHIBITION

MARCH 14-18, 2021 • ORLANDO WORLD CENTER MARRIOTT
ORLANDO, FLORIDA, USA
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SUBMIT AN ABSTRACT TO:

BIOMATERIALS

BIO-NANO INTERFACES AND ENGINEERING APPLICATIONS

The symposium focuses on fundamental understanding of biological and biomimetic solid interfaces as well as their implementation into engineering 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. This symposium will address the synthesis, modelling and design principles of the bionano interfaces and their implementation into practical medical and technical applications such as tissue engineering, catalysis, sensors, electronics, and photonics. While the solids may include metals, ceramics, semiconductors, polymers, and their composites, the biopolymers include proteins, peptides, DNA, RNA, polysaccharides, glycans, lipids and membranes as well as cells and viruses.

A special emphasis will be given to the assembly processes at solid-liquid interfaces that lead to specific surface phenomena and designed bionano solid self-assembled structures and organizations towards functional materials, systems and devices.

The symposium will encompass the following themes, but are not limited to:

- Fundamentals on Bionano interfaces
- Surface phenomena: Dynamic interfacial interactions
- Abiotic and biotic interfaces
- Biomolecular recognition of solids
- Supramolecular self assembled systems
- Modelling the interactions at the bionano interfaces
- Multiscale mechanobiology and Biomechanics
- Nanoscale assembly rules and design criteria
- New trends in surface characterization, in situ and ex situ
- Predictive modelling and machine learning on biodesign and bioevaluations
- Biointerfaces and applications for sensing, electronics and photonics devices
- Protein corona effect on nanomaterials surfaces; Modulating toxicology
- Bio-nano-material-tissue interfaces
- Implementations in regenerative and restorative medicine

Joint sessions are planned with the Advanced Real Time Imaging Symposium

ORGANIZERS

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SYMPOSIUM SPONSORS

TMS Functional Materials Division
TMS Structural Materials Division
TMS Biomaterials Committee

Abstract Deadline is July 1, 2020. Submit online at
www.programmaster.org/TMS2021.

Questions?
Contact programming@tms.org