THE WORLD COMES HERE.

TMS 2025

154th Annual Meeting & Exhibition

March 23–27, 2025
MGM Grand Las Vegas
Hotel & Casino
Las Vegas, Nevada, USA
#TMSAnnualMeeting

SUBMIT AN ABSTRACT FOR THE FOLLOWING TMS2025 SYMPOSIUM:

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 predic tably 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 in multi-scale materials, interfaces and emerging applications;
- 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
- Emerging Opportunities by protein corona to address health and environmental issues
- Implementations in regenerative and restorative medicine

ORGANIZERS

Candan Tamerler, University of Kansas**; Kalpana Katti,** North Dakota State University**; Hannes Schniepp,** William & Mary**; Terry Lowe,** Colorado School of Mines**; Po-Yu Chen,** National Tsing Hua University**; David Kisailus,** University of California-Irvine

SYMPOSIUM SPONSORS

TMS Functional Materials Division, TMS Structural Materials Division, TMS Biomaterials Committee

www.tms.org/TMS2025

QUESTIONS?
Contact programming@tms.org