

Tentative Outline

Special/Thematic Issue for the Journal Current Materials Science

Experimental and Computational Studies of Materials Science for Bio-related Applications

Guest Editor: Dr. Aruna Kalasapurayil Kunhiraman

Co-Guest Editors: Prof. Dr. Sangiliyandi Gurunathan, Dr. Ajay Rakkesh R, Dr. Sabariswaran Kandasamy

Scope of the Thematic Issue:

Materials with biocompatibility and biodegradability are of high priority among bioengineers, biomedical engineers, medical device designers, doctors, and other medical and biotechnology professionals. Materials scientists/researchers play a vital role in tailoring and designing materials with peculiar properties for bioimplants, and biosensors. Functional materials, biomimetic systems, and inorganic hybrids are researched with great potential for biological systems. The corrosion studies of the bioimplants are very much required to understand the biocompatibility, stability, and durability of the material. Henceforth electrochemical techniques play a predominant role in determining the performance of the bioimplants. The complicity of the electrochemical reaction occurring at the electrode-electrolyte interface requires comprehensive research due to its intrinsic potential to implement high-performance electrochemical systems for real-time bio applications. The major challenge relies on applications-oriented materials selection. The advent of machine learning (ML) and artificial intelligence (AI) reduces the experimentation time on fundamental knowledge. Linking ML and AI will render paramount support for materials design and optimization, for bio and energy applications. screening of novel materials with good performance and the modeling of quantitative structure-activity relationships.

Thus, the focus of this special issue is on bringing in cutting-edge research articles related to the advancement in materials, both experimental and computational studies in the area of Bio-related applications.

Keywords: biocompatible, biodegradable, artificial intelligence, machine learning.

Sub-topics:

- Green synthesis of bio-material
- Structure-property-process relationship
- AI and ML in materials selection
- Coupling IoTs with bio-systems
- Biomimetic biomaterials
- Bioimplant biodegradable materials
- Biosensors
- Electrochemical reaction on biological systems
- Review articles on the advancement of material for Bio related systems

Schedule:

- Thematic issue submission deadline: **December 30, 2023**

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