



an Open Access Journal by MDPI

# Multi-Scale Bionic Materials: Interfacial Design, Effective Fabrication and Functional Application

Guest Editors:

### Prof. Dr. Haoqi Yang

College of Electrical, Energy and Power Engineering, Institute of Technology for Carbon Neutralization, Yangzhou University, Yangzhou 225127, China

#### Dr. Xiaolin Liu

Institute of Bionic Micro-Nano Systems, School of Mechanical Engineering and Automation, Beihang University, Beijing 100191, China

### Dr. Yunyun Song

School of Mechanical Engineering, Jiangsu University, Zhenjiang 212013, China

## **Message from the Guest Editors**

Bionic materials are advanced materials inspired by natural systems, designed to function across multiple scales, from the molecular to the macroscopic level. These materials leverage principles observed in nature, such as hierarchical structuring and interfacial design, to achieve exceptional properties that can surpass those of conventional materials. Interfacial design is a crucial aspect of multi-scale bionic materials. By mimicking the way natural materials manage interfaces between different components, researchers can create materials with enhanced mechanical strength, flexibility, and durability.. Moreover, the investigation of the microstructure of each natural material, including superhydrophobic lotus leaves, superhydrophilic spider silk. and underwater superoleophobic fish scales, brings inspiration to materials science

Deadline for manuscript submissions: **28 February 2025** 









an Open Access Journal by MDPI

# **Editor-in-Chief**

#### Prof. Dr. Maryam Tabrizian

 Department of Biomedical Engineering, Faculty of Medicine and Health Sciences, McGill University, Montreal, QC H3A 2B6, Canada
Faculty of Dentistry and Oral Health Sciences, McGill University, 3640 Rue University, Montreal, QC H3A 0C7, Canada

## Message from the Editor-in-Chief

Materials (ISSN 1996-1944) was launched in 2008. The iournal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites. advanced materials characterization, porous materials, manufacturing processes and svstems. advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials. materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. Materials provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

## **Author Benefits**

**Open Access:** free for readers, with article processing charges (APC) paid by authors or their institutions.

**High Visibility:** indexed within Scopus, SCIE (Web of Science), PubMed, PMC, Ei Compendex, CaPlus / SciFinder, Inspec, Astrophysics Data System, and other databases.

**Journal Rank:** JCR - Q1 (Metallurgy and Metallurgical Engineering) / CiteScore - Q2 (*Condensed Matter Physics*)

## **Contact Us**

*Materials* Editorial Office MDPI, Grosspeteranlage 5 4052 Basel, Switzerland Tel: +41 61 683 77 34 www.mdpi.com mdpi.com/journal/materials materials@mdpi.com X@Materials\_Mdpi