Special Issue

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

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.

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