Special Issue

The Interactions of Microorganisms and Materials: Biocorrosion and Bioleaching

Message from the Guest Editors

Microorganisms are crucial for the degradation and transformation of materials, with significant implications for industrial infrastructure, environmental sustainability, and resource recovery. This Special Issue focuses on the dynamic interactions between microorganisms and materials, particularly in the contexts of biocorrosion (microbiologically influenced corrosion, MIC) and bioleaching (microbe-assisted metal extraction). Biocorrosion poses critical challenges to marine, energy, and medical systems, accelerating material deterioration through microbial metabolic activities. Conversely, bioleaching offers an eco-friendly approach for metal recovery from ores and electronic waste, utilizing microbial processes to replace traditional, energy-intensive methods. This Special Issue welcomes research articles and reviews that address microbial mechanisms, material responses, monitoring techniques, and mitigation strategies in biocorrosion and advances in bioleaching for sustainable metallurgy. We aim to translate fundamental research findings into practical applications, fostering innovation in microbial–material interactions for both industrial protection and resource utilization.

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Message from the Editor-in-Chief

Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, 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.

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