Special Issue

Complex Ceramic Materials with Advanced Properties for Versatile Applications

Message from the Guest Editors

Currently, complex ceramic materials possess advanced properties and are transforming a variety of fields due to their versatility. Thus, hydroxyapatite (HAp), a bioceramic resembling human bone mineral, stands out in the biomedical field for its role in orthopedic and dental implants. Its biocompatibility and osteoconductive properties promote tissue regeneration and healing. When HAp (and other ceramic materials) is combined with biopolymers like chitosan or alginate, the obtained materials exhibit improved strength, flexibility, and bioactivity, making them suitable for applications like tissue engineering scaffolds and controlled drug delivery systems. The ceramic doping process further fine-tunes ceramics' mechanical, electrical, and antimicrobial properties. This flexibility enables their use in advanced healthcare technologies, in environmental applications, and in the field of sustainable energy technologies. With ongoing advancements in their synthesis and functionality, these materials continue to address critical challenges in medicine, the environment, and sustainable technology, solidifying their role as indispensable in modern innovation.

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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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