Special Issue

Recent Advances in Materials for Articular Cartilage Replacement

Message from the Guest Editor

For successful cartilage replacement, new materials must closely replicate the structure and mechanical properties of native cartilage. They should exhibit high resistance to repeated compression, low friction, and strong wear resistance, while maintaining adequate water content to support the transport of nutrients and metabolites to and from the surrounding living tissue. Additionally, these materials must promote stable integration with the adjacent cartilage and the subchondral bone, ensuring long-term mechanical and biological performance. This Special Issue aims to highlight recent advances in materials for articular cartilage replacement. We welcome high-quality original research and review articles addressing innovations in material design, synthesis, characterization, mechanical and tribological behavior, biological integration, and the challenges associated with clinical translation.

Keywords: Cartilage; scaffold; additive manufacturing; hydrogels; tissue engineering; functional materials; biomaterials

Guest Editor

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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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