Special Issue

Multi-Scale Structural Characterization of Cement-Based Composites

Message from the Guest Editors

Dear colleagues, Cement-based composites, which play important roles in civil structures and infrastructure, have recently attracted increasing attention from both scientific and engineer communities. Due to the complexities of the raw materials, design codes, casting methods, curing conditions, and serving environments, the structural characterization of cement-based composites involves significant challenges. The multi-scale nature of cement-based composites causes near-insuperable obstacles for their microstructure characterization, as the commonly used techniques (such as SEM and XCT) have limited scopes in terms of structural characterization. Furthermore, the sustainability requirements for cement-based materials in terms of reducing CO2 emmissions and other environmental impacts make the large-scale uses of solid wastes and the development of highly durable concrete necessary. Additionally, 3D-printed concrete requires viscous fresh materials, involving a layer–layer structure that is different from that of ordinary in-situ-cast concrete.

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Deadline for manuscript submissions

closed (20 August 2023)

Materials

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/72747

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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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