



Multi-Scale Structural Characterization of Cement-Based Composites

Guest Editors:

Dr. Qiang Zeng

Dr. Chunsheng Zhou

Dr. Zhendi Wang

Dr. Jiyang Wang

Prof. Dr. Dongming Yan

Dr. Shaoqin Ruan

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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 emissions 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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Editor-in-Chief

Prof. Dr. Maryam Tabrizian

1. Department of Biomedical Engineering, Faculty of Medicine and Health Sciences, McGill University, Montreal, QC H3A 2B6, Canada

2. Faculty of Dentistry and Oral Health Sciences, McGill University, 3640 Rue University, Montreal, QC H3A 0C7, Canada

Message from the Editor-in-Chief

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Contact Us

Materials Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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