Special Issue

Modeling and Mechanical Analysis of Materials and Structures in Civil Engineering

Message from the Guest Editors

Mechanical modeling and analysis is a core technology in civil engineering, used for achieving material innovation and structural safety. By establishing precise mathematical models, engineers can simulate the mechanical responses of construction materials such as steel, concrete, and composite materials under the coupling effects of load, temperature, corrosion, and other factors in a virtual environment, providing a quantitative basis for optimizing strength and durability of new materials/metamaterials. Through accurate simulations of their mechanical properties under various conditions, researchers can gain a deeper understanding of these materials' unique characteristics and optimize their design for specific applications, paving the way for breakthroughs in material science. This Special Issue brings together mechanical modeling and the analysis of materials and structures in the field of civil engineering. The papers collected in this Special Issue can help researchers, engineers, and scientists to find advanced mechanical analysis methods and provide ideas for the search for new materials.

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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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