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Engineering Materials in Extreme Environments

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Message from the Guest Editors

The combination of diverse engineering materials (e.g., metals, polymers, ceramics, and their composites) and extreme service environments (e.g., high temperature, high pressure, mechanical loads, chemicals, radiation) inevitably challenges the reliability, safety, longevity, and economy of the equipment in industries. In this context, measures which cover the whole life cycle of the equipment are adopted before operation, including design optimization, fabrication improvement, and reliability evaluation. During operation, routine maintenance, failure analysis, experience feedback, etc. are adopted, and in all stages the emphasis is laid on the essence of the equipment—the materials.

The aim of this Special Issue is to collect cutting-edge knowledge and provide a comprehensive overview of the structures, properties, processing, and performances of the engineering materials serving/involved in the extreme environments of conventional industries including aerospace, chemical production, manufacturing, steel production, transportation, etc. The engineering materials applied in emerging industries like integrated circuits, biotechnology, etc. are also welcome.



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Special Issue



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Message from the Editor-in-Chief

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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