Special Issue

Advances in Catalytic Materials and Processes for the Energy and Environmental Applications in a Carbon-Neutral Society

Message from the Guest Editors

The pursuit of sustainable energy and environmental solutions is driving transformative advancements in catalysis and materials science and this Special Issue seeks to focus on recent innovations in catalytic materials, reaction engineering, and integrated processes that enable efficient and selective transformations of carbon feedstocks into sustainable energy carriers, fuels, and chemicals. Contributions are invited on cutting-edge catalyst designs and synthesis strategies, including advanced materials such as MXenes, graphene-based composites, and hybrid systems, as well as mechanistic insights into and the optimization of catalytic processes for carbon capture, conversion, and biofuel production. We also welcome studies on novel reactor engineering and computational approaches to enhancing catalytic efficiency and scalability, alongside environmental catalysis and nanotechnology solutions for wastewater treatment, pollutant remediation, and energy generation from bio-waste. Both experimental and theoretical studies, as well as reviews, exploring interdisciplinary approaches to carbon-neutral energy and chemical systems, are encouraged.

Guest Editors

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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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