Special Issue

Catalytic Materials and Renewable Chemistry for Energy and Fuels

Message from the Guest Editors

Catalysis is a cornerstone for the green transition, enhancing the efficiency of converting renewable resources like biomass, water, and CO2 into valuable fuels and chemicals. This efficiency is crucial for scaling up green technologies and making them economically viable. Catalysis also helps reduce greenhouse gas emissions by transforming CO2 into useful products, aiding climate change mitigation. By integrating renewable energy sources such as solar and wind, catalytic processes further decrease reliance on fossil fuels. Adhering to green chemistry principles, catalysis minimizes waste and energy consumption, aligning with a circular economy, and is thus indispensable for developing sustainable energy and fuel production methods. This Special Issue is devoted to the most recent results focused on the design and application of new catalytic materials with enhanced performance and stability for fuel and chemical synthesis from renewable biomass feedstocks and CO_2. We encourage contributions that not only advance the scientific understanding of catalytic mechanisms but also demonstrate practical applications and potential for industrial implementation.

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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