Special Issue

Advancing Biomass Conversion and Utilization for Sustainable Energy and Materials

Message from the Guest Editors

To improve its quality and expand its applications, various deoxygenation strategies, such as catalytic deoxygenation, hydrodeoxygenation, and biological deoxygenation, are being actively explored to enhance biomass conversion efficiency and product stability. Furthermore, the abundant surface functional groups found in biomass, including C–O, C=O, –COOH, and –OH, make it a valuable precursor for functionalized carbon materials. These oxygen-containing groups can serve as active sites or support structures for adsorption and catalysis. Additionally, biomass-derived materials hold significant potential in areas such as energy storage, pollutant removal, and CO_2 capture. This Special Issue aims to advance and disseminate knowledge in all aspects of biomass conversion and utilization, with a focus on enhancing the quality and yield of biofuels and bioproducts while minimizing pollutant formation. The scope includes biomass pyrolysis, gasification, biological fermentation, biofuel production, biomass thermal and catalytic conversion, biological waste treatment, bio-based carbon materials, bioenergy systems, and the carbon cycle.

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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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