Special Issue

Hydrothermal Carbonization for Sustainable Energy and Resource Recovery from Organic Waste

Message from the Guest Editor

The increasing demand for sustainable energy and effective waste management has drawn growing attention to hydrothermal carbonization (HTC). HTC is a thermochemical process that converts wet organic wastes, such as biomass residues, sewage sludge, and food waste, into valuable solid, liquid, and gaseous products. By producing hydrochar and nutrient-rich byproducts, HTC contributes to renewable energy production, resource recovery, and greenhouse gas reduction. As societies move toward a circular and low-carbon economy, HTC is emerging as a promising technology that links waste valorization with energy and material recovery. Its ability to process wet feedstocks, together with its flexibility and scalability, makes HTC suitable for both urban and industrial applications. Recent advances in process optimization, reactor design, and product utilization further enhance its potential. This Special Issue aims to present recent research and applications of HTC, including process fundamentals, optimization, hydrochar utilization, nutrient recovery, system integration, environmental assessment, and pilot-scale studies.

Guest Editor

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Energies is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

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