Special Issue

Recent Advances in Sustainable Bioenergy Production

Message from the Guest Editors

The global shift towards a low-carbon economy has intensified the need for innovative and sustainable bioenergy solutions. As the environmental impacts of fossil fuels become increasingly evident, bioenergy derived from renewable biomass resources presents a promising pathway to meet energy demands while reducing greenhouse gas emissions. This Special Issue aims to highlight recent advances in sustainable bioenergy production, with a focus on novel feedstocks, process optimization, system integration, and lifecycle sustainability. We invite contributions that explore cutting-edge developments in the conversion of agricultural residues, lignocellulosic biomass, algae, organic waste, and other bioresources into biofuels and biogas through thermochemical, biochemical, or hybrid processes. Emphasis is placed on engineering innovations that enhance energy yield, improve resource efficiency, and minimize environmental footprints. Topics of interest include, but are not limited to, the following: pretreatment technologies, microbial and enzymatic enhancements, bio-refinery approaches, technoeconomic analysis, etc.

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Deadline for manuscript submissions

30 March 2026

AgriEngineering

an Open Access Journal by MDPI

Impact Factor 3.0
CiteScore 4.7

mdpi.com/si/249910

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