Special Issue

Lignin Utilization: Depolymerization and Bioconversion Process

Message from the Guest Editor

Lignin is the second most abundant polymer on Earth, following cellulose, and is a major component of plant cell walls. Historically, lignin has been considered a byproduct in the pulp and paper industry, often burned for energy recovery rather than being fully valorized; however, with the growing demand for sustainable resources and the transition towards a bioeconomy, there has been a significant shift in the perception of lignin. Its complex, aromatic structure holds great potential for the production of value-added chemicals, fuels, and materials. Depolymerization and bioconversion transform lignin from an underutilized waste stream into valuable products, thus reducing reliance on fossil-based resources and minimizing environmental impact.

This Special Issue seeks high-quality works focusing on the latest scientific and technological advancements in this crucial area. Topics include, but are not limited to, the following: Physicochemical depolymerization techniques; Enzymatic or fermentative conversion methods; Metabolic and genetic engineering; Byproducts' sustainable utilization; Emerging technology in process engineering and optimization.

Guest Editor

Dr. Fang Deng
Chengdu Institute of Biology, Chinese Academy of Sciences, Chengdu 610213, China

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Processes
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
processes@mdpi.com

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Prof. Dr. Giancarlo Cravotto
Department of Drug Science and Technology, University of Turin, Via P. Giuria 9, 10125 Turin, Italy

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