Special Issue

Recent Advances in the Application of Ionic Liquids for Biofuel Production

Message from the Guest Editor

Ionic liquids (ILs) have attracted considerable attention as potential solvents and efficient catalysts for various reactions in biofuel production. This Special Issue highlights recent advances in the application of ILs across various stages of biofuel production, including biomass pretreatment, conversion processes, and product separation. ILs offer unique properties, such as low volatility, high thermal stability, and tunable solvating capabilities, which can improve the efficiency of biomass deconstruction and the extraction of valuable biofuel components. By addressing challenges like lignocellulosic recalcitrance and enzyme inhibition, IL-based approaches have demonstrated potential in improving yields for bioethanol, biodiesel, biohydrogen, biomethane, 2,5-Dimethylfuran, and other biofuels. Despite their advantages, issues related to the cost, recyclability, and environmental impact of ILs remain, and ongoing research focuses on developing more sustainable and cost-effective ILs. This Special Issue involves a comprehensive overview of the recent progress, challenges, and future prospects of using ionic liquids in biofuel production.

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As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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