Catalytic valorization of lignocellulose and its derived feedstocks into fuels and chemicals

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The production of chemicals, fuels and energy relies mainly on fossil-based feedstocks such as coal, petroleum, and natural gas. However, the estimation on the future depletion of these non-renewable resources imposed the search for renewable resources as alternatives. Thus, effective utilization of renewable resources to produce chemicals, fuels and energy is a major goal of chemical research. Biomass is considered to be a potential renewable resource and its valorization to produce chemicals and fuels offer tools to achieve the sustainable development goals, which is of prime importance for our society. Among biomass, lignocellulose is the most abundantly available raw material on the Earth, which can be used for the production of biofuels as well as essential chemicals. Lignocellulose, composed of carbohydrate-based polymers, (cellulose and hemicellulose), and an aromatic-rich lignin-based polymer, which can be converted to aromatic and aliphatic compounds as well as liquid fuels. Based on the importance of the utilization of lignocellulosic biomass and its derived feedstocks and platform chemicals, this special issue ‘‘SI: Lignocellulose fuels’’ is planned to be published in the journal, Catalysis Today.

In this special issue, articles related to the catalytic valorization of lignocellulose and its derived feedstocks into fuels and chemicals are published. This special issue contains a total of 20 papers including both research and review articles. We sincerely hope that this special issue is helpful and attracts the attention of scientists in academia and industries working in the area of valorization of biomass and its derived feedstocks.

The guest editors of this special issue are from the members of the consortium of the EU Project ‘‘Chemical transformation of enzymatic hydrolysis lignin (EHL) with catalytic solvolysis to fuel commodities under mild conditions (EHLCATHOL)’’. This project is funded by EU (EU-101006744) and involves research groups from AALTO (Finland), LIKAT (Germany), EPFL (Switzerland), NTNU (Norway), LRGP-CNRS (France), TU/E (The Netherlands) and VERTORO (The Netherlands). The aim of this project is to contribute to the EU’s carbon neutral goal in 2050, with developing novel technologies for the transformation of waste-EHL to high quality liquid fuel blends to meet the needs of fuels in hybrid cars, heavy-duty transport vehicles, ships and jet airplanes. The full utilization of EHL is expected to improve the energy efficiency of the 2 G bioethanol production chain.

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☆ Preface to the Special Issue- Lignocellulose fuels

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