

From Biomass to Value-added Chemicals

OUTCOME: The attendees will have knowledge about the importance of value-added chemicals derived from biomass which is an alternative energy source from the perspective of circular economy.

Abstract

Thanks to the new technologies and environmental concerns, the significance of renewable energy sources has been increasing in the last years. In 2020, global renewable generation capacity increased by 261 GW (+10.3 %) and amounted to 2,799 GW at the end of the same year. In order to achieve the changes required to address the impacts of global warming and to reach Net Zero Emissions by 2050, the power capacity installation in renewable resources will continue to increase in the following decades. Among these resources, biomass is crucial source for clean energy transitions due to the fact that not only biofuels are the alternatives to conventional fuels but also bio-derived molecules are the potential substitutes to petroleum-derived intermediates. In this seminar, we will focus on the various value-added chemicals obtained from renewable biomass together with some catalytic processes, and discuss the issue from the perspective of circular economy.

Keywords: Renewable Energy, Biomass, Valuable Chemicals, Circular Economy

Biography

Dr. Atif Emre Demet works as an assistant professor at the Department of Energy Systems Engineering at Necmettin Erbakan University in Konya, Turkey. After obtaining B.Sc. degree in Chemistry at Bilkent University, he enrolled to M.Sc. in Materials for Energy Storage and Conversion (MES-C) for the European Erasmus Mundus Joint Master Programme that allowed him to experience living each semester in a different country including France, Poland, Spain and the Netherlands. He worked for the cathode material development for Lithium and Sodium-ion batteries at TU Delft and CNRS. Similarly, he did his Ph.D. in Sustainable and Industrial Chemistry (SIN-CHEM), which is another Erasmus Mundus Joint Programme coordinated by University of Bologna. He obtained double Ph.D. degree in Engineering and Chemistry of Materials, with the thesis of "Biomass Valorization for the Production of Value-Added Chemicals and Bio-Fuels" at University of Messina, Italy, and National School of Chemistry Montpellier (ENSCM), France. He also obtained working experience at Directorate General of BOTAŞ Petroleum Pipeline Corporation in Turkey, and TOTAL Research and Technology Feluy in Belgium, which are important energy companies. Dr. Demet attended numerous international conferences and educational events throughout the world. In the meanwhile, he officially has been a Turkish Patent Attorney since 2013. His expertise and research interests mainly cover materials for energy storage, lignocellulosic biomass upgrading, valuable bio-based molecules, circular economy and sustainability, catalysis, and intellectual property rights. He teaches several undergraduate and graduate courses including Energy Systems Engineering Applications, Energy Storage Systems, Nuclear Energy, and Waste-to-Energy.

