Catalytic conversion of biomass to chemicals and fuels—new challenges and bottlenecks

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Independence of the limited fossil fuel supplies as a main source of energy and chemicals remains a highly attractive perspective [1]. Biomass of the second to fourth generation constitutes a possible solution. Due to its recalcitrant nature, its conversion is however not trivial. Moreover, molecules obtained from biomass need further upgrading which is mostly done by hydrogenation, with fossil fuels as hydrogen source. Another challenge is the necessity of producing chemicals from waste biomass in a fully sustainable way and using the least possible energy.

During the talk I will discuss some issues concerning biomass depolymerization as well as the design of catalysts used for biomass conversion [2-4]. I will also concentrate on performing hydrogenation reactions for biomass upgrading without external hydrogen source, what is a crucial challenge nowadays.