Conversion of biomass and its derivatives to commodity chemicals via catalytic processes is highly attractive. As biomass molecules are functionalized, catalysis must provide the way to selectively remove these functional groups (e.g., oxygen content). This can be achieved via hydrodeoxygenation processes. Ideally, efficient catalysts should selectively break C-O bonds, rather than C-C bonds, as the latter lowers the carbon efficiency of the overall process. This seminar talk will focus on catalytic deoxygenation of glycerol—a biomass derived polyol— in the presence of H₂ thus enabling its transformation to partially and complete deoxygenated products. Two concepts will be presented; glycerol deoxygenation to 1,2-propanediol aided by in-situ H₂ generation from methanol aqueous phase reforming over Copper catalysts and glycerol deoxygenation to propylene over Molybdenum catalysts. A synthetic approach towards highly dispersed and stable Copper catalysts will be also discussed.

References

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