



## DEVELOPMENT OF NEW CATALYTIC SYSTEMS FOR THE PRODUCTION OF RENEWABLE FUELS AND CHEMICALS FROM BIOMASS *A McIntire - Stennis Supported Project*

Non-renewable petroleum feedstocks are raw materials used to make liquid hydrocarbons that serve as liquid fuels and to supply unsaturated hydrocarbons that serve as feedstocks for the production of both chemicals and consumer products. Lignocellulosic biomass, or dry plant matter, consisting of cellulose, hemicellulose, and lignin, is the most promising alternative source to replace non-renewable petroleum feedstocks in the production of fuels and chemicals.

Since the cost of produced biofuels from biomass is high in comparison to the price of fossil fuels, there has been a challenge in the limiting of wide applications of the above technologies. The major goal of this project is to produce fuels and chemicals from biomass in a manner that is cost-competitive with the refining of petroleum. This goal will be achieved by developing new catalysts for both the carbohydrate conversion and bio-oil to upgrade to fuels and chemicals.



### COLLABORATION

This project is in collaboration with researchers from the USDA Agricultural Research Service.

### IMPACTS



This project will significantly increase the utilization of lignocellulosic biomass in the United States and decrease national dependency on fossil fuels and petroleum-based chemicals.



This project includes research from three doctoral students. Additionally, the work has been published in three peer reviewed journal articles and presented at two international symposiums.

### ABOUT MCINTIRE-STENNIS

The McIntire-Stennis program, a unique federal-state partnership, cultivates and delivers forestry and natural resource innovations for a better future. By advancing research and education that increases the understanding of emerging challenges and fosters the development of relevant solutions, the McIntire-Stennis program has ensured healthy resilient forests and communities and an exceptional natural resources workforce since 1962.

