

Thrust Area 3: Biomass (Thermo-Chemical Conversion)

Biofuels Through Thermochemical Processes: Approach to Produce Bio-jet Fuel

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Description: To develop technologies to produce biojet and biodiesel fuels from sustainable sources such as bio-oils and hydrogen produced from biomass generated synthetic gas. Novel processing concepts, reactor design and catalyst systems are employed in this integrated approach to convert any cellulosic biomass and any nonedible bio-oils into bio-jet fuel (Figure 1). Feedstock flexibility offers significant cost and logistic advantages to this approach. Unlike other processes which use only the oil derived from a plant, the entire plant can be used as feedstock source and the proposed approach can also convert the more challenging lignocellulosic component.

Budget: \$229,572

Universities: FSU

Executive Summary

Through molecular manipulations, the inherent chemistry of the proposed approach allows the production of “designer biofuels” and offers a means to tailor product properties through saturation of double bonds to give better shelf life, cleaving long chain hydrocarbons to produce the jet cut, controlling aromatics content for better combustion characteristics and isomerization to achieve better performance

We are now hydro-processing the bio-oils. This particular step is being carried out by our industrial partner Energia Technologies Inc., of Oakland, California. Energia Technologies is currently building high pressure and temperature bench scale unit capable of independently testing bio conversion unit. This work is being carried out under an Office of Naval Research STTR phase I program where FSU is a sub- contractor to this effort.

Funds Leveraged/New Partnerships:

Energia Technologies Inc. in Oakland California

This project has been completed.