

**Guest Speaker: Dr. Blake Simmons**

*Driving the Future: Advanced Bioenergy Solutions for the Bioeconomy*

Abstract:

Today, carbon-rich fossil fuels, primarily oil, coal and natural gas, provide 85% of the energy consumed in the United States. Fossil fuel use increases CO<sub>2</sub> emissions, increasing the concentration of greenhouse gases and raising the risk of global warming. The high energy content of liquid hydrocarbon fuels makes them the preferred energy source for all modes of transportation. In the US alone, transportation consumes around 13.8 million barrels of oil per day and generates over 0.5 gigatons of carbon per year.

This has spurred intense research into alternative, non-fossil energy sources. The US Department of Energy funded Joint BioEnergy Institute (JBEI, [www.jbei.org](http://www.jbei.org)) is a partnership that is focused on the production of infrastructure compatible biofuels derived from non-food lignocellulosic biomass. Biomass is a renewable resource that is potentially carbon-neutral or carbon-negative as compared to petroleum. Plant-derived biomass contains cellulose, which is more difficult to convert to sugars.

This presentation will highlight the research efforts underway at JBEI to overcome these obstacles, with a particular focus on the development of an ionic liquid pretreatment technology for the efficient production of monomeric sugars from biomass. I will also discuss recent advances in the development of mobile biorefineries that have the potential to not only advance the bioeconomy, but also help California and the nation reduce the risk of wildfires through converting the wood slash piles that are generated by forest thinning activities.

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