Breaking the Chemical and Engineering Barriers to Lignocellulosic Biofuels

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Seminar Series

Presented by…

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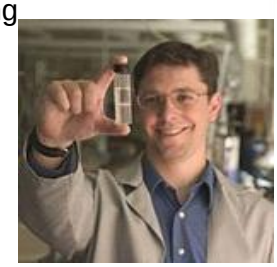


Abstract

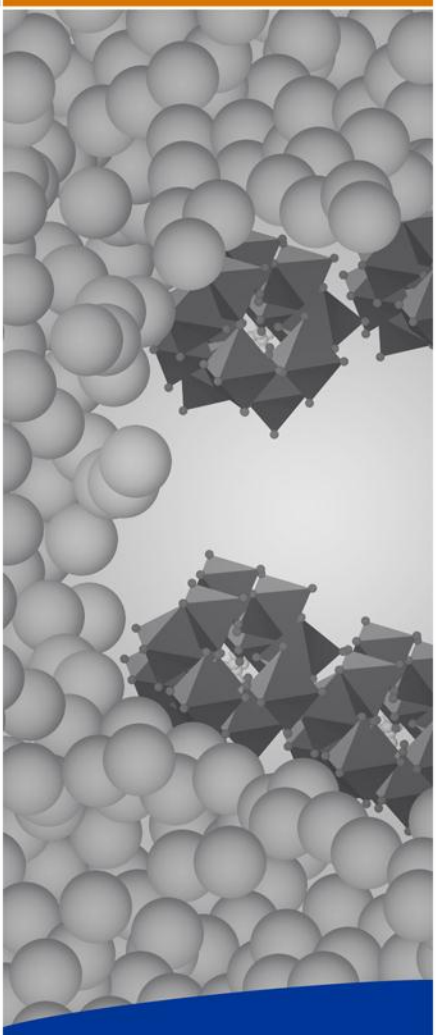
Concerns about global warming and national security, combined with the diminishing supply and increased cost of fossil fuels are causing our society to search for new sources of transportation fuels. In this respect plant biomass is the only sustainable feedstock that can be used for production of renewable liquid fuels. Currently cellulosic biomass is significantly cheaper than petroleum (at $15 per barrel of oil energy equivalent) and abundant. However, the chief impediment to the utilization of our biomass resources is the lack of economical conversion processes.

In this presentation we will discuss various pyrolysis based approaches for the conversion of lignocellulosic biomass into fuels and chemicals. Pyrolysis is the thermal decomposition of biomass into a mixture of semi-volatile molecules. These pyrolysis vapors can then be condensed into a bio-oil or pyrolysis oil that contains more than 300 compounds. This pyrolysis oil is the cheapest liquid fuel made from biomass. However, this oil is unstable, acidic, insoluble with petroleum based fuels, has a high oxygen content, and polymerizes with time. Alternatively, biomass can be depolymerized by hydrolysis approaches. We will compare these two methods of depolymerizing biomass.

More info?

http://iic.pnl.gov/

http://www.ecs.umass.edu/index.pl?id=4555



July 13, 2010

EMSL Auditorium

10:00 am