ChE SEMINAR

Effects of Torrefaction on Biomass Structure and Hydrocarbons Production from Fast Pyrolysis

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Seminar Room
Dept. of Chemical Engineering
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ABSTRACT

The liquid fuel derived from pyrolysis of biomass exhibits certain characteristics that limit its usage as an efficient transportation fuel. A number upgrading methods to produce aromatics and to selectively eliminate oxygenates derived from pyrolysis process are available, among which catalytic pyrolysis is gaining a lot of research attraction. Fast pyrolysis of biomass using zeolite catalyst, in particular, has shown to be effective in improving the aromatic production. On the other hand, torrefaction, a mean of biomass pretreatment, has shown some advantages in the field of bioenergy and biofuels. The presentation will discuss the effect of torrefaction on biomass chemistry and how that impacts on the compounds produced during pyrolysis. In addition, the presentation will cover a quick overview of Biosystems Engineering Department and Auburn University.

About the Speaker

Sushil Adhikari is an Associate Professor of the Biosystems Engineering Department at Auburn University. Adhikari earned his B.S. degree in Mechanical Engineering from Tribhuvan University, Nepal, an M.S. degree in Energy Technology from Asian Institute of Technology, Thailand, and a Ph.D. degree in Biological Engineering from Mississippi State University. He is a registered professional engineer in the state of Alabama. Sushil Adhikari's areas of research include biomass gasification and pyrolysis, biomass treatment for thermochemical processes, and hydrogen production from biological materials. Adhikari's

work has been supported by the National Science Foundation, United States Department of Agriculture, Electric Power Research Institute (EPRI), Department of Transportation- SunGrant, Alabama Agricultural Experiment Station and others. Adhikari has received 2013 New Holland Young Researcher Award from American Society of Agricultural and Biological Engineers (ASABE), 2013 Biosystems Engineering Outstanding Faculty, 2014 College of Agriculture Project Team Award, 2014, 2013, 2012 & 2011 Alabama Agricultural Experiment Station Director's Researcher Award, 2012 Auburn University President's Collaborative Units Award, 2011 College of Agriculture Dean's Grantsmanship Award, and 2010 Distinguished Young Agricultural Engineer Award from Alabama Section of ASABE. He currently serves as an Associate- Editor for the journal Transactions of ASABE and Applied Engineering in Agriculture published by the ASABE. He has published more than 55 peer-reviewed journal articles, and 4 book chapters in the field of bioenergy and biofuels. He is currently supervising the research of 8 graduate students (7 Ph.D. students, 1 Master's student), 2 visiting scholars, 1 post-doc and 1 undergraduate student. He is also the director of NSF-REU Biofuels program, which will train 33 undergraduate students in 3 years.