2010 Fall AIChE Annual Conference – CACS Banquet

"Coal Combustion and Carbon Capture"

Keynote Speaker: JoAnn Slama Lighty

Department Chair, Chemical Engineering Department, University of Utah

Time: 6:00 – 8:30 PM, November 9th, 2010

Location: Golden Phoenix Chinese Restaurant
1084 South State Street
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JoAnn Slama Lighty is currently Chair and Professor, Department of Chemical Engineering, University of Utah. She has been at the University of Utah since 1988 and has previously held several administrative positions, including Associate Dean for the College of Engineering. In this capacity she was involved with outreach to K-12 students, ABET accreditation for the College of Engineering, and other curriculum issues. She has received the University of Utah Diversity Award, the SWE Distinguished Engineering Educator Award, the Linda Amos Distinguished Service Award to Women, and the Utah Engineering Council Engineering Educator of the Year Award. Last year she was elected as Fellow of AIChE.

Dr. Lighty's research at the University of Utah has been in area of combustion, specifically the formation of fine particles from combustion systems, mercury from coal combustion, and soot formation and oxidation. Recently, her work has focused on oxy-fuel combustion and chemical looping for carbon capture.

The presentation will discuss on-going research at the University of Utah, Institute for Clean and Secure Energy, investigating coal combustion and carbon capture. Even though alternative energy sources are currently being utilized in electricity generation, the past emphasis on generation using coal will likely result in the continued use of coal for some time. However, the use of coal requires technology implementation for carbon capture. Several technologies exist for capture including those looking at post-

combustion capture (carbon dioxide is separated from the flue gas); pre-combustion capture (e.g. gasification); oxyfuel combustion; and, other emerging technologies (e.g. chemical looping). An overview will be presented on the research work at Utah on gasification, oxyfuel combustion, and chemical looping, with focus on chemical looping with oxygen uncoupling (CLOU). CLOU involves the coupling of an air reactor and a fuel reactor. In the air reactor, a metal oxygen carrier is oxidized, while in the fuel reactor, the oxide is reduced, releasing oxygen for combustion with the fuel. In our case, the metal oxide is copper oxide. The advantages and disadvantages of CLOU will be discussed in the context of process model, air and fuel reactor kinetics.