

Seminar

Topic: CO₂ Capture with Ionic Liquids: Reaction Enthalpy,
Viscosity and Effect of Water

Speaker: Prof. Joan F. Brennecke

Director, Center for Sustainable Energy at Notre Dame,
Visiting Professor of the CAS

Date & Time: 9:00 (am) Sep. 26, 2011 (Monday)

Venue: Multi-function Room, IPE Mansion



Introduction

Professor Brennecke was graduated from University of Texas in 1984, and received her M.S. and Ph.D in the University of Illinois. Her research interests focus on supercritical fluid technology, ionic liquids, thermodynamics, spectroscopic methods, phase equilibrium under extreme conditions, environmentally benign chemical processing. She won the Julius Steigltz Award in 2008 and J.M. Prausnita Award in 2007. She was Editorial Advisory Board of Green Chemistry and the Journal of Chemical Thermodynamics.

See more details: <http://www.nd.edu/~jfb/index.htm>

Abstract

Ionic liquids (ILs) show great potential for removal of carbon dioxide from a wide variety of different gas mixtures, including post-combustion flue gas, pre-combustion gases, air, and raw natural gas streams. We will discuss three major issues related to anion-functionalized ionic liquids that react with CO₂. First, we will show how the reaction enthalpy can be tuned by appropriate choice of substituents on the anion. Second, we will show how design of the anion can influence the changes in viscosity when the ILs react with CO₂. Finally, we will examine the influence of water on both the CO₂ capacity and the viscosity. In particular, we are interested in the influence of water on the reaction chemistry.