

# Seminar

**Topic:** Overview of Large-scale Gasification Technology and CO<sub>2</sub> Separation from the Small-scale Gasifier

**Speaker:** Prof. Hyungtaek Kim, Ph.D. adjunct professor of IPE, Div. of Energy Systems, Ajou University, S. Korea

**Date & Time:** 2:00-4:00 (pm) Mar, 1, 2012 (Thursday)

**Venue:** Meeting Room 312, IPE Mansion



## Abstract

During the lecture, overview of gasification technology will be covered. I will discuss the basic principle, various processes of gasifier and feedstock (input/output material of current gasifier technology. I also discuss the commercial application of gasifier technology with the examples of chemical production (Eastman Chemical), power generation (Tampa electric and Wabash River) and SNG production (Great Plains)

Second part of the lecture, I will introduce the on-going project of selective CO<sub>2</sub> separation experiment in our laboratory. In this study, Zeolite absorbent which has property of uniform pore structure and high specific surface area are used to develop new material that selectively absorbs CO<sub>2</sub> from the mixture of CH<sub>4</sub> and CO<sub>2</sub>. The specific surface and pore size of absorbent are examined through BET analysis, XRD is also used to observe the structure of absorbent. During the experiment, on-line measurements are carried out with gas analyzer (MRU delta 1600-s) to determine the gas concentrations of CO<sub>2</sub> and CH<sub>4</sub>. Several manufacturing methods are tried such as different organic and inorganic binder to find the best CO<sub>2</sub> separating performance from the fuel gas produced in the small-scale gasifier.