Seminar

High Temperature Membranes for Carbon Dioxide Capture

by

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Abstract

Electricity generation from fossil fuels results in emission of carbon dioxide into atmosphere causing global warming. The challenge is how to effectively capture carbon dioxide before other alternative non-fossil energy resources are developed to replace the fossil fuels. There are three strategies to capture carbon dioxide from power plants burning fossil fuels: post-combustion carbon dioxide removal, pre-combustion carbon removal and oxyfuel combustion processes. High temperature inorganic membranes will play a critical role in these processes. The presentation will discuss inorganic membranes perm-selective to hydrogen or carbon dioxide for applications in pre- and post-combustion carbon dioxide capture processes. The talk will focus on a new dual-phase membrane that permeates only carbon dioxide and a highly stable zeolite membrane perm-selective to hydrogen at high temperatures. Recent results obtained in our laboratory will be presented to show the unique transport characteristics and potential applications of these membranes for carbon dioxide capture at high temperatures.

Short Biosketch

Jerry Y.S. Lin is a Regents’ Professor at Arizona State University. He was department chair of chemical engineering at ASU from 2006-2009 after his 13 year appointment as a faculty member at University of Cincinnati. Dr. Lin’s main research areas are membrane science, adsorption and energy storage. He has published over 250 refereed journal papers and 60 book chapters and conference proceeding papers, and is an inventor of 8 US and European patents. His papers have been cited more than 12,000 times. Dr. Lin received several awards including AIChE Institute Award for Excellence in Industrial Gas Technologies in 2009, and is a fellow of both American Association for Advancement of Science (AAAS) and American Institute of Chemical Engineers (AIChE). He has also been recognized by distinguished visiting professorships such as JSPS fellow (Tokyo University), Cheung-Kong Distinguished Professor (Tianjin University), Piercy Distinguished Visiting Professor (University of Minnesota), and Qianren Distinguished Visiting Scientist (State Grid Corp of China). Dr. Lin has been an editor of Journal of Membrane Science since 2008.

Date : 9 March 2015 (Monday)
Time : 10:00am
Venue : Room 1504 (Lift 25-26)