

学术报告

Zeolite Membranes for Carbon Dioxide Capture

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报告人简介

Jerry Y.S. Lin is 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.

He has published over 270 refereed journal papers and 60 book chapters and conference proceeding papers, and is an inventor of 9 US and European patents. He is among the most cited authors in chemical engineering field according to Elsevier. 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 been Editor of Journal of Membrane Science since 2008.



报告摘要

Electricity generation from fossil fuels results in emission of carbon dioxide into atmosphere causing global warming. 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. This presentation will discuss a highly stable microporous zeolite membrane perm-selective to hydrogen at high temperatures. This zeolite membrane contains essentially pure silica, with crystalline pores narrowed selectively by a chemical vapor deposition method. The zeolite membrane shows high hydrogen permeance and good selectivity for hydrogen over carbon oxides and water vapor, as well as unprecedentedly high thermal and chemical stability. Application of the zeolite membrane in a membrane reactor for water gas shift reaction for hydrogen production and carbon dioxide capture will be also discussed in the presentation.



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