

DEPARTMENTAL SEMINAR

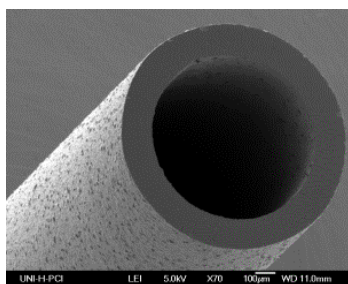
DEPARTMENT OF CHEMICAL AND BIOMOLECULAR
ENGINEERING
FACULTY OF ENGINEERING
National University of Singapore
4 Engineering Drive 4 Singapore 117576
Tel: (65) 6516 2186 Fax: (65) 6779 1936



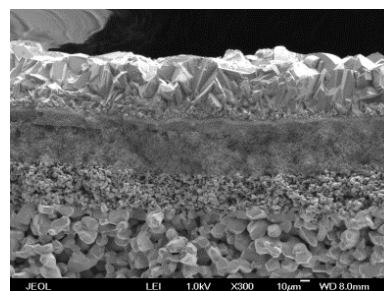
TOPIC	Novel Inorganic Membranes for Gas Permeation
SPEAKER	Prof J. Caro
HOST	Prof Hong Liang
DATE	25th February 2009 (Wednesday)
TIME	3pm
VENUE	E5-02-32 , Faculty of Engineering, National University of Singapore NUS Campus Map & NUS: Faculty of Engineering

SYNOPSIS

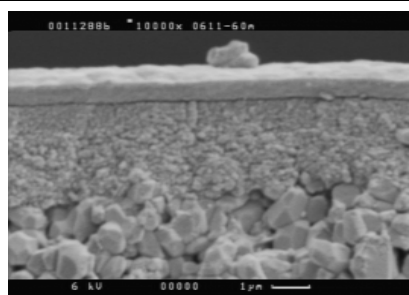
Porous inorganic membranes have exhibited great potential in precise gas separation processes of several molecular mixtures (e.g. CO₂/CH₄ gas mixture) in recent years. Moreover, these membranes have relatively good chemical and thermal stability required in severe atmosphere. In this seminar, 5 different types of membranes, which are near to industrial realization, will be discussed. They are namely: Perovskite membrane, Zeolite, Metal (Pd), Carbon membrane and sol-gel membrane. In addition, the principles of their preparation and characterizations will be elaborated. The following figures illustrate some of our research work that has been carried out:



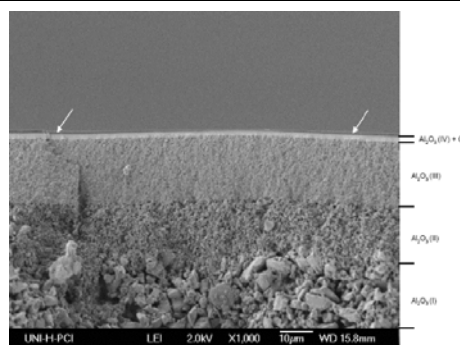
Perovskite hollow fiber membrane, used for oxygen separation from air and fabricated from Ba (Co,Fe,Zr)_{3-δ} by a spinning process



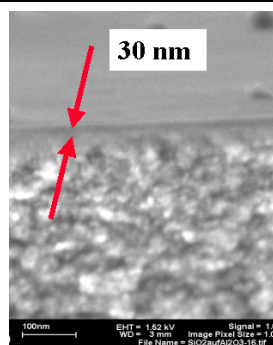
Supported MFI zeolite layer (ZSM-5 and silicalite) grown on a non-symmetric alumina support by secondary growth of seed crystals



Thin (0.6 µm) Pd layer grown by current-less plating on an alumina support using a 2-step preparation technique with Sn²⁺ and hydrazine as reduction means



Carbon layer of 1 µm obtained by pyrolysis of a polymer blend on a titania support



Extremely thin layer (30 nm) of SiO₂ sol-gel layer on a support

BIOGRAPHY



J. Caro is a full professor and the director of the Institute of Physical Chemistry and Electrochemistry at the University of Hannover since 2001. He served as the President of the German Catalysis Society in 2005 and 2006. He is also a member of the Board of Directors of the German Membrane Society and a speaker of the Lighthouse Project for the German Research Ministry (with 12 partners from industry and academic community). Prof Caro has published over 190 papers and is currently having 38 patents under his name. He is also a member of the Editorial Boards of 5 established journals, including *Advanced Materials*, *Micropor. Mesopor. Materials* and *Catalysis Communications*.

ALL ARE WELCOME

Please visit our website for more details, <http://www.chbe.nus.edu.sg/>

Rita Bleeme (Ms) :: Management Assistant Officer :: National University of Singapore :: Department of Chemical & Biomolecular Engineering :: Faculty of Engineering :: No. 4 Engineering Drive 4, :: E5 - 02 - 09 :: Singapore 117576 :: 65-65163044 (DID) :: 65-67791936 (FAX) :: cherm@nus.edu.sg :: (E) www.nus.edu.sg (W) :: Company Registration No. 200604346E

Important: This email is confidential and may be privileged. If you are not the intended recipient, please delete it and notify us immediately; you should not copy or use it for any purpose, nor disclose its contents to any other person. Thank you.