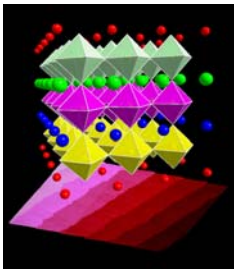
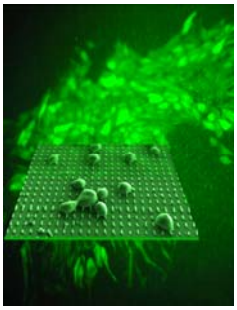
CNMS DISCOVERY SEMINAR SERIES





Joint Meeting with the

CHEMICAL SCIENCES DIVISION

Tuesday, May 29, 2007
11:00 am
Iran Thomas Auditorium, 8600

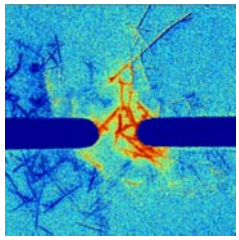
"UV Raman Spectroscopy and Its Applications in the Characterizations of Catalytic Materials"

Professor Can Li

State Key Laboratory of Catalysis
Dalian Institute of Chemical Physics
Chinese Academy of Sciences
Dalian, CHINA

Abstract:
UV Raman spectroscopy is becoming a powerful characterization technique for chemistry, physics, biology, materials science as well as many other fields, mainly because it can avoid the fluorescence interference occurred in visible Raman spectra and concurrently can enhance the Raman signal owing to the short wavelength of the excitation laser and resonance Raman effect. This opens up the possibility for Raman spectroscopy to characterize materials with fluorescence interference, particularly nanomaterials, such as metal oxides, microporous and mesoporous materials, and functional materials under working conditions.

This lecture presents a brief introduction of UV Raman spectroscopy and focuses on the recent advances in the characterizations of catalytic materials using the UV Raman spectroscopy, including the characterization of carbon species on catalysts, transition metal oxides highly dispersed at atomic, molecular as well as nano scales; metal ions incorporated in the framework of microporous and mesoporous materials; the synthesis mechanism of porous materials; and the surface phase evolution of metal oxide materials in the preparation process. Furthermore, the Raman spectroscopic characterization is well correlated with the catalytic performance.



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Center for Nanophase Materials Sciences

Professor Can Li

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PhD degree from Dalian Institute of Chemical Physics in 1988
Post-doc fellow and visiting professor at:
Tokyo Institute of Technology, Japan;
Northwestern University, USA;
The University of Liverpool, UK;
Université Pierre et Marie Curie, Paris VI, France ;
Full professor in Dalian Institute of Chemical Physics since 1993;
Director of State Key Laboratory of Catalysis since 1998;
Elected to a member of the Chinese Academy of Sciences in 2003;
Vice President of the International Association of Catalysis Societies since 2004;
Elected to a member of the Academy of Sciences for Developing World in 2005;
Chairman of the Catalysis Society of China since 2005;
On the editorial boards of 7 international journals, e.g., J. Catal., J. Mol.Catal., etc.

Research area: Physical Chemistry, Catalysis, Applied Spectroscopy

Can Li has studied catalysis at molecular level and making effort to reveal the essential relationship between catalytic performance and catalyst structure, and applied these understandings of the fundamental principles of catalysis to the design and development of more selective and active catalysts for practical applications in energy, fine chemicals and environmental areas.

He has published more than 300 peer-reviewed papers, authorized 20 patents and delivered more than 50 invited and plenary lectures at national and international conferences. Under his supervision, about 35 graduate students have obtained their MS and PhD degrees. Among the prestigious awards he received are National Award for Outstanding Young Scientists in China; Hong Kong “Qiu-Shi” Outstanding Young Scientist Award; International Catalysis Award; HoLeungHoLee Prize, etc.