

## **10 Anniversary Celebration: Setup of the “Distinguished Young Scientist Foundation” by the Natural Science Foundation of China**

An academic forum was organized by the Natural Science Foundation of China, taking place on October 19 - 20, 2004 in Beijing, in order to celebrate the 10 anniversary for the setup of the “Distinguished Young Scientist Foundation”. 5 plenary lectures on “Dynamics and Prospects of NBIC Cross Fields” presented the development of Nano- Bio – Info – Congi these four fields and the breakthroughs and opportunities they may bring due to their interaction. There were 90 invited lectures given at 7 sessions in parallel on:

The Frontiers of Bionomy and Human Health in 21 Century;

Information Science and Network Technology;

Advanced Materials;

Sustainable Resources, Environment and Ecology;

The Frontiers of Engineering;

The Frontiers of Basic Sciences 1

The Frontiers of Basic Sciences 2.

The forum provided a platform for scientific exchange on the frontiers of various fields, in particular the very recent development and strategy study of these fields. There were more than 500 Distinguished Young Scientists attending the forum.

*Prof. Xinhe Bao* won the “Distinguished Young Scientist Foundation” in 1995 and he was invited to give a lecture on “Nano basis for catalytic properties of metal particles” in the session of “Sustainable Resources, Environment and Ecology”. Prof. Bao introduced main work on “Nano” in this group, on the preparation and characterization of nano catalysts, and their catalytic evaluation, in particular on the stability of the nano particles under the reaction conditions. Nano silver particles supported on SiO<sub>2</sub> have been studied as catalysts for the selective oxidation of CO in excess hydrogen at low temperatures. Also nano silver particles have been shown a high activity in the activation of methane at low temperatures when they are highly dispersed inside the channels of SBA-15. Bimetallic catalyst Rh-Mn completely covered inside a shell of SiO<sub>2</sub> has been prepared by emulsion technique. This bimetallic catalyst has been studied in the hydrogenation of CO to form C<sub>2</sub> oxygenates. Different surface characterization techniques such as STM/AFM, EELS, PEEM and DFT theoretical simulation have been applied to study the structure, electron properties and particle size and correlation with the surface adsorption and surface reaction properties. By doing so, we have gained significant knowledge on the role of the subsurface oxygen species in the selective oxidation in the metallic silver catalyst systems, the formation and dynamics of subsurface oxygen species and the particle size of silver. These achievements can be glimpsed in selected recent publications:

1. Jianqin Zhuang and Xinhe Bao et. al., In-situ Magnetic Resonance Investigation on the Mechanism of Styrene Oxidation over TS-1 Zeolites , *Angew. Chem.-Int. Edit.*, in press
2. Weixin Huang and Xinhe Bao, On the Propagation Rate of the Chemical Waves Observed during the Course of CO Oxidation on a Ag/Pt(110) Composite Surface , *J. Phys. Chem.B*, 108(2004) 8390-8396
3. Gang Hu and Xinhe Bao et. al., In-Situ Assembly of Zeolitic Building Blocks into High-Order Structures , *Angew. Chem.-Int. Edit.*, 43(2004)3452-3456

4. He Zhang and Xinhe Bao et. al., Unusual Mesoporous SBA-15 with Parallel Channels Running along the Short Axis , J. Am. Chem. Soc., 126(2004)7440-7441
5. Chuan Shi and Xinhe Bao et. al., Investigation on the Catalytic Roles of Silver Species in the Selective Catalytic Reduction of NO<sub>x</sub> with Methane, Appl. Catal. B-Environ., 51(2004) 171-181