The 3rd GCOE International Symposium Hokkaido University Global COE Program "Catalysis as the Basis for the Innovation in Materials Science"

Conference Hall, Hokkaido University (N8W5, Sapporo, Japan)

September 14th (Mon) 9:00-20:00, 2009 15th (Tue) 9:00-12:00

[SCOPE]

The transformation and syntheses of materials using catalysts are key technologies that encompass the main fields in innovations of materials science. Continual research on catalysis has been vigorously conducted at eight schools and institutes in Hokkaido University, including the graduate school of engineering and the graduate school of science. These activities have achieved many pioneering results in the field of fundamental theory, surface analysis and design, and the development of practical catalysts and catalytic reactions. These successful achievements led to the selection in the "Global COE (Center of Excellence) program" of the Ministry of Education, Culture, Sports, Science and Technology, Japan in 2007, which continues till 2011. The title of the selected program is "Catalysis as the Basis for the Innovation in Materials Science".

In this program, twenty-two staff members in five schools are organized into the following four fields, aiming for effective advancement of fundamental research.

- a) Catalysis Theory and Analysis
- b) Catalyst Design
- c) Material Transformation
- d) Syntheses of Materials

The 3rd GCOE International Symposium: Beyond the Horizon of Materials Chemistry

As one of the activities of this program, an international symposium is held annually for establishing new concepts related to catalyst. This year's symposium will take place in Hokkaido University on September 14 and 15. The main topic of this year's symposium is "Beyond the Horizon of Materials Chemistry", an innovation of materials chemistry to find out a new field in nano-materials, nano-devices, mesoporous materials, oxynitride/chlocogenide glasses, solid state ionics, and sensors and so on.

This symposium is constituted by two types of presentations; one is lectures by celebrated pioneers and those by young researchers in Hokkaido University in the field of materials chemistry and the other is poster presentations by post doctoral fellows and graduate students. We hope and are quite confident that active discussions among the attendants in this symposium are sure to lead to the establishment of new concepts in materials science.

The 3rd GCOE International Symposium Hokkaido University Global COE Program

Catalysis as the Basis for the Innovation in Materials Science

- Beyond the Horizon of Materials Chemistry -

Conference Hall, Hokkaido University, Sapporo, Japan September 14-15, 2009

Day 1: Monday, September 14, 2009

OPENING REMARKS SESSION

- 8:10 Registration & Coffee Break
- 8:40 Opening Remarks

Each presentation includes 5-minutes Q&A

SESSION 1. Nano-materials-Inorganic solid

| 8:50 | Invited Lecture 1: |
|------|--|
| | "Non-oxide functional materials: (oxy)nitride ceramics and chalcogenide glasses" |
| | Dr. Franck Tessier (CNRS, University of Rennes, France) |
| 9:30 | Young Lecture 1: |
| | "Transport and magnetic properties of metal-rich chalcogenides" |
| | Associate Prof. Makoto Wakeshima (Hokkaido University, Japan) |
| 9:50 | Young Lecture 2: |
| | "Development of visible light driven photocatalysts for water-splitting and |
| | environmental purnication |
| | Associate Prof. Ryu Abe (Hokkaido University) |

- Coffee break -

SESSION 2. Nano-materials-Mesoporous

10:30 Invited Lecture 2:

"Porous silica as biomimetic catalytic nanoreactor" Prof. Chung-Yuan Mou (National Taiwan University, Taiwan)

11:10 Invited Lecture 3:

"Light-harvesting and photocatalysis of organic-inorganic hybrid mesoporous materials"

Dr. Shinji Inagaki (Toyota Central R&D Labs., Inc., Japan)

- Lunch -

| SESSION 3. Nano-structure | |
|---------------------------|---|
| 13:00 | Invited Lecture 4: |
| | "Current activities for nano-materials/structure measurement and characterization |
| | in AIST" |
| | Dr. Shingo Ichimura (Vice-President, National Institute of Advanced Industrial |
| | Science and Technology, Japan) |
| 13:40 | Invited Lecture 5: |
| | "New Frontier of Nanoionics" |
| | Prof. Shu Yamaguchi (University of Tokyo, Japan) |
| 14:20 | Invited Lecture 6: |
| | "TiO ₂ effect of catalysis based on carbon composite materials for electrochemical |
| | devices" |
| | Prof. Soo Gil Park (Chungbuk National University, Korea) |
| 15:00 | Young Lecture 3: |
| | "Synthesis and encapsulation property of unimolecular nanocapsule based on |
| | hyperbranched polymer" |
| | Associate Prof. Toshifumi Satoh (Hokkaido University, Japan) |

- Coffee break -

SESSION 4. Poster

15:40 Poster Parade

17:20 Poster Presentation

Graduate Students, Postdoctoral Fellows and Research Associates

- Banquet -

Day 2: Tuesday, September 15, 2009

8:30 Registration & Coffee Break

SESSION 5. Nano application

9:00 Invited Lecture 7:

"Wet fabrication process and functions of nano-structured metal oxides" Prof. Shigehito Deki (Kobe University, Japan)

9:40 Invited Lecture 8:
 "Electronic devices and sensors through self-assembly"
 Dr. Jatinder V. Yakhmi (Bhabha Atomic Research Centre, India)

- Coffee break -

- 10:40 Invited Lecture 9:
 - "Development of nano-structured TiO₂ for working electrodes in dye sensitized solar cells"

Prof. Yi-Bing Cheng, (Monash University, Australia)

- 11:20 Young Lecture 4:
 "Synchronic transformation of molecular states and macroscopic phases triggered by electron transfer processes" Associate Prof. Ho-Chol Chang (Hokkaido University, Japan)
 11:40 Young Lecture 5:
 "Remarkable oxygen intake/release capability of transition-metal oxides:
 - applications to oxygen-storage materials"

Associate Prof. Teruki Motohashi (Hokkaido University, Japan)

12:00 Closing Remarks, Symposium Ends

REGISTRATION IS FREE:

Contact: Tel & Fax 011-706-6788, E-mail: gcoechem@eng.hokudai.ac.jp

Organizing Committee

Professor Shinichi Kikkawa (Graduate School of Engineering) Professor Hiroki Habasaki (Graduate School of Engineering) Professor Tamotsu Inabe (Graduate School of Science) Professor Kei Murakoshi (Graduate School of Science) Professor Atsushi Fukuoka (Catalysis Research Center)