

**International Symposium and
the Third Iwasawa Conference on
*Catalysis and Surface Science for Efficient
Utilization of Carbon Resources and
Related Topics***

**December 2-5, 2011
Xiamen, China**



Organized by State Key Laboratory of Physical
Chemistry of Solid Surfaces, Xiamen University

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Program

Oral Presentation

Jiaxi Building 202, Xiamen University

Saturday, December 3, 2011

8:20 ~ 8:30 Opening Remarks

Chairs: Prof. Seong Ihl Woo and Prof. Zhongqun Tian

- 8:30-9:00 *In situ* characterization of active structures and elementary steps for selective catalysis under the working conditions**
Prof. Yasuhiro Iwasawa (*The Univ. of Electro-Communications, Japan*)
- 9:00-9:30 Bimetallic single crystal catalyst studies for selective hydrocarbon conversion**
Prof. Bruce E. Koel (*Princeton Univ., USA*)
- 9:30-9:50 *In situ* time-resolved XAFS studies on the formation and the oxidation of PdZn nanoparticles**
Dr. Yohei Uemura (*KEK PF, Japan*)
- 9:50-10:10 Formation of active Si species on solid acid surfaces for catalytic allylsilylations**
Assoc. Prof. Ken Motokura (*Tokyo Institute of Technology, Japan*)

10:10 ~ 10:30 Group Picture & Tea Break

Chairs: Prof. Takehiko Sasaki and Prof. Wenjie Shen

- 10:30-11:00 Metal nanocatalysts of high surface energy and their excellent property**
Prof. Shigang Sun (*PCOSS, Xiamen Univ., China*)
- 11:00-11:20 Formation of atomically dispersed Cu on a TiO₂(110) surface**
Assoc. Prof. Satoru Takakusagi (*CRC, Hokkaido Univ., Japan*)
- 11:20-11:40 Propane oxidation MoVTaNbO_x catalyst: Determination of the V atom distribution from simulations**
Assoc. Prof. Gang Fu (*PCOSS, Xiamen Univ., China*)
- 11:40-12:00 High-precision active surface modeling of heterogeneous Ziegler-Natta propylene polymerization catalysts**
Assis. Prof. Toshiaki Taniike (*Japan Advanced Institute of Science and Technology, Japan*)

12:00 ~ 14:00 Lunch Break

Chairs: Prof. Yasuhiro Iwasawa and Prof. Jie Fan

- 14:00-14:30 Hydrodeoxygenation of biofuel model compounds on transition metal phosphides**
Prof. S. Ted Oyama (*Virginia Polytechnic Institute and State Univ., USA*)
- 14:30-14:50 Surface structure and reactivity of Ni₂P surfaces**
Assis. Prof. Hiroko Ariga (*CRC, Hokkaido Univ., Japan*)
- 14:50-15:10 New generation of catalysts for the technology of Coal to EG**
Prof. Yuangen Yao (*Fujian Institute of Research on the Structure of Matter, CAS, China*)
- 15:10-15:25 Low-temperature selective hydrogenation of dimethyl oxalate to methyl glycolate over AuAg/SBA-15 bimetallic catalyst**
Assis. Prof. Haiqiang Lin (*PCOSS, Xiamen Univ., China*)
- 15:25-15:45 Sulfonated copolymers with SO₃H and COOH groups for the hydrolysis of polysaccharides**
Prof. Xindong Mu (*Qingdao Institute of Bioenergy and Bioprocess Technology, CAS, China*)
- 15:45-16:05 Palladium-catalyzed aerobic oxidation of 1-phenylethanol with an ionic liquid additive**
Assoc. Prof. Yanhui Yang (*Nanyang Technological Univ., Singapore*)
- 16:05-16:20 Steam reforming of methane on Ni-loaded perovskite NaCeTi₂O₆**
Dr. Shenhong Zhang (*Institute for Molecular Science, Japan*)
- 16:20-16:40 Preparation and characterization of highly dispersive gold nanocatalysts**
Prof. Mingshu Chen (*PCOSS, Xiamen Univ., China*)

16:40 ~ 18:00 Poster Session & Tea Break

(The first floor hall, Jiayi Bld.)

18:00 ~ Banquet

Sunday, December 4, 2011

Chairs: Prof. S. Ted Oyama and Prof. Ye Wang

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|-------------------|---|
| 8:30-9:00 | Sustainable catalysis for energy and resources — Glycerol utilization & solar fuel
Prof. Seong Ihl Woo (<i>Korea Advanced Institute of Science and Technology, South Korea</i>) |
| 9:00-9:20 | Catalytic conversion of cellulose into polyols
Prof. Haichao Liu (<i>Peking Univ., China</i>) |
| 9:20-9:40 | Catalytic chemicals production from biomass-related compounds using high-temperature water and high-pressure carbon dioxide
Dr. Masayuki Shirai (<i>Natinal Institute of Advanced Industrial Science and Technology, Japan</i>) |
| 9:40-9:55 | Polyoxometalate-supported Ru nanoparticles as efficient catalysts for conversions of cellobiose and cellulose to sorbitol in H₂O in H₂
Dr. Weiping Deng (<i>NELAA, Xiamen Univ., China</i>) |
| 9:55-10:10 | Performance and structure of ReO_x-modified Rh and Ir in the hydrogenolysis of cyclic ethers to α,ω-diols
Mr. Kaiyou Chen (<i>Tohoku Univ., Japan</i>) |

10:10 ~ 10:30 **Tea Break**

Chairs: Prof. Hiroshi Onishi and Prof. Haichao Liu

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|-------------|--|
| 10:30-11:00 | Highly selective Fischer-Tropsch catalysts based on mesoporous zeolite and carbon nanotubes
Prof. Ye Wang (<i>PCOSS, Xiamen Univ., China</i>) |
| 11:00-11:20 | Steam reforming of tar from biomass pyrolysis over Ni/Mg/Al catalysts prepared from hydrotalcite-like precursors
Assis. Prof. Dalin Li (<i>Tohoku Univ., Japan</i>) |
| 11:20-11:35 | <i>In-situ</i> time-resolved XAFS study on Pt-Co/C fuel cell catalyst
Mr. Nozomu Ishiguro (<i>Institute for Molecular Science, Japan</i>) |
| 11:35-11:55 | Photo-induced transformation of O₂ to metal-peroxide linkages on the surface of cubic lanthanide sesquioxides
Prof. Weizheng Weng (<i>PCOSS, Xiamen Univ., China</i>) |

12:00 ~ 14:00 **Lunch Break**

Chairs: Prof. Kenji Hara and Prof. Weizheng Weng

- 14:00-14:30 Morphology-dependent nanocatalysis on metal oxides**
Prof. Wenjie Shen (*Dailian Institute of Physical Chemistry, China*)
- 14:30-14:50 Tracking single molecular diffusion at oxide-water interfaces: Molecular diffusion in supported lipid bilayers on TiO₂(100)**
Assis. Prof. Ryugo Tero (*Toyohashi University of Technology, Japan*)
- 14:50-15:05 Tuning the shape of gold particles by doping the oxide support**
Dr. Xiang Shao (*FRITZ-HABER Institute Berlin, German*)
- 15:05-15:20 The propane ammoxidation over MoVTaNbO catalysts with trigonal structure**
Assoc. Prof. Xiaodong Yi (*PCOSS, Xiamen Univ., China*)
- 15:20-15:40 Dynamics of doped NaTaO₃ photocatalysts**
Prof. Hiroshi Onishi (*Kobe Univ., Japan*)
- 15:40-16:00 Optimizing metal nanoparticle catalysts operating at high temperature**
Prof. Jie Fan (*Zhejiang Univ., China*)

16:00-16:20 Tea Break

Chairs: Prof. Satoru Takakusagi and Prof. Youzhu Yuan

- 16:20-16:50 Densely packed monolayer of Rh-diisocyanide on gold surface as recyclable catalyst for hydrogenation of enones**
Assoc. Prof. Kenji Hara (*CRC, Hokkaido Univ., Japan*)
- 16:50-17:10 Metallosiloxanes: From structural model to real catalyst**
Prof. Hongping Zhu (*PCOSS, Xiamen Univ., China*)
- 17:10-17:30 Nano cobalt oxides: Preparation and application to catalytic reactions**
Assoc. Prof. Takehiko Sasaki (*Tokyo Univ., Japan*)
- 17:30-17:50 Small adsorbates control the surface structure and catalysis of noble metal nanocrystals**
Prof. Nanfeng Zheng (*PCOSS, Xiamen Univ., China*)

18:00 ~ Dinner

Poster session

The first floor hall, Jiaxi Building, Xiamen University

16:40 ~ 18:00, Saturday, December 3, 2011

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P02	44	<u>Zhenyan Tang</u> , Mingshu Chen	Growth and chacterization of ultrathin manganese oxide layers on Rh(111)
P03	45	<u>Xuefei Weng</u> , Mingshu Chen	A kinetic study of catalytic combustion of CH ₄ over Pt and Pd foil
P04	46	<u>Weikun Lai</u> , Weiping Fang	Efficient one-pot synthesis of NiMo-containing mesoporous alumina for thiophene hydrodesulfurization
P05	47	<u>Juanjuan Li</u> , Weiping Fang	Hydrodemetallation (HDM) of Ni-TPP over NiMo/ γ -Al ₂ O ₃ catalyst prepared by one-pot method with controlled precipitation of the components
P06	48	<u>Jinbao Zheng</u> , Weiping Fang	Promoting effect of boron with high loading on Ni-based catalyst for hydrogenation of thiophene-containing ethylbenzene
P07	49	<u>Gang Fu</u>	Mechanisms for selective catalytic oxidation (SCO) of ammonia over vanadium oxides
P08	50	<u>Chuanjing Huang</u>	Oxidative dehydrogenation of propane to propene over NiO-Al ₂ O ₃ mesoporous materials prepared by one-pot synthesis
P09	51	<u>Yunhe Cui</u> , Jingdong Lin	Citric acid Sol-Gel preparation of Cu _i Co _j -SiO ₂ catalysts for higher alcohols synthesis from carbon monoxide hydrogenation
P10	52	<u>Yijun Jiang</u> , Xindong Mu	Acid functionalized, highly dispersed carbonaceous spheres:an effective solid acid for hydrolysis of polysaccharides

No.	Page	Author	Title
P11	53	<u>Xicheng Wang</u> , Xindong Mu	Efficient conversion of microcrystalline cellulose to 1,2-alkanediols over supported Ni catalysts
P12	54	<u>Honghui Wang</u> , Shigang Sun	Synthesis of platinum-gold nanoparticle netlike assembly and its enhanced ORR catalytic activity
P13	55	<u>Qiang Wang</u> , Shigang Sun	Study of a non-precious metal ORR electrocatalyst for fuel cell application
P14	56	<u>Kang Cheng</u> , Ye Wang	Ruthenium nanoparticles on modified zeolite beta as efficient fischer-tropsch catalysts for the production of C ₅ -C ₁₁ isoparaffins
P15	57	<u>Wenqing Fan</u> , Ye Wang	CdS-graphene and CdS-CNT composites as visible-light photocatalysts for hydrogen evolution and organic dye degradation
P16	58	<u>Qingge Zhai</u> , Ye Wang	Significant synergistic effects between supported ruthenium and copper oxides for propylene epoxidation by oxygen
P17	59	<u>Ting Xu</u> , Ye Wang, Qinghong Zhang	A novel two-step route for the conversion of methane to propylene catalyzed by modified CeO ₂ nanocrystals and zeolites
P18	60	<u>Jiashu Chen</u> , Qinghong Zhang, Ye Wang	Size effects for the hydrotalcite-supported gold-catalyzed aerobic and anaerobic dehydrogenation of benzyl alcohol
P19	61	<u>Lei Shi</u> , Weizheng Weng	Synthesis of ordered mesoporous SiO ₂ with isolated VO _x and TeO _x moieties — A multifunctional catalyst for selective oxidation of propane to acrolein
P20	62	<u>Yuhui Hou</u> , Wensheng Xia	Preparation of nano-lanthanum oxide for oxidation coupling of methane: an investigation on solvents
P21	63	<u>Jin Chen</u> , Youzhu Yuan	Efficient alcoholysis of cellubiose and cellulose with recyclable gelated-PVP catalysts under mild conditions
P22	64	<u>Xinping Duan</u> , Youzhu Yuan	Enhanced catalytic performance of Cu-SiO ₂ by adding carbon nanotubes for hydrogenation of dimethyl oxalate to ethylene glycol

No.	Page	Author	Title
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P24	66	<u>Yanan Wang</u> , Youzhu Yuan	Enhancing performance of supported Cu catalysts with gold for selective hydrogenation of dimethyl oxalate to ethylene glycol
P25	67	<u>Jianwei Zheng</u> , Youzhu Yuan	Effects of silver nanoparticle size of Ag/SBA-15 catalysts on catalytic hydrogenation of dimethyl oxalate
P26	68	<u>Jing Hou</u> , Hongbin Zhang	Effect of Mn-additive on performance of Ni _i Mo _j K _k -based catalyst for higher alcohol synthesis from syngas
P27	69	<u>Menghui Zhang</u> , Hongbin Zhang	Pd-decorated CNT-promoted Cu-ZrO ₂ catalyst for CO ₂ hydrogenation to methanol
P28	70	<u>Guangxu Chen</u> , Nanfeng Zheng	Direct synthesis of ternary alloy PtNiFe with superior activity for CO oxidation
P29	71	<u>Binghui Wu</u> , Nanfeng Zheng	Alkylamine-capped Pt ₃ Co nanocatalysts for chemoselective hydrogenation of cinnamaldehyde: more greasy, more selective
P30	72	<u>Maolong Chen</u> , Zhaohui Zhou	Catalysts for oxidative coupling of methane via highly water-soluble lanthanum citrate
P31	73	<u>Qiongxin Liu</u> , Zhaohui Zhou	Hydroxylation of phenol with octadentate peroxo cyclohexanediaminetetraacetato titanate
P32	74	<u>Jinjin Wan</u> , Hongping Zhu	CuOSi silica support-like compounds: synthesis, structure, and catalytic property
P33	75	<u>Tao Zhu</u> , Hongping Zhu	The NNP-ligand metal catalysts for ethylene polymerization with a broad MWD