

# **The 5<sup>th</sup> China-Japan Workshop on Environmental Catalysis and Eco-materials**

*—Progress in Catalysis and Materials for Low-carbon Energy*

*Development and Environment Quality Control —*

*November 28-29, 2011, Shanghai, China*

**Conference site;** Xuhui H Hotel, Shanghai (上海徐汇和颐酒店; 徐汇区漕宝路 124 号)

## **Organizers (Contact persons);**

China side; Prof. Wenfeng Shangguan (Shanghai Jiao Tong University)

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**Registration fee;** 900 RMB (Chinese Participants) 12,000 JPY (Japanese Participants)

Registration fee covers participation in the Workshop and conference items.

## **Full paper submission;**

Proceedings of the Workshop will be published after a regular scientific review as a special issue of *Catalysis Today* which will comprise no more than 30 papers. The submission of a manuscript is optional, but all the authors of both oral and poster presentations are requested to report their will of submission on their registration. The deadline for all papers to be submitted to the Elsevier Editorial System (EES) is January 15, 2012. Details will be informed from Guest Editors after the Workshop.

## Program

Invited Lecture; 50 min including discussion

Oral Presentation; 20 min (presentation, 15 min; discussion, 5 min)

### November 27 (Sunday), 2011

13:00-22:00 Registration at Xuhui Heyi Hotel, Shanghai

### November 28 (Monday), 2011

8:30-8:40 **Opening Remarks**

#### Plenary Session 1

(Chair: Prof. Hong He, Research Center for Eco-Environmental Sciences, CAS)

8:40-9:30 **High Dimensionally Structured Complex Metal Oxide Materials as Highly Efficient Catalysts**

PL-1

Wataru Ueda (*Hokkaido University; Japan*)

9:30-10:00 **Coffee Break**

#### Oxidation Catalysis 1

(Chair: Prof. Atsushi Satsuma, Nagoya University)

10:00-10:20 **Efficient Oxidative Degradation of Volatile Organic Compounds on Pt/CeO<sub>2</sub>/ZSM-5 Composite Catalyst**

O-01

Kojirou Fuku, Masahiko Goto, Takashi Kamegawa, Kohsuke Mori, Hiromi Yamashita (*Osaka University; Japan*)

10:20-10:40 **The Distinguished Roles with Various Vanadium Loadings of CoCr<sub>2-x</sub>V<sub>x</sub>O<sub>4</sub> (x = 0-0.20) for Methane Combustion**

O-02

Jinghuan Chen, Junhua Li (*Tsinghua University; China*)

10:40-11:00 **Comparative Study of CO Oxidation Activities over Pt/Ce-Zr Oxide and Pt/Al<sub>2</sub>O<sub>3</sub> Catalysts**

O-03

Naoto Kamiuchi, Masaaki Haneda, Masakuni Ozawa (*Nagoya Institute of Technology; Japan*)

#### Oxidation Catalysis 2

(Chair: Prof. Hong He, Beijing University of Technology)

11:00-11:20 **Catalytic Oxidation of Light Hydrocarbons over Pt/ZrO<sub>2</sub>**

O-04

Masaaki Haneda<sup>1</sup>, Magali Bonne<sup>2</sup>, Daniel Duprez<sup>2</sup>, Masakuni Ozawa<sup>1</sup> (<sup>1</sup>*Nagoya Institute of Technology; Japan*, <sup>2</sup>*CNRS-Université de Poitiers*)

11:20-11:40 **Complete Catalytic Oxidation of *o*-Xylene over MnO<sub>x</sub> Prepared Using a Redox-Precipitation Method**

O-05

Yinsu Wu, Xiaolei Yin, Zichuan Ma, Shengtao Xing (*Hebei Normal University; China*)

11:40-12:00 **Toluene Combustion and Oxygen Storage Capacity of Surface Modified CeO<sub>2</sub>-ZrO<sub>2</sub> Catalyst**

O-6

Masakuni Ozawa<sup>1</sup>, Hiroki Yuzuriha<sup>1</sup>, Masatomo Hattori<sup>1,2</sup>, Masaaki Haneda<sup>1</sup> (<sup>1</sup>*Nagoya Institute of Technology; Japan*, <sup>2</sup>*Nagoya University*)

12:00-13:30 **Lunch**

### Catalysis for Energy Applications 1:

(Chair: Prof. Hiromi Yamashita, Osaka University)

- 13:30-13:50 **Sustainable Production of Acrolein: Performance of Hydrated Tantalum Oxide Catalyst for Gas-phase Dehydration of Glycerol**  
O-07  
Li-Zhi Tao, Bo Yan, Yu Liang and Bo-Qing Xu (*Tsinghua University, China*)
- 13:50-14:10 **Study on Factors Controlling the Catalytic Activity of Cu-based Catalysts for Water Gas Shift Reactions**  
O-08  
Kunimasa Sagata, Kenta Oka, Naotoshi Imazu, Hiroyuki Yamaura, Syuhei Yamaguchi, and Hidenori Yahiro (*Ehime University; Japan*)
- 14:10-14:30 **Catalytic Decomposition of Sulfuric Acid over Metal Oxides as an Oxygen-Generating Reaction for Solar Thermochemical Water Splitting**  
O-09  
M. Machida<sup>1</sup>, N. Hayashida<sup>1</sup>, T. Kawada<sup>1</sup>, S. Hebishima<sup>1</sup>, K. Ikeue<sup>1</sup>, S. Takeshioma<sup>2</sup>  
(<sup>1</sup>*Kumamoto University; Japan*, <sup>2</sup>*Toyota Motor Cooperation*)

### Catalysis for Energy Applications 2:

(Chair: Chair: Prof. Zhen Zhao, China University of Petroleum)

- 14:30-14:50 **Dye-sensitized Reduced Graphene Oxide Photocatalyst for High Efficient Visible Light Hydrogen Evolution**  
O-10  
Gongxuan Lu (*Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences; China*)
- 14:50-15:10 **Long-term Stability of Pt-based Bimetallic Catalyst Supported on Alumina for Catalytic Combustible Hydrogen Gas Sensor**  
O-11  
Maiko Nishibori<sup>1,2</sup>, Ichiro Matsubara<sup>2</sup>, Woosuck Shin<sup>2</sup>, Testuo Honma<sup>3</sup> (<sup>1</sup>*Kyushu University*, <sup>2</sup>*National Institute of Advanced Industrial Science and Technology (AIST); Japan*, <sup>3</sup>*Japan Synchrotron Radiation Research Institute (JASRI); Japan*)
- 15:10-15:30 **Preparation of SDC based-SOFC Anode Materials with Highly Dispersed Ni Particles**  
O-12  
K. Sugihara, A. Higashiura, M. Asamoto, S. Yamaguchi, and H. Yahiro (*Ehime University; Japan*)
- 15:30-17:00 **Coffee Break & Poster Session**

### Soot Oxidation and DPF

(Chair: Prof. Hidenori Yahiro, Ehime University)

- 17:00-17:20 **Catalytic combustion and sensing of diesel particulate matter**  
O-13  
Cheol-Beom Lim<sup>1</sup>, Hisahiro Einaga<sup>1</sup>, Yoshihiko Sadaoka<sup>2</sup> and Yasutake Teraoka<sup>1</sup> (<sup>1</sup>*Kyushu University*, <sup>2</sup>*Ehime University; Japan*)
- 17:20-17:40 **The Macropore-based Catalysts for Diesel Soot Oxidation**  
O-14  
Zhen Zhao, Yuechang Wei, Guizhen Zhang, Junfeng Xu, Jian Liu, Guiyuan Jiang, Aijun Duan (*China University of Petroleum; China*)
- 17:40-18:00 **NO<sub>x</sub>-assisted Soot Oxidation on Pt–Mg/Al<sub>2</sub>O<sub>3</sub> Catalysts: Magnesium Precursor, Pt Particle Size and Pt-Mg Interaction**  
O-15  
Shuang Liu, Xiaodong Wu, Duan Weng (*Tsinghua University; China*)

**November 29 (Tuesday), 2011**

**Plenary Session 2**

(Chair: Prof. Yasutake Teraoka, Kyushu University)

8:30-9:20 **Hierarchical Assembly of Photocatalysts with High Activities in Degrading Organic  
Pollutants**  
PL-2

Hexing Li, Jian Zhu, Yuning Huo, Zhengfeng Bian, Yunfeng Lu (*Shanghai Normal University; China*)

9:20-9:50 **Coffee Break**

**Preparation and Characteristic of Catalysts 1**

(Chair: Prof. Boqing Xu, Tsinghua University)

9:50-10:10 **Oxidation of CO over Ru/CeO<sub>2</sub> Prepared by Self-dispersion of Ru**

O-16 Atsushi Satsuma<sup>1</sup>, Masatoshi Yanagihara<sup>1</sup>, and Kenichi Shimizu<sup>1,2</sup> (<sup>1</sup>*Nagoya University; Japan*, <sup>2</sup>*Hokkaido University*)

10:10-10:30 **Rod-, Flower-, and Dumbbell-like MnO<sub>2</sub>: Highly Active Catalysts for the  
Combustion of Toluene**  
O-17

Fang Wang, Hongxing Dai, Guangmei Bai, Yuxi Liu, Jiguang Deng, Hong He (*Beijing University of Technology; China*)

**Preparation and Characteristic of Catalysts 2**

(Chair: Prof. Chenglin Sun, Dalian Institute of Chemical Physics, CAS)

10:30-10:50 **Shape-Regulation: an Effective Way to Control CO Oxidation Activity over Noble  
Metal Catalysts**  
O-18

Hong He, Rui Wang, Jianning Wang (*Beijing University of Technology; China*)

10:50-11:10 **Activation of Solid Surfaces as Catalyst –Application to Environmental Catalysis -**

O-19 Ken-ichi Tanaka and Hong He (*Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences; China*)

**NO<sub>x</sub> Removal 1**

(Chair: Prof. Masato Machida, Kumamoto University)

11:10-11:30 **Synergistic Catalytic Action of Pd and LaMnO<sub>3</sub> Co-deposited in Pores of Alumina  
Support**  
O-20

Akihiro Tou, Hajime Kusaba, Hisahiro Einaga, and Yasutake Teraoka (*Kyushu University; Japan*)

11:30-11:50 **SCR Catalysts for Meeting Heavy Duty Diesel Emission Regulations**

O-21 Zhicheng Hu, Liwei Jia, Yang Liu, Feng Xia (*Wuxi Weifu Environmental Catalyst Co.,Ltd; China*)

11:50-13:30 **Lunch**

**NO<sub>x</sub> Removal 2**

(Chair: Prof. Masaaki Haneda, Nagoya Institute of Technology)

13:30-13:50 **Specific Microstructure of Active Species in Iron Titanate Catalyst for NH<sub>3</sub>-SCR of  
NO<sub>x</sub>: An XAFS Study**  
O-22

Fudong Liu<sup>1</sup>, Kiyotaka Asakura<sup>2</sup>, Pengyang Xie<sup>3</sup>, Jianguo Wang<sup>3</sup>, Yongchun Liu<sup>1</sup>, Wenpo Shan<sup>1</sup>, Xiaoyan Shi<sup>1</sup>, Changbin Zhang<sup>1</sup>, Hong He<sup>1</sup> (<sup>1</sup>*Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences; China*, <sup>2</sup>*Hokkaido University; Japan*, <sup>3</sup>*Zhejiang University of Technology; China*)

13:50-14:10 **Enhanced NO<sub>x</sub> Conversion in NH<sub>3</sub>-SCR over Co-exchanged Cu-Fe/Zeolite Catalysts**  
O-23 Asima Sultana, Motoi Sasaki, Kunio Suzuki and Hideaki Hamada (*National Institute of Advanced Industrial Science and Technology (AIST); Japan*)

### NO<sub>x</sub> Removal 3

(Chair: Prof. Junghua Li, Tsinghua University)

14:10-14:30 **Catalytic Removal of NO<sub>x</sub> over Porous Carbon Nanofibers at Room Temperature**  
O-24 Ming-Xi Wang, Zheng-Hong Huang, Feiyu Kang, Kaiming Liang (*Tsinghua University; China*)

14:30-14:50 **The Structural Effect of Carbon Nanotubes Supported MnO<sub>x</sub> in SCR of NO with NH<sub>3</sub>**  
O-25 Yanxia Su, Bingxin Fan, Lishan Wang, Youfa Liu, Limin Chen, Bichun Huang, Daiqi Ye (*South China University of Technology; China*)

14:50-15:10 **NO<sub>x</sub> Storage and Reduction Properties of Ceria-based Lean NO<sub>x</sub> Trap Catalysts**  
O-26 Chuan Shi<sup>1,2</sup>, Zhaoshun Zhang<sup>2</sup>, Mark Crocker<sup>1</sup> (<sup>1</sup>*University of Kentucky; USA*, <sup>2</sup>*Dalian University of Technology; China*)

15:10-15:40 **Coffee Break**

### Photocatalysis 1

(Chair: Prof. T. An, Guangzhou Institute of Geochemistry, CAS)

15:40-16:00 **Mechanoluminescent Light Source for Photoactive Materials that Compose Stress History Recording System**  
O-27 Nao Terasaki<sup>1</sup>, Hiroshi Yamada<sup>1</sup>, Chao-Nan Xu<sup>1,2</sup> (<sup>1</sup>*National Institute of Advanced Industrial Science and Technology; Japan*, <sup>2</sup>*CREST, Japan Science and Technology Agency (JST); Japan*)

16:00-16:20 **TiO<sub>2</sub>-M<sub>x</sub>O<sub>y</sub> Composite Porous Microspheres. Preparation and Photocatalytic Studies**  
O-28 Xintong Zhang, Changhua Wang, Jikai Yang, Yichun Liu (*Northeast Normal University; China*)

16:20-16:40 **Novel Niobate and Tantalate Nano-photocatalysts: Syntheses, Morphologies and Performances**  
O-29 Shijing Liang, Ling Wu, Xianzhi Fu (*Fuzhou University; China*)

### Photocatalysis 2

(Chair: Prof. Jinlong Zhang, East China University of Science and Technology)

16:40-17:00 **Photocatalytic and Photoelectrochemical Properties of Visible-light Driven Aurivillius Structured Materials**  
O-30 Jianqiang Yu<sup>1</sup>, Yan Zhang<sup>1</sup>, Mengmeng Sun<sup>2</sup>, Baorong Hou<sup>2</sup> (<sup>1</sup>*Qingdao University; China*, <sup>2</sup>*Center for Marine Corrosion & Protection; China*)

17:00-17:20 **Photocatalytic and Photoelectrocatalytic Degradation of Small Biological Compounds: A Case of Uridine**  
O-31 Guiying Li<sup>1</sup>, Yulong Zhang<sup>1,3</sup>, Xin Nie<sup>1,3</sup>, Huijun Zhao<sup>2</sup>, Taicheng An<sup>1</sup> (<sup>1</sup>*Guangzhou Institute of Geochemistry, Chinese Academy of Sciences; China*, <sup>2</sup>*Griffith University; Australia*, <sup>3</sup>*Graduate School of Chinese Academy of Sciences; China*)

17:20-17:30 **Closing Remarks**

## Poster Presentation

- P1 **Efficient CO Oxidation over Metallic Pd Nanoparticles Formed by Pd-O-Ce Interaction**  
S. Hinokuma, E. Ando, H. Fujii, M. Okamoto, K. Ikeue, M. Machida (*Kumamoto University; Japan*)
- P2 **Selective Photocatalytic Reduction of Nitrate to Nitrogen in Water in the Presence of Pt/TiO<sub>2</sub> and Sn<sub>2</sub>-Pd/Al<sub>2</sub>O<sub>3</sub>**  
Jun Hirayama, Hirofumi Kondo, Ryu Abe, Yuichi Kamiya (*Hokkaido University; Japan*)
- P3 **Membrane Reactor for Partial Oxidation of Methane Using Ba-Sr-Fe-Ga-O Mixed Conductor**  
Shinsuke Bando, Hajime Kusaba, Hisahiro Einaga, and Yasutake Teraoka (*Kyushu University; Japan*)
- P4 **Photocatalytic Hydrogen Production from Bio-ethanol using TiO<sub>2</sub> Coated on Glass Beads**  
Masahiro Katoh<sup>1</sup>, Oshie Tsuji<sup>1</sup>, Toshihide Horikawa<sup>1</sup>, Tatsuya Yamazaki<sup>2</sup>, Takushi Yoshikawa<sup>3</sup>, Mamoru Wada<sup>3</sup> (<sup>1</sup>*Tokushima University; Japan*, <sup>2</sup>*Ishinomaki Senshu University; Japan*, <sup>3</sup>*Sanwa Constarch Co. Ltd; Japan*)
- P5 **Visible Light Driven Stannic Oxide and Its Photoelectrochemical Water Splitting Properties**  
Tian Mengkui<sup>1,2</sup>, Takata Tsuyoshi<sup>2</sup>, Domen Kazunari<sup>2</sup> (<sup>1</sup>*Guizhou University; China*, <sup>2</sup>*The University of Tokyo; Japan*)
- P6 **High-efficiency Photocatalytic Reduction of CO<sub>2</sub> over Ag/AgBr/MWCNT to Hydrocarbons under Visible Light**  
Chun He<sup>1,2</sup>, Mudar Abou Asi<sup>1</sup>, Minhua Su<sup>1</sup>, Dehua Xia<sup>1</sup>, Huiqi Deng<sup>1</sup>, Linfei Zhu<sup>1</sup>, Yanling Huang<sup>1</sup>, Ya Xiong<sup>1,2</sup> (<sup>1</sup>*Sun Yat-sen University; China*, <sup>2</sup>*Guangdong Provincial Key Laboratory of Environmental Pollution Control and Remediation Technology; China*)
- P7 **Effect of Lanthana on Propane Combustion over Pd/Al<sub>2</sub>O<sub>3</sub> Catalysts: Redox Property**  
Min Li, Duan Weng, Xiaodong Wu, Jie Wan, Bin Wang (*Tsinghua University; China*)
- P8 **Preparation of Fe-ZSM-5 Catalysts for NH<sub>3</sub>-SCR Reaction: Alkali Treatment and Metal Dispersion**  
Jing Ma, Duan Weng, Xiaodong Wu, Zhichun Si (*Tsinghua University; China*)
- P9 **Lattice Oxygen Mobility and Acidity Improvement of NiO-CeO<sub>2</sub>-ZrO<sub>2</sub> Catalyst by Sulfation for NO<sub>x</sub> Reduction by Ammonia**  
Zhichun Si, Duan Weng, Xiaodong Wu, Ziran Ma, Hongying Hu (*Tsinghua University; China*)
- P10 **Photocatalytic Degradation and Detoxification of Styrene: Mechanistic consideration under different ultraviolet sources**  
Zhigui He, Jiangyao Chen, Guiying Lia, Yuemeng Jia, Taicheng An (*Guangzhou Institute of Geochemistry, Chinese Academy of Sciences; China*)
- P11 **Hydrothermal Synthesis of Iodine-doped Bi<sub>2</sub>WO<sub>6</sub> Nanoplates with Enhanced Visible and Ultraviolet Induced Photocatalytic Activities**  
Jiang Zhang, Zheng-Hong Huang, Feiyu Kang (*Tsinghua University; China*)
- P12 **The Effect of Mn Partly Substituted LaCoO<sub>3</sub> Perovskite-type Catalyst on Simultaneous Removal of Soot and NO<sub>x</sub>**  
Hong Liang, Changquan Zhu, Yanxia Hong, Shuhua Li (*Guangzhou University; China*)
- P13 **Three-dimensionally Ordered Macroporous BiVO<sub>4</sub>: Controlled Preparation and Good Visible-light-driven Catalytic Performance for Phenol Photodegradation**  
Yuxi Liu<sup>1,2</sup>, Hongxing Dai<sup>2</sup>, Jiguang Deng<sup>2</sup>, Xue Meng<sup>2</sup>, Chak-Tong Au<sup>1</sup> (<sup>1</sup>*Hong Kong Baptist University; China*, <sup>2</sup>*Beijing University of Technology; China*)
- P14 **Soot Combustion and NO<sub>x</sub> Storage over La/Cu Doped Hydrotalcites Derived Mixed Oxides**  
Zhongpeng Wang, Xiao Wang, Zizi Wang, Qian Li, Ying Xin, Zhaoliang Zhang (*University of Jinan; China*)
- P15 **Catalytic Wet Air Oxidation of Pentachlorophenol over Ru/ZrO<sub>2</sub> and Ru/ZrSiO<sub>2</sub> Catalysts**  
Huangzhao Wei, Chenglin Sun, Lei Ma, Jian Ren, Peijuan Liu, Songbo He, Ruiping Qiao (*Dalian Institute of Chemical Physics, Chinese Academy of Sciences; China*)

- P16 **Photoelectrocatalytic Degradation of Organic Compounds Enhanced by Photocatalytic Fuel Cell**  
Yanbiao Liu, Jinhua Li, Baoxue Zhou (*Shanghai Jiao Tong University; China*)
- P17 **Enhanced Photocatalytic Degradation of Dye Wastewater: Comparison of Three Photoinitiated Oxidation Processes**  
Haibao Huang<sup>1</sup>, Dennis Y.C. Leung<sup>1</sup>, Philip C. W. Kwong<sup>2</sup> (<sup>1</sup>*The University of Hong Kong; China*, <sup>2</sup>*The University of Adelaide; Australia*)
- P18 **Low Temperature Selective Catalytic Reduction of NO with NH<sub>3</sub> over Mn-Fe Spinel: Performance, Mechanism and Kinetic Study**  
Shijian Yang<sup>1,2</sup>, Chizhong Wang<sup>1</sup>, Junhua Li<sup>1</sup>, Naiqiang Yan<sup>2</sup>, Lei Ma<sup>1</sup>, Huazheng Chang<sup>1</sup> (<sup>1</sup>*Tsinghua University; China*, <sup>2</sup>*Shanghai Jiao Tong University; China*)
- P19 **Nanostructural Titanates: New Electrode Materials for Energy Conversion and Storage**  
Zhensheng Hong, Mingdeng Wei (*Fuzhou University; China*)
- P20 **Significant Reduction of Harmful Compounds in Tobacco Smoke by the Use of Titanate Nanomaterials**  
Qixin Deng,<sup>1,2</sup> Huixing Zhang,<sup>2</sup> Mingdeng Wei<sup>2</sup> (<sup>1</sup>*Technical Center of Fujian Tobacco Industrial Corporation; China*, <sup>2</sup>*Fuzhou University; China*)
- P21 **Study on the Mechanism of Advanced Treatment for Secondary Effluents by Photocatalysis Floating Bed**  
Enqiang Wang, Shihong Xu (*Donghua University; China*)
- P22 **Framework Stability of Metal-doped AlPO<sub>4</sub>-5 and Their Catalytic Applications**  
D.J. Zhang<sup>1,2</sup>, A.J.Samed<sup>1</sup>, K.Uemura<sup>1</sup>, K. Ikeue<sup>1</sup>, M. Machida<sup>1</sup> (<sup>1</sup>*Kumamoto University; Japan*, <sup>2</sup>*PetroChina Research Institute of Jilin Petrochemical Company; China*)
- P23 **Structural Features and Performance of Perovskites as Catalysts Precursors for CO<sub>2</sub> Reforming of CH<sub>4</sub> on La<sub>0.4</sub>Al<sub>0.2</sub>Ni<sub>0.8</sub>M<sub>0.6</sub>O<sub>3</sub> (M=Pt, Pd, Ru, Rh, Ir)**  
Hamidreza Arandiyani, Junhua Li (*Tsinghua University; China*)
- P24 **Promotional Alkali Resistance of Ce-doped V<sub>2</sub>O<sub>5</sub>/WO<sub>3</sub>-TiO<sub>2</sub> Catalysts for the Selective Catalytic Reduction of NO<sub>x</sub> with NH<sub>3</sub>**  
Xiaoyan Shi, Wenpo Shan, Fudong Liu, Yan You, Hong He (*Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences; China*)
- P25 **CO<sub>2</sub> Reforming of Dimethyl Ether to Produce Hydrogen over Ni-La/γ-Al<sub>2</sub>O<sub>3</sub> Catalyst**  
Zhong Ma, Qi-Zhong Jiang, Zi-Feng Ma (*Shanghai Jiao Tong University; China*)
- P26 **The Poisoning Effect and Regeneration of Alkali Metals and SO<sub>2</sub> over Ce-W Catalysts for Selective Catalytic Reduction of NO<sub>x</sub> by NH<sub>3</sub>**  
Yue Peng<sup>1,2</sup>, Liang Chen<sup>1</sup>, Shijian Yang<sup>1</sup>, Junhua Li<sup>1</sup>, Wei Han<sup>2</sup> (<sup>1</sup>*Tsinghua University; China*, <sup>2</sup>*Jilin University; China*)
- P27 **Stable Photocatalytic Hydrogen Evolution under Visible Light Irradiation by Polyoxometalate α-[AlSiW<sub>11</sub>(H<sub>2</sub>O)O<sub>39</sub>]<sup>5-</sup> linked to Eosin Y**  
Liu Xing<sup>1</sup>, Li Yuexiang<sup>1</sup>, Peng Shaoqin<sup>1</sup>, Lu Gongxuan<sup>2</sup>, Li Shuben<sup>2</sup> (<sup>1</sup>*Nanchang University; China*, <sup>2</sup>*Lanzhou Institute of Chemical Physics, Chinese Academy of Science; China*)
- P28 **Co<sub>3</sub>O<sub>4</sub>-MnOx as Non-noble Metal Catalyst for Low-Temperature Oxidation of Formaldehyde**  
Yu Wang, Bing Bing Chen, Chuan Shi (*Dalian University of Technology; China*)
- P29 **Low-Temperature Selective Catalytic Reduction of NO with NH<sub>3</sub> over MnO<sub>x</sub>/CeO<sub>2</sub> Catalysts**  
Li Xu, Chuan Shi (*Dalian University of Technology; China*)
- P30 **SrTiO<sub>3</sub>-TiO<sub>2</sub> Composite Nanotube Arrays for High-Efficiency Photoelectrochemical Anticorrosion of Q235 Carbon Steel**  
Yuyu Bu<sup>1</sup>, Hongwei Wang<sup>2</sup>, Mengmeng Sun<sup>3</sup>, Weibing Li<sup>1</sup>, Jianqiang Yu<sup>2</sup>, Zhuoyuan Chen<sup>3</sup>, Baorong Hou<sup>3</sup> (<sup>1</sup>*Qingdao University of Science and Technology; China*, <sup>2</sup>*Qingdao University; China*, <sup>3</sup>*Center for Marine Corrosion & Protection; China*)

- P31 **Photoelectrochemical Anticorrosion Property of Novel CoNb<sub>2</sub>O<sub>6</sub> Film under Visible-light Illumination**  
Mengmeng Sun<sup>1</sup>, Xinglong Gao<sup>2</sup>, Yuyu Bu<sup>3</sup>, Weibing Li<sup>3</sup>, Jianqiang Yu<sup>2</sup>, Zhuoyuan Chen<sup>1</sup> (<sup>1</sup>*Center for Marine Corrosion & Protection; China*, <sup>2</sup>*Qingdao University; China*, <sup>3</sup>*Qingdao University of Science and Technology; China*)
- P32 **High Efficient Photocatalytic Reduction of 4-Nitroaniline to p-Phenylenediamine over Microcrystalline SrBi<sub>2</sub>Nb<sub>2</sub>O<sub>9</sub>**  
Weiming Wu, Shijing Liang, Yan Chen, Lijuan Shen and Ling Wu (*Fuzhou University; China*)
- P33 **Characteristics of Perovskite-based BaMO<sub>3</sub>-Al<sub>2</sub>O<sub>3</sub> (M = Fe, Ce, Zr) catalyst for NO<sub>x</sub> Storage Process**  
Ke-Qiang Sun, Zhun Hu and Bo-Qing Xu (*Tsinghua University; China*)
- P34 **PMMA-templating Preparation and Catalytic Activities of Three-dimensionally Macroporous Strontium Ferrites with High Surface Areas for Toluene Combustion**  
Kemeng Ji, Hongxing Dai, Jiguang Deng, Han Zhang, Lei Zhang, Hong He (*Beijing University of Technology; China*)
- P35 **Low-temperature Selective Catalytic Reduction of Low Concentration NO by C<sub>3</sub>H<sub>6</sub> over Platinum Supported Mesoporous SBA-15**  
Xinyong Liu, Zhi Jiang, Mingxia Chen, Jianwei Shi, Wenfeng Shangguan (*Shanghai Jiao Tong University; China*)
- P36 **Photocatalytic Water Splitting on Protonated Form of Layered Perovskites H-K<sub>0.5</sub>La<sub>0.5</sub>Bi<sub>2</sub>Ta<sub>2</sub>O<sub>9</sub>**  
Wei Chen, Jian Yuan, Wenfeng Shangguan (*Shanghai Jiao Tong University; China*)
- P37 **Low-Temperature Synthesis of Stable TiO<sub>2</sub>-Graphene Nanocomposites Colloid for Flexible, Printable, Transparent and Solution-processed Photoelectric Films**  
Hanyang Gao, Wenfeng Shangguan (*Shanghai Jiao Tong University; China*)
- P38 **Improving the Visible Light Photocatalytic Activity of Nanosized Titanium Dioxide via the Synergistic Effects between Sulfur doping and Sulfation**  
Yuxiao Niu, Mingyang Xing, Baozhu Tian, Jinglong Zhang (*East China University of Science and Technology; China*)
- P39 **Preparation of Flower-Like BiOBr Microspheres with High Visible-Light Photocatalytic Activity**  
Yuning Huo, Miao Miao, Jia Zhang, Yi Jin, Hexing Li (*Shanghai Normal University; China*)
- P40 **Solvothermal Synthesis of Uniform TiO<sub>2</sub> Nanocrystals with Dominant {001} Facets with Enhanced Activity**  
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- P44 **Catalytic Activity of Cu/H-Sep for the SCR of NO with Propylene in the Presence of Oxygen**  
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- P45 **Ozone-assisted Photocatalytic Oxidation of Gaseous Acetaldehyde on TiO<sub>2</sub>/M-ZSM-5 (M=Zn, Cu, Mn)**  
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