Preface

Dear Colleagues:

The International Symposium on Eco-materials Processing and Design, conjugated with the China-Japan-Korea A3 Foresight Program Seminar is a series of conferences that provide the presentations, exchange of information and discussion on state-of-the art of scientific and industrial development of environmentally friendly materials and systems. Recent symposia were organized in Japan (2010), Thailand (2011) and China (2012). The 14th ISEPD was held at Kagoshima, Japan, on January 15-18, 2013.

Researchers, engineers and students enjoyed the academic program of the exciting symposium in beautiful Kagoshima, and to exchange and share the scientific knowledge. ISEPD 2013 covered the following five topics: (A) Materials for energy conversion, solar cell and new energy, (B) Photocatalysis and semiconducting materials, (C) Processing and design for eco-materials, (D) Bio-inspired materials and hybrid materials, and (E) Porous and nanostructured materials. Each session was well organized with the great efforts by program chairs. Three plenary lectures, 21 invited lectures, 48 oral papers and 95 poster papers were presented in the above sessions. The numbers of attendees were as follows: China 30, Korea 62, France 1, Japan 69, Thailand 4, Vietnam 1, total 169. Six distinguished, high quality posters were awarded. This proceedings contains the selected, peer-reviewed 34 papers presented in ISEPD 2013 and is expected to contribute to the development of science and engineering of environmentally friendly materials and systems.

Sincerely yours,

Editors

T.Kai, K.Mizuta, T.Nakazato, N.Matsunaga, Y.Hirata, S.Sameshima, T.Tsutsui, M.Yoshida, H.Kim, J-F Yang, T.Sekino

Organizing Committee

General Chairs

Koichi Niihara, Nagaoka University of Technology, Japan Kozo Ishizaki, Nagaoka University of Technology, Japan Soo Wohn Lee, Sun Moon University, Korea Yubao Li, Sichuan University, China

International Advisory Committee

Junichi Hojo, Kyushu University, Japan Yasuo Uchiyama, Nagasaki University, Japan Junichi Matsushita, Tokai University, Japan Jian-Feng Yang, Xi'an Jiaotong University, China Xianhong Wang, Chang Chun Institute of Applied Chemistry, China Jiang Lei, Beihang University, China Lian Gao, Shanghai Jiao Tong University, China ZhengYi Fu, Wuhan University of Technology, China Byung Sei Jun, Kyungnam University, Korea Bo Young Hur, Kyungsang National University, Korea Hirotsugu Takizawa, Tohoku University, Japan Somchai Thongtem, Chiang Mai University, Thailand Liangdeng Yu, Chiang Mai University, Thailand Supab Choopun, Chiang Mai University, Thailand Osamu Takai, Kanto Gakuin University Kuniyuki Kitagawa, Nagoya University, Japan Chiaki Terashima, Nagoya University, Japan Jing Sun, Shanghai Institute of Ceramics, China Hideo Nakajima, Osaka University, Japan

Academic Committee

Masaya Matsuoka, Osaka Prefecture University, Japan
Masato Takeuchi, Osaka Prefecture University, Japan
Takamasa Onoki, Osaka Prefecture University, Japan
Tohru Sekino, Tohoku University, Japan
Shu Yin, Tohoku University, Japan
Yoshihiro Hirata, Kagoshima University, Japan
Tadachika Nakayama, Nagaoka University of Technology, Japan
Takanori Watari, Saga University, Japan

Feng Pan, Tsinghua University, China
Hao Wang, Wuhan University of Technology, China
Zheng Xuebin, Shanghai Institute of Ceramics, China
Hyung Sun Kim, Inha University, Korea
Young Hee Kim, KICET, Korea
Kyung Nam Kim, Gangwon University, Korea
Sang Yup Park, Kangnung University, Korea
Kwang Bo Shim, Hanyang University, Korea

Local Committee

Toshio Tsutsui, Kagoshima University, Japan Yoshihiro Hirata, Kagoshima University, Japan Takami Kai, Kagoshima University, Japan Masahiro Yoshida, Kagoshima University, Japan Soichiro Sameshima, Kagoshima University, Japan Tsutomu Nakazato, Kagoshima University, Japan Takayuki Takei, Kagoshima University, Japan Kei Mizuta, Kagoshima University, Japan Kei Mizuta, Kagoshima University, Japan Naoki Matsunaga, University of Miyazaki, Japan Ryoko Aiko, Kagoshima University, Japan Yoshihiro Ohzuno, Kagoshima University, Japan Shuji Mitsuyoshi, Kagoshima University, Japan Saki Inamine, Kagoshima University, Japan

Program Chairs

A. Materials for energy conversion, solar cell and new energy

Tohru Sekino, Tohoku University, Japan Zheng Guo-Bin, Nagasaki University, Japan

B. Photocatalysis and semiconducting materials

Shu Yin, Tohoku University, Japan

Naoya Enomoto, Kyushu University, Japan

C. Processing and design for eco-materials

Takashi Shirai, Nagoya Institute of Technology, Japan Hirotsugu Takizawa, Tohoku University, Japan

D. Bio-inspired materials and hybrid materials

Tadachika Nakayama, Nagaoka University of Technology, Japan Takanori Watari, Saga University, Japan

E. Porous and nanostructured materials

Hisayuki Suematsu, Nagaoka University of Technology, Japan

Takeshi Okutani, Yokohama National University, Japan

Editors of Proceedings

A. Materials for energy conversion, solar cell and new energy

Takami Kai, Kagoshima University, Japan

Kei Mizuta, Kagoshima University, Japan

B. Photocatalysis and semiconducting materials

Tsutomu Nakazato, Kagoshima University, Japan

Naoki Matsunaga, University of Miyazaki, Japan

C. Processing and design for eco-materials

Yoshihiro Hirata, Kagoshima University, Japan Soichiro Sameshima, Kagoshima University, Japan

D. Bio-inspired materials and hybrid materials

Toshio Tsutsui, Kagoshima University, Japan

E. Porous and nanostructured materials

Masahiro Yoshida, Kagoshima University, Japan

Hyungsun Kim, Inha University, Korea Jian- Feng Yang, Xi'an Jiaotong University, China Tohru Sekino, Tohoku University, Japan

Organized by Department of Chemical Engineering, Kagoshima University, Japan, and the China-Japan-Korea (CJK) A3 Foresight Program by JSPS, KOSEF and NSCF.

Sponsored by Faculty of Engineering Kagoshima University, Japan, and the Basic Science Division of the Ceramic Society of Japan.