

## Program Overview

<b>DAY 1/ Jan. 7<sup>th</sup>, 2015</b>	
15:00~16:00	Registration
16:00~17:30	NTUMSE Laboratory Tour
18:00~20:00	Banquet, Taipei 101

<b>DAY 2/ Jan. 8<sup>th</sup>, 2015</b>	
08:30~08:40	Opening Talk, Dean Jia-Yush Yen, School of Engineering, National Taiwan University
08:40~08:50	Opening Talk, Chair Chao-Sung Lin, Dept. of Mater. Sci. & Eng., National Taiwan University
08:50~09:00	Group Photo
09:00~12:20	Oral Presentation
12:20~14:00	Lunch and Poster Session

# Oral Presentation, 1<sup>st</sup> Session

Session Chair: Prof. Wei-Hsing Tuan, Dept. of Mater. Sci. & Eng., National Taiwan University

09:00~09:20 Invited-1 ..... 10

## **Fundamentals of Laser Welding**

**Prof. Seiji Katayama\***, Y. Kawahito, and M. Mizutani

Joining and Welding Research Institute, Osaka University, Japan

09:20~09:40 Invited-2 ..... 11

## **Microstructural Evolution of Ultrahigh-Heat-Input Weld HAZ in Nb-Ti-B Bearing Steels**

**Prof. Jer-Ren Yang\***, Yu Chen, San-Ho Chen and Ching-Yuan Huang

Department of Materials Science & Engineering, National Taiwan University, Taiwan

09:40~10:00 Invited-3 ..... 12

## **State-of-Art of Powder Metallurgy Titanium**

**Prof. Katsuyoshi Kondoh\***, T. Mimoto, J. Umeda, H. Imai and L. Jia

Joining and Welding Research Institute, Osaka University, Japan

10:00~10:20 Invited-4 ..... 13

## **Interfacial Reactions Arising from Low Solder Volume in 3D IC Packaging**

**Prof. C. Robert Kao\***

Department of Materials Science & Engineering, National Taiwan University, Taiwan

*10:20~10:40 BREAK*

# Oral Presentation, 2<sup>nd</sup> Session

Session Chair: Prof. Makio Naito, Joining and Welding Research Institute, Osaka University

10:40~11:00 Invited-5 ..... 14

## **Bonding Process Using Metallic Particle Paste for High-Temperature Application**

**Prof. Hiroshi Nishikawa\*** and X. Wang

Joining and Welding Research Institute, Osaka University, Japan

11:00~11:20 Invited-6 ..... 15

## **One-Step Synthesis of Cathode Materials for Lithium-Ion Batteries by Mechanical Process**

**Prof. Takahiro Kozawa\***, E. Nakamura, H. Tarui, A. Kondo, M. Matsuoka, and M. Naito

Joining and Welding Research Institute, Osaka University, Japan

11:20~11:40 Invited-7 ..... 16

## **Studies of TiNi-based Shape Memory Alloys at Micro-nano Scale**

Chiao-Yin Nien, Seiichiro Ii, Shyi-Kaan Wu, **Prof. Chun-Hway Hsueh\***

Department of Materials Science & Engineering, National Taiwan University, Taiwan

11:40~11:55 Oral-1 ..... 17

## **Toward High Efficiency Polymer-Nanoparticle Hybrid Solar Cell**

Prof. Wei-Fang Su, Meng-Huan Jao, Chun-Yu Chang, **Cheng-Ya Chu\***

Department of Materials Science & Engineering, National Taiwan University, Taiwan

11:55~12:10 Oral-2 ..... 18

## **Dry Powder Processing for Advanced Thermal Insulation Materials of Fumed Silica Compacts**

**T.W. Lian\***, A. Kondo, T. Kozawa, T. Ohmura, Prof. Wei-Hsing Tuan, Prof. M. Naito

Department of Materials Science & Engineering, National Taiwan University, Taiwan

12:10~12:20.....

## **Closing Remarks**

**Prof. Seiji Katayama\***

Joining and Welding Research Institute, Osaka University, Japan

12:20~14:00

## Lunch and Poster Session

12:20~14:00 Poster-1 .....20

### **Infrared Brazing of 316L Stainless Steel and Ti<sub>50</sub>Ni<sub>50</sub> Shape Memory Alloy**

S. H. Yang, C. P. Chen, R. K. Shiue, and **S. K. Wu\***

Department of Materials Science & Engineering, National Taiwan University, Taiwan

12:20~14:00 Poster-2 .....21

### **Vacuum Brazing Incoloy 800 Using Two Types of Filler Foils**

C. Y. Wang, J. Yu, and **R. K. Shiue\***

Department of Materials Science & Engineering, National Taiwan University, Taiwan

12:20~14:00 Poster-3 .....22

### **One-Pot Mechanical Synthesis of LiCoO<sub>2</sub> Cathode Granule for Lithium Ion Batteries and its Microstructural Evaluation**

**E. Nakamura\***, A. Kondo, T. Kozawa, M. Matsuoka, and M. Naito

Joining and Welding Research Institute, Osaka University, Japan

12:20~14:00 Poster-4 .....23

### **The Development of Bainitic Ferrite in Hot Rolled Low-Carbon Nb-Mo Containing Steel Strips**

**B. M. Huang\***, J. R. Yang, and C. Y. Huang

Department of Materials Science & Engineering, National Taiwan University, Taiwan

12:20~14:00 Poster-5 .....24

### **Joining of Aluminum Nitride and Copper**

**Chun-Ting Yeh\*** and Wei-Hsing Tuan

Department of Materials Science & Engineering, National Taiwan University, Taiwan

12:20~14:00 Poster-6 .....25

### **Intermetallics for Structural Applications in Micro Joints of Three-Dimensional Integrated Circuits (3D ICs)**

**J. J. Yu\***, J. Y. Wu, L. J. Yu and C. R. Kao

Department of Materials Science & Engineering, National Taiwan University, Taiwan

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<b>Thermal Conductivity of NiAl-Al<sub>2</sub>O<sub>3</sub> Two-Phase Composites</b>	
<b>Hsiu-Ching Hsu*</b> and Wei-Hsing Tuan	
Department of Materials Science & Engineering, National Taiwan University, Taiwan	
12:20~14:00 Poster-8.....	27
<b>Mixed Ionic-Electronic (MIE) Conductivity of M<sub>0.6</sub>Sr<sub>0.4</sub>Co<sub>0.2</sub>Fe<sub>0.8</sub>O<sub>3</sub> (M=La, Pr, Bi) Cathode Materials for SOFCs</b>	
<b>Y. H. Chen*</b> and W. C. J. Wei	
Department of Materials Science & Engineering, National Taiwan University, Taiwan	
12:20~14:00 Poster-9.....	28
<b>Co-doping NiO and Nb<sub>2</sub>O<sub>5</sub> on the Phase Stability and Mechanical Properties of Yttria-Stabilized Zirconia (YSZ) Composite</b>	
<b>Pei-Chia Chen*</b> and Wei-Hsing Tuan	
Department of Materials Science & Engineering, National Taiwan University, Taiwan	
12:20~14:00 Poster-10 .....	29
<b>Strengthening Calcium Sulfate Through the Addition of Silicon Oxide</b>	
<b>Man-Ping Chang*</b> and Wei-Hsing Tuan	
Department of Materials Science & Engineering, National Taiwan University, Taiwan	
12:20~14:00 Poster-11 .....	30
<b>Sintering and Biodegradation Properties of Calcium Sulfate/Bioactive Glass Composite</b>	
<b>Hsiao-Chun Kuo*</b> Wei-Hsing Tuan	
Department of Materials Science & Engineering, National Taiwan University, Taiwan	
12:20~14:00 Poster-12 .....	31
<b>Use of Geopolymer in Joining Alumina</b>	
<b>Cheng-Yen Hsu*</b> and Wei-Hsing Tuan	
Department of Materials Science & Engineering, National Taiwan University, Taiwan	
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<b>Interfacial Reaction of Cu and Ag Foil with PbTe and Pb<sub>3</sub>Sn<sub>2</sub>Te<sub>5</sub> for Mid-Temperature Thermoelectric Power Generation Module</b>	
<b>H. T. Hung*</b> , C. C. Li, F. Drymiotis, L. L. Liao, M. J. Dai, C. K. Liu, C. R. Kao, and G. J. Snyder	
Department of Materials Science & Engineering, National Taiwan University, Taiwan	

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**Fabrication and High Temperature Storage of Ge, Ag/Ge and Cu/Ge with PbTe Thermoelectric Materials by Rapid Hot-Pressing Method**

**Y. B. Chen\***, C. C. Li, F. Drymiotis, L. L. Liao, M. J. Dai, C. K. Liu, C. R. Kao, and G. J. Snyder

Department of Materials Science & Engineering, National Taiwan University, Taiwan

