WA1

01. Metallurgy, Weldability & Corrosion

1. Welding Metallurgy I

Wed., May 9, 2012 / 10:20 ~ 12:10 **Room A**

10:20 ~ 10:50 **WA1-1** **[Keynote] Potential of grain boundary engineering to suppress welding degradations of austenitic stainless steels**
Hiroyuki Kokawa (Tohoku Univ.)

10:50 ~ 11:10 **WA1-2** **Analysis of weld defect in manual GTAW Fillet welds of Fe-36% Ni alloy**
Heekeun Lee, Junghyun, Jinyong, and Manjoo Huh (Daewoo Shipbuilding Marine Engineering)

11:10 ~ 11:30 **WA1-3** **Characterization and Weldability of Dissimilar Inconel 617/304H Stainless Steel Welds**
morteza shamanian and fakhredin ashrafizadeh (Isfahan Univ. of Technology)

11:30 ~ 11:50 **WA1-4** **Selection of Optimal welding Conditions for Gas Metal Arc Welding (GMAW) of High-strength steels and Characterization of weldability change**
Jae-Won Kim (Pusan Nat'l Univ.) and Yeong-Do Park (Dong-eui Univ.)

11:50 ~ 12:10 **WA1-5** **Effects of crystallographic orientations on hot cracking tendency**
Seyed Mostafa Mousavizade (Sabzevar Tarbiat Moallem Univ., Iran) and Hidetoshi Fujii (Osaka Univ., Japan)

WB1

09. Electronic Packaging Reliability

2. Joining Reliability Issues

Wed., May 9, 2012 / 10:20 ~ 11:55 **Room B**

10:20 ~ 10:45 **WB1-1** **[Invited] TBA**
Dr. Katsuaki Suganuma (Osaka Univ. Japan)

10:45 ~ 11:10 **WB1-2** **[Invited] Study of the effect of Inter-Metallic Compound thickness on Damage and Fatigue Life of Lead-free Flip Chip Solder Joints at High Temperature Excursions**
N. N. Ekere (Univ. of Greenwich)

11:10 ~ 11:35 **WB1-3** **[Invited] Low temperature micro-joining applied to electronics packaging**
Yasuo Takahashi and Masakatsu Maeda (Osaka Univ.)

11:35 ~ 11:55 **WB1-4** **Reliability of Pb-free Solders on resonance vibration at high temperature**
Yong-Ho Ko, Young-Kyu Lee, Sehoon, and Chang-Woo Lee (Korea Institue of Industrial Technology)

WC1

08. Electrical Resistance Welding

3. Electrical Resistance Welding I

Wed., May 9, 2012 / 10:20 ~ 12:05 **Room C**

10:20 ~ 10:45 **WC1-1** **[Invited] Press Hardening Steels: Challenges with OEM strategies of manufacturing**
Thomas Manzenreiter (voestalpine Stahl GmbH)

10:45 ~ 11:05 **WC1-2** **Investigation of Resistance Spot Welding Behavior on Al-Si-coated and Zn-Coated Hot Press Forming Steel (HPF)**
Dulal Chandra Saha (Dong-Eui Univ.), Yongjoon Cho (Hyundai Motor Company), and Yeong-Do Park (Dong-Eui Univ.)

11:05 ~ 11:25 **WC1-3** **Multi-objective Optimization of Electrode Tip Dressing Time in Spot Welding using a Hybrid System of Neural Networks and Genetic Algorithm**
Mohsen Hamedi and Meysam Kasaeian (Univ. of Tehran)

11:25 ~ 11:45 **WC1-4** **Effect of Al and C content on Expulsion in Electric Resistance Spot Welding of Advanced High Strength Steel**
Jong Pan Kong and Chung Yun Kang (Pusan National Univ.)

11:45 ~ 12:05 **WC1-5** **Interfacial to pullout failure mode transition of DP600/DQSK spot welds during Mode I loading condition**
Majid Pouranvari (Islamic Azad Univ.)

WD1

02. Residual Stress/Distortion/Modeling

4. Welding Distortion and Residual Stress I

Wed., May 9, 2012 / 10:20 ~ 11:50 **Room D**

10:20 ~ 10:50 **WD1-1** **[Keynote] Numerical Simulation as Tool for the Manufacturing of Steel Structures –Current State and Future in Prediction of Welding Distortion and Residual Stress –**
You-Chul Kim (JWRI of Osaka Univ.)

10:50 ~ 11:10 **WD1-2** **Residual Stress and Distortion Measurements for Evaluation of TIG and ATIG Austenitic Steel Weld Joints**
Palanichamy Perumal, Vasudevan Muthukumaran, Shunmugasundraram Rajendran (National Institute of Technology), Vasantharaja P. (Indira Gandhi Centre for Atomic Research)

11:10 ~ 11:30 **WD1-3** **A Study on Distortion and Residual Stress of Tubular Welded Joint**
Hyung Kook Jin, Dong Ju, and Sang Beom Shin (Hyundai Heavy Industries)

11:30 ~ 11:50 **WD1-4** **Welding Distortion and Residual Stress Generated by Laser Beam Welding and Laser-Arc Hybrid Welding for High Strength Steel**
You-Chul Kim (Osaka Univ.), Hirohata Mikihito (Nagoya Univ.), and Inose Koutarou (IHI Corporation)

WE1

05. Friction Stir Welding/Process

5. FSW: Nonferous

Wed., May 9, 2012 / 10:20 ~ 11:50 **Room E**

10:20 ~ 10:50 **WE1-1** **[Keynote] Corrosion Resistance of AZ31 Mg-Alloy Friction Stir Spot Welds**
T. H. North (Toronto Univ.)

10:50 ~ 11:10 **WE1-2** **Microstructure Evolution of AA5083 during Friction Stir Welding**
JaeHyung Cho (Korea Institute of Materials Science) and Chang Gil Lee (Korea Institute of Materials Science)

11:10 ~ 11:30 **WE1-3** **SDB analysis method for Friction Stir welding Deformation**
Rajesh S.R. and Yunsok Ha (Samsung Heavy Industries Co., LTD)

11:30 ~ 11:50 **WE1-4** **Numerical analysis of the effect of backplate on the temperature field during friction stir welding**
Wenya Li , Zhihan Zhang, Jinglong Li (Northwestern Polytechnical Univ.), and Yuhjin Chao (Univ. of South Carolina)

WF1

07. Laser / Electron Beam Welding & Processing

6. Laser Trend & Applications

Wed., May 9, 2012 / 10:20 ~ 11:50 **Room F**

10:20 ~ 10:50 **WF1-1** **[Keynote] Advanced Laser Applications and Trends for a Greener Transportation Industry**
Klaus Loeffler (TRUMPF Laser-und Systemtechnik) and Myoungku Oh (TRUMPF Korea Co., Ltd.)

10:50 ~ 11:10 **WF1-2** **Laser Rounding of Glass Substrates for Flat Display Panel**
Sang-Woo Han (Korea Advanced Institute of Science and Technology) and Suck-Joo Na (Korea Advanced Institute of Science and Technology)

11:10 ~ 11:30 **WF1-3** **Precise cutting of CFRP with three different lasers**
Kwang-Woon Jung, Yousuke Kawahito, and Seiji Katayama (Osaka Univ.)

11:30 ~ 11:50 **WF1-4** **Quantification and Visualization of Spiking Defect in Laser Welding**
Jungho Cho (Chungbuk National Univ.)

WA2

01. Metallurgy, Weldability & Corrosion

7. Welding Metallurgy II

Wed., May 9, 2012 / 13:30 ~ 15:20 **Room A**

13:30 ~ 14:00 **WA2-1** **[Keynote] Effect of surface-active agent on weld pool and Marangoni flow**
Sindo Kou (Univ. of Wisconsin, USA), Chaowalit Limmaneevichitr (King Mongkut's Univ. of Technology, Bangkok), and Peng-Sheng Wei (Sun Yat-Sen Univ.)

14:00 ~ 14:20 **WA2-2** **Feasibility of Microstructure Expectation through Voronoi Diagram**
Jungho Cho (Chungbuk National Univ.)

14:20 ~ 14:40 **WA2-3** **Assessment of Hot Cracking Behaviour in Welds**
Thomas Kannengiesser (BAM Federal Institute for Materials Research and Testing)

14:40 ~ 15:00 **WA2-4** **Effects of Chemical Composition on the Microstructure and Mechanical Properties of FCAW-S Weld Metal**
Kook-soo Bang (PKNU), Woong Kil (ESAB-SeAH), and Woong-seong Chang (RIST)

15:00 ~ 15:20 **WA2-5** **Mechanical Properties of Weld-bonded and Resistance Spot Welded Joints for Dissimilar Materials of Mg alloy and HSLA steel**
Hiroaki Mori (Osaka Univ.), L. Liu (Univ. of Waterloo), W. Xu (Ryerson Univ.), Daolun Chen (Ryerson Univ.), Jae Pil Jung (Univ. of Seoul), and Y. Zhou (Univ. of Waterloo)

WB2

06. Sensing and Monitoring/Welding Processes / Welding Automation

8. Sensing and Monitoring/Welding Processes/Welding Automation I

Wed., May 9, 2012 / 13:30 ~ 15:20 **Room B**

13:30 ~ 14:00 **WB2-1** **[Keynote] Applying the Solid State Laser-GMA Hybrid Process for Single-Sided Full Penetration Welding of Bulb Bar Profiles in Shipbuilding**
Christoph Kammerhuber (Fronius International GmbH)

14:00 ~ 14:20 **WB2-2** **Hybrid Intelligent Technique based models for Predicting Weld Bead Width and Depth of penetration from the Infra Red Thermal Images of the Weld Pool**
N Chandrasekhar, M Vasudevan, A.K. Bhaduri, and T. Jayakumar (IGCAR, KALPAKKAM)

14:20 ~ 14:40 **WB2-3** **Automated Generation of Robot MAG Surfacing Path for Rapid Prototyping System**
ZiQiang YIN (Institute of Oceanographic Instrumention Shandong Academy of Sciences), GuangJun ZHANG, HuiHui Zhao, and Lin WU (State Key Laboratory of Advanced Welding and Joining)

14:40 ~ 15:00 **WB2-4** **Effect of Low He Mixed Gas and Electrode Tip Shape on the Arc Pressure and Heat Flux in GTAW**
Dong-Soo Oh (Korea Polytechnic Ⅶ College), Dong-Soo Hwang (Monitech Co., LTD), and Sang-Myung Cho (Pukyung National Univ.)

15:00 ~ 15:20 **WB2-5** **Welding process stability evaluation of underwater wet manual metal arc welding**
Hu jiakun, Wu Chuansong, and Jia chuanbao (Shandong Univ.),

WC2

08. Electrical Resistance Welding

9. Electrical Resistance Welding II

Wed., May 9, 2012 / 13:30 ~ 15:15 **Room C**

13:30 ~ 13:55 **WC2-1** **[Invited] Estimations of Compatibility of Super-Capacitors for use as Power Sources for Resistance Welding Guns**
Hee S. Chang (Myongji Univ.) and Jerry E. Gould (Edison Welding Institute)

13:55 ~ 14:15 **WC2-2** **Effects of local post-weld heat treatment on the microstructure and the mechanical properties of resistance spot welded TRIP steel**
VICTOR BALTAZAR-HERNANDEZ and Y. NORMAN ZHOU (Univ. ofWATERLOO)

14:15 ~ 14:35 **WC2-3** **The comparisons of spot weldability between rolled AZ31 and AZ61 magnesium alloy sheets**
Mok-Young Lee (RIST), Ley Liu (Harbin Institute of Technology), and Norman Zhou (Univ. of Waterloo)

14:35 ~ 14:55 **WC2-4** **Metallurgical Failure Analysis of DP980 Resistance Spot Welds**
Majid Pouranvari (Islamic Azad Univ., Dezful Branch)

14:55 ~ 15:15 **WC2-5** **Design and Fabrication of Remote Resistance Welding Equipment**
Soo-sung Kim (KAERI), Ki-Hwan Kim (KAERI), and Jin-Hyun Koh (KUT)

WD2

02. Residual Stress/Distortion/Modeling

10. Welding Distortion and Residual Stress II

Wed., May 9, 2012 / 13:30 ~ 14:50 **Room D**

13:30 ~ 13:50 **WD2-1** **Fatigue Analysis of Friction Stir Welds in Aluminum Alloys Using a Robust Mesh Insensitive Structural Stress Method**
Jeong Hong (Battelle) and Selvakumar Palani (Battelle India)

13:50 ~ 14:10 **WD2-2** **Fast Prediction of Welding Assembly Deformation using Inherent Strain Method and Optimal Design of Welding Sequence**
Ninshu Ma Isaku Chimura, Sunao, and Bonyoung Ghoo (JSOL Corporation)

14:10 ~ 14:30 **WD2-3** **Correction strategy for welding distortion of ship hull structure**
Woojae Seong (KAIST), Yu Chul Jeon (DSME), Man Joo Huh (DSME), and Suck-Joo Na (KAIST)

14:30 ~ 14:50 **WD2-4** **A Study on Welding Distortion of GTA Circular Type Lap Joint in STS304L Thin Plate**
Il-Ho Kim, Ha-Heun Kim , and Sang-Beom Shin (Hyundai Heavy Industry)

WE2

05. Friction Stir Welding/Process

11. FSW: Hybrid Process

Wed., May 9, 2012 / 13:30 ~ 15:20 **Room E**

13:30 ~ 13:55 **WE2-1** **[Invited] Attainment of high welding speed and high quality weld using Tatsumaki friction stir welding**
Seung Hwan C. Park, Satoshi Hirano (Hitachi Research Laboratory, Hitachi, Ltd.), Shinichi Kaga , Mitsuru, Noriaki Tominaga, and Yasutsugu Yoshimura (Mitsubishi-Hitachi Metals Machinery, Inc.)

13:55 ~ 14:20 **WE2-2** **Characterizations of AZ31B joints welded by Resistance friction stir welding**
Jian LUO), Yalin DONG, Longfei LI, and Cong WANG (Chongqing Univ.)

14:20 ~ 14:40 **WE2-3** **A Study on Weldability of TIG Assisted Friction Stir Welding of ANSI 430 Ferritic Ultra-Thin Stainless Steels**
Jun-Hyung Kim, Hee-Seon Bang, and Han-Sur Bang (Chosun Univ.)

14:40 ~ 15:00 **WE2-4** **Laser-assisted and conventional friction stir processing of IN738 nickel base superalloy**
Seyed Mostafa Mousavizade (Sabzevar Tarbiat Moallem Univ., Sabzevar, Iran.) and Hidetoshi Fujii (Osaka Univ., Japan)

15:00 ~ 15:20 **WE2-5** **Underwater friction stir welding for dissimilar joints between Al/Mg alloys**
Woong-Seong Chang (RIST)

WF2

07. Laser / Electron Beam Welding & Processing

12. HED Weldability

Wed., May 9, 2012 / 13:30 ~ 14:50 **Room F**

13:30 ~ 13:50 **WF2-1** **Weldability and Keyhole Behavior of Zn-Coated Steel in Remote Welding Using Disk Laser with Scanner Head**
Su-Jin LEE, Seiji KATAYAMA, Yousuke KWAHITO (Osaka Univ.), and Keisuke KINOSHITA (Nissan Motor Co.,LTD.)

13:50 ~ 14:10 **WF2-2** **Effect of heat input on liquation and cracking of laser welded Inconel 738 nickel base superalloy**
Seyed Mostafa Mousavizade (Sabzevar Tarbiat Moallem Univ., Iran.) and Hidetoshi Fujii (Osaka Univ., Japan)

14:10 ~ 14:30 **WF2-3** **Interface characterizations of T3 copper /304 stainless steel / T3 copper dissimilar metals sandwich joint by electron beam welding**
Jian LUO, Xiaoming WANG, and Jie CHEN (Chongqing Univ.)

14:30 ~ 14:50 **WF2-4** **Mechanical characteriestcs of dissimilar materials AH32-STS304L laser-arc hybrid welded joints**
Bang HeeSeon (Chosun Univ.)

WA3

01. Metallurgy, Weldability & Corrosion

13. Welding Metallurgy III

Wed., May 9, 2012 / 16:50 ~ 18:35 **Room A**

16:50 ~ 17:15 **WA3-1** **[Invited] Influence of Si addition on the hot cracking susceptibility of Fe-Mn-C-Si TWIP steel**
Changhee Lee, Jaehong Yoo, Kyutae Han (Hanyang Univ.), and Younghwan Park (POSCO)

17:15 ~ 17:35 **WA3-2** **Investigation of deformation mechanism in Twinning Induced Plasticity steels using nanoindentation**
Myungjin Lee, Kyungmox Cho, and Namhyun Kang (Pusan national Univ.)

17:35 ~ 17:55 **WA3-3** **Welding of Super Duplex Stainless Steels Requirements and Experiences**
K. Manfred Rostek (FSH-Welding Group) and Manish S Samant (FSH-Welding Group)

17:55 ~ 18:15 **WA3-4** **Effect of complex inclusions on the solidification structure of iron alloy**
Jun-Seok Park (Univ. of Ulsan), Changhee Lee (Hanyang Univ.), and Joo Hyun Park (Univ. of Ulsan)

18:15 ~ 18:35 **WA3-5** **Crystalographic Analysis for Acicular Ferrite in Low Carbon Steel Welds**
Yu-ichi Komizo, Atsushi Takada , Hidenori Terasaki (Osaka Univ.), and Tomonori Yamada (Japan Atomic Energy Agency)

WB3

06. Sensing and Monitoring/Welding Processes / Welding Automation

14. Sensing and Monitoring/Welding Processes/Welding Automation II

Wed., May 9, 2012 / 16:50 ~ 18:40 **Room B**

16:50 ~ 17:20 **WB3-1** **[Keynote] Trends in Developments in Gas Shielded Arc Welding Equipment in Japan**
Tomoyuki Ueyama (DAIHEN (OTC) Corporation)

17:20 ~ 17:40 **WB3-2** **Development of a Digital SCR welding machine for Aluminum Alloy using Fiber Optic Cable**
Cho jin-an, Yang jong-su, Kim ho-kyong (STX offshore & shipbuilding), and Eun jong-mok (Powwel co., Ltd.)

17:40 ~ 18:00 **WB3-3** **Trends in Power generation Cladding with CMT in carbon fossil power plant**
Bernd Rutzinger (Fronius International GmbH)

18:00 ~ 18:20 **WB3-4** **Development of digital inverter controlled GAM welding power source appying welding electronic engine.**
Kohei Ono (DAIHEN (OTC) Corporation), Akihiro Ide (DAIHEN (OTC) Corporation), Tetsuo Era (DAIHEN (OTC) Corporation), Toshiro Uezono (DAIHEN (OTC) Corporation), and Tomoyuki Ueyama (DAIHEN (OTC) Corporation)

18:20 ~ 18:40 **WB3-5** **Detection of Metal Transfer Modes during Arc Welding**
Yoke Rung Wong (Nanyang Technological Univ., Singapore)

WC3

08. Electrical Resistance Welding

15. Electrical Resistance Welding III

Wed., May 9, 2012 / 16:50 ~ 18:15 **Room C**

16:50 ~ 17:15 **WC3-1** **[Invited] Analysis for Welding Characteristics of Dissimilar Materials using Delta Spot Welding**
Joonghyun Yeom, Shuo Zhang (Hanyang Univ., Korea) Hyun Joon Yoon (Korea Institute of Industrial Technology)

17:15 ~ 17:35 **WC3-2** **An empirical model predicting failure mode of resistance spot welds**
Majid Pouranvari (Islamic Azad Univ., Dezful Branch) and Pirooz Marashi (Amirkabir Univ. of Technology)

17:35 ~ 17:55 **WC3-3** **Resistance SEAM welding properties of Al coated 409L stainless steel for automotive exhaust system**
Won-Bae Lee and Sang-Man Yun (POSCO Research Laboratories)

17:55 ~ 18:15 **WC3-4** **Weldability evaluation and nugget formation mechanism in three sheet spot welding of new advanced high strength steels**
Nazmul Huda and Yeong-Do Park (Dong-Eui Univ.)

WD3

02. Residual Stress/Distortion/Modeling

16. Evaluation of Residual Stress

Wed., May 9, 2012 / 16:50 ~ 18:30 **Room D**

16:50 ~ 17:10 **WD3-1** **Evaluation of Residual Stresses in Weld Joints using Ultrasonic Lcr Wave Technique**
Palanichamy Perumal, Joseph Antony, and Jayakumar Tamanna (Indira Gandhi Centre for Atomic Reserach)

17:10 ~ 17:30 **WD3-2** **Neutron diffraction and deep hole drilling measurements of residual stresses in a 70 mm thick FCAW and EGW welds**
Wanchuck Woo (Korea Atomic Energy Research Institute), Jeong-Ung Park (Chosun Univ.), and Gyu-Baek An (POSCO Steel)

17:30 ~ 17:50 **WD3-3** **Influence of Dehydrogenation Heat Treatment Condition on Distribution of Hydrogen Concentration in Multi-layer Welding of Thick Plate Cylinder Member**
Mitsuyoshi Nakatani (Osaka Univ), Masamitsu Abe, Junya Yamada (Hitachi Zosen Corporation), and Toshio Terasaki (Kyushu Institute of Technology)

17:50 ~ 18:10 **WD3-4** **Nondestructive evaluation of mechanical properties for reliability assessment of weldments using instrumented indentation**
Young-Cheon Kim, Won-Seok Song, Jun-Yeong Kim, Ji-Won Chung, and Dongil Kwon (Seoul Univ.)

18:10 ~ 18:30 **WD3-5** **Thermal Distortion Analysis by Inconel Over-lay at a Moonpool Structure**
Yunsok Ha (SAMSUNG Heavy Industries)

WE3

05. Friction Stir Welding/Process

17. FSW: Steel

Wed., May 9, 2012 / 16:50 ~ 18:50 **Room E**

16:50 ~ 17:10 **WE3-1** **Microstructure and mechanical properties of low-rotational speed friction stir welded API K55 high-strength steel**
Sangchul Lee, Yutaka S. Sato, Hiroyuki Kokawa (Tohoku Univ.), Jongsub Lee, Wonbae Lee, and Minhyun Cho (POSCO)

17:10 ~ 17:30 **WE3-2** **Microstructure and texture evolution during friction stir spot welding of 304 stainless steel single crystal**
Jongjin Jeon, Sergey Minorov, and Yutaka S. Sato (Tohoku Univ.)

17:30 ~ 17:50 **WE3-3** **Effect of tool rotation speed on microstructures and mechanical properties of friction stir welded steels with different carbon contents**
Byung-Wook Ahn and Seung-Boo Jung (Sungkyunkwan Univ., Korea)

17:50 ~ 18:10 **WE3-4** **Failure analysis of friction stir spot welded joints of 409 stainless steels under quasi-static lap shear loads**
Md. Abu Mowazzem Hossain, Chi-Sung Jeon, and Sung-Tae Hong (Univ. of Ulsan)

18:10 ~ 18:30 **WE3-5** **Friction Stir Welding of 590MPa Grade Dual Phase Steel Plates**
Kwang-Jin Lee, Sang-Hyuk Kim (Korea Inst. of Industrial Tech.), and Kee-Do Woo (Chonbuk National Univ.)

18:30 ~ 18:50 **WE3-6** **Microstructure and mechanical properties of the steel joints fabricated by friction stir welding method**
Kwang-Jin Lee , Sang-Hyuk Kim (Korea Inst. of Industrial Tech.), and Kee-Do Woo (Chonbuk Nat'l Univ.)

WF3

07. Laser / Electron Beam Welding & Processing

18. HEA Process and Optimization

Wed., May 9, 2012 / 16:50 ~ 18:35 **Room F**

16:50 ~ 17:15 **WF3-1** **[Invited] Fiber laser welding of tube seams**
Dave Farson (Ohio State Univ.), Lingna He (Ohio State Univ.), and Michael Tomsic (Hyper Tech Research, Inc)

17:15 ~ 17:35 **WF3-2** **Interface between Robot and Scanner for Remote Welding System Based on Time Synchronization**
Jeong-Jung Kim, Joon-Woo Lee , Ju-Jang Lee (KAIST), Kyung-Up Kwon (SIS Corporation), Hee-Shin Kang, and Jeong Suh (Korea Institute of Machinery and Materials)

17:35 ~ 17:55 **WF3-3** **Weld characteristic evaluation and process parameters optimization using neural network model in aluminum laser welding with remote scanner**
Youngho Kim, Dongyoon Kim, Youngmin Kim, Yoonjeong Choi, and Young Whan Park (Pukyong National Univ.)

17:55 ~ 18:15 **WF3-4** **Performance enhancement of aluminum IR laser welding by frequency converted short pre-pulses**
Philipp von Witzendorff (Laser Zentrum Hannover e.V.)

18:15 ~ 18:35 **WF3-5** **Process Monitoring during Laser Welding**
Hee-Shin Kang and Jeong Suh (Korea Institue of Machinery & Materials)

Poster I

Poster Session I

Wed., May 09, 2012 / 15:10 ~ 16:50 **Lobby, 2F**

Poster I-01 **Effects of Nitrogen and Oxygen Gases Addition to Argon Shield Gas in GMA-Welding on Mechanical and Structural Properties of 5083H321 Aluminum Alloy**

Amin Reza koushki (iran Univ. of science and technology)

Poster I-02 **An investigation of 3003 aluminum alloy / Q235 carbon steel dissimilar metal lap joints by a new magnetic hybrid Tungsten Inert Gas Arc - brazing welding**

Jian LUO, Xiaoming WANG, Zongxiang YAO (Chongqing Univ.), and Jie CHEN (Chongqing Special Equipment Quality Safe Inspection Center)

Poster I-03 **A Study on Calculating Optimum Welding Conditions in CO2 Welding on Thin Steel Plates**

Dong-soon Choi, Kyoung-min Lee, Woong-ki Hwang, Jae-seong Kim, and Bo-young Lee (Korea Aerospace Univ., Korea)

Poster I-04 **Fracture toughness of high strength steel weld metals at low temperatures**

Xinfang Zhang (Osaka Univ), Peng Han (Kobe Steel Ltd., Japan), Yuichi Komizo (Osaka Univ., Japan), Munenobu Sato (Kobe Steel Ltd. Japan), and Hidenori Terasaki (Osaka Univ., Japan)

Poster I-05 **Investigation of porosity formation on the galvanized steel welds with GMAW for fire sprinkler pipes**
YoungMin Lim, NamHoon Kim, JinHyun Koh, and BokSu Jang (Korea University of Technology and Education)

Poster I-06 **The effect of welding parameters and PWHT on the characteristics of HSB 600 steel weldments with GMAW**
DongHwi Ju, NamHoon Kim, YoungMin Lim, and JinHyun Koh (Korea Univ. of Technology and Education)

Poster I-07 **Thermal fatigue properties evaluation of 18% Cr ferritic stainless steel weld HAZ considering the effect of restraint stress**
Kyutae Han (Hanyang Univ.), Seunggab Hong (POSCO Technical Research Laboratory), and Changhee Lee (Hanyang Univ.)

Poster I-08 **Compatibility Behavior of Stainless Steel Weldment under the Liquid Sodium Environment**
Jun Hwan Kim, Jong Hyuk Baek, Sung Ho Kim, and Chan Bock Lee (Korea Atomic Energy Research Institute)

Poster I-09 **On-site corrosion behavior of boiler tube steel upon water treatment**
Junghwa Seo, Yinsheng He (Changwon National Univ.), Mihwa Choi, Seok-Ran Yang (Korea Electric Power Research Institute), Jiling Dong (Chongqing Univ. of Science and Technology), and Keesam Shin (Changwon National Univ.)

Poster I-10 **Weldability of Aluminized High Strength Boron-Alloyed**

Steel Sheet by Resistance Spot Welding
Bo-Ra Kim and Eung-Ryul Baek (Yeungnam Univ.)

Poster I-11 **Effect of Shielding Gas on the Microstructure and Properties in GTA Welds of Pure Titanium**
Hyun Jun An (Pusan Univ.), Tae Jun Park (Hyun Dal Steel), Bo Young Jung (POSCO), and Chung Yun Kang (Pusan Univ.)

Poster I-12 **Optimizing the Welding Powder Mixture in Exothermic Welding Process for Aluminum Parts**
Hamid Ayazian-Mavi, Mansour Soltanieh, Mostafa Mirjalili, and Mohammad Taghi Salehi (Iran Univ. of Science and Technology)

Poster I-13 **Measurement of welding residual stress in thick butt joint**
Jeongung Park (Chosun Univ.), Gyuback An (POSCO), and Wanchuk Woo (Korea Atomic Energy Research Institute)

Poster I-14 **Finite element analysis of girth-welded steel pipes in bending**
Chin-Hyung Lee, Hyun-Seop Shin, Ki-Tae Park (KICT), and Kyong-Ho Chang (Chung-Ang Univ.)

Poster I-15 **A Study on the Thermal Stress Analysis of Thick Plate Structures in PWHT**
Yong Rae Kim and Jae Woong Kim (Yeongnam Univ.)

Poster I-16 **A Study on the Minimization of Welding Deformation of a Precision Component for Automobile Transmission**
hoiyoon chung (Sangsin Brake Co. Ltd) and Jae-woong

Kim (Yeungnam Univ)

Poster I-17 **Effect of tool downforce in friction-stir-welded Ni base superalloy**

Kuk Hyun Song (Korea Institute of Industrial Technology), Han Sol Kim (Korea Institute of Industrial Technology), and Kazuhiro Nakata (Joining and Welding Research Institute)

Poster I-18 **THE EFFECT ON B4C PARTICLES ON THE MICROSTRUCTURE AND MECHANICAL PROPERTIES FRICTION STIR PROCESSED A356 ALLOY**

Yonghwan kim and seungboo jung (sungkyunkwan univ)

Poster I-19 **Characteristics of Friction-Spot-Joined AA5454-O Aluminum Alloy Sheets with Different Thicknesses**

Sung-Ook Yoon, Myoung-Soo Kang, Yong-Jai Kwon, Sung-Tae Hong, Dong-Hwan Park, Kwang-Hak Lee (Univ. of Ulsan), Chang-Yong Lim, and Jong-Dock Seo (Shin Young Co., Ltd.)

Poster I-20 **Influence of Tool Rotation Speed and Tool Traverse Speed on Characteristics of Friction-Stir-Lap-Welded AA5454-O Aluminum Alloy Sheets**

Myoung-Soo, Sung-Ook Yoon, Yong-Jai Kwon, Sung-Tae Hong, Dae-Ill Kim, Kwang-Hak Lee (Univ. of Ulsan), Chang-Yong Lim (Shin Young Co., Ltd.), Jin-Soo Moon, and Kyung-Sik Han (Ulsan Technopark)

Poster I-21 **Influence of Tool Plunge Depth and Welding Distance on Friction-Stir-Lap-Welding between AA5454-O Aluminum Alloy Sheets with Different Thicknesses**

Jun-Won Kwon, Myoung-Soo Kang, Sung-Ook Yoon, Yong-Jai Kwon (School of Materials Science and

Engineering, Univ. of Ulsan), Sung-Tae Hong, Dong-Hwan Park, Kwang-Hak Lee (Univ. of Ulsan), Jong-Dock Seo (Shin Young Co., Ltd.), Jin-Soo Moon, and Kyung-Sik Han (Ulsan Technopark)

Poster I-22 **Microstructures and Mechanical Property of SiCp/SPHC Metal Matrix Composite Joint by Friction Stir welding**

Jae Ha Kim and Seung Boo Jung (Sungkyunkwan Univ.)

Poster I-23 **Research Trend of Friction Stir Spot Welding**

S.C. Kil and Hwantae Kim (Korea Institute of Science and Technology Information)

Poster I-24 **Microstructural characterization by EBSD in friction stir welded dissimilar Al 5052 and Ti-6Al-4V alloys**

Joo-Hee Kang, Jae-Keun Hong, Jeong-Han Kim, Seong-Woong Kim, and Jong-Taek Yeom (Korea Institute of Materials Science)

Poster I-25 **A CONTRIBUTION TO FRICTION STIR WELDING TOOL DESIGN**

Ahmed El-Nikhaily (A.E. El-Nikhaily), Ramadan Elseoudy (R.I. Elseoudy), Abdel-karim Mohamed (A.Y.A. Mohamed), and Ahmed Essa (A.R. Essa)

Poster I-26 **Relationships between weld pitch, spindle torque, weld shape and microstructure during friction stir welding of Al alloy**

Sang-Woo Song, Nam-Kyu Kim (Korea Institute of Materials Science), Hong-Ki Kim, Sang-Ju, and Chung-Yun Kang (Pusan National Univ.)

Poster I-27 **Study on the prevention of weld defect during electro-**

beam welding for automatic transmission components
Bong-Joon Kim (Korea Institute of Materials Science), Eun-Soo Park , Sung-Min, Won-Yong Byeon, and Dal-Joon Cha (Kyung Chang Industrial Corp.)

Poster I-28 **Development of electromagnetic working coil for thin-aluminum sheet welding using FEM**
Ji-Yeon Shim (KITECH), Ill-Soo Kim (Mokpo National Univ.), and Bong-Yong Kang (KITECH)

Poster I-29 **A study of Acoustic Wave Sensor for Lifetime Estimation of GIS**
Kyu-Sik Shin (Univ. of Seoul), Jung-Won Jin, Ha-Ryong Ha (WISE control), Jae-Pil Jung (Univ. of Seoul), and Dae-Sung Lee (Korea Electronics Technology Institute)

Poster I-30 **Synchronization Control of Laser Scanner and Industrial Robot**
Hee-Shin Kang, Jeong Suh (Korea Institute of Machinery & Materials), and Sung-Jo Kwak (Kyushu Univ.)

Poster I-31 **Weld characteristic evaluation for sheet sequence of 3 dissimilar steels in spot welding using FEM simulation**
Yongjoon Cho (Hyundai Motors), Minkyung Kim, and Young Whan Park (Pukyong National Univ.)

Poster I-32 **High-deposition pulse GMA welding for Al 5083 thick plate**
Kibae Lee, Cheolhee Kim (KITECH), and Daesoon Kim (HHI)

Poster I-33 **The Effect of resistance spot weld current waveform on weldability during spot welding of 1.2GPa TRIP steel sheet**

Dong cheol Kim, Moon jin Kang (KITECH), and Sehun Rhee (Hanyang univ.)

Poster I-34 **Gap-bridging ability of AC pulsed MIG welding processes on lap joints 1.2Gpa TRIP steel**

Jaeho Lee, Hyun Joon Yoon (Hanyang Univ.), Dong Cheol Kim (KITECH), Moon Jin Kang (KITECH), and Sehun Rhee (Hanyang Univ.)

Poster I-35 **Effects of stabilization heat treatment on tensile mechanical properties and punching surface of friction stir processed Mg-Li-Al-Zn magnesium alloy**

Hung Fei-Yi, Lui Truan-Shengm, Chen Li, and Huang Jiun-Wei (National Cheng Kung Univ., TAIWAN.)

Poster I-36 **The use of secondary-emission signal for the weld formation monitoring and control in electron beam welding**

Dmitriy Trushnikov (State National Research Polytechnical Univ. of Perm)

Poster I-37 **A Polymer Hybrid Welding on CNC+Laser Machine**

Jin Young Yoon, In Ho Jun, Hae Woon Choi, Hye Sung Yoon, Woo Sub Hae, and Sun Oh Jung (Keimyung Univ.)

Poster I-38 **Joining of thin ceramic powder sintered wafer to bulk metal**

Soo Won Kim, Eui Tang, Young Min Lee, and Hae Woon Choi (Keimyung Univ.)

Poster I-39 **Evaluation of Process Parameter to Laser Welding of Solar Panel**

Yong Kim, Pyeong-won Park, Ki-young Park (Institute for Advanced Engineering), and Bu-hwan Kim (Fasweld

Co., LTD.)

Poster I-40 **Evaluation on Mechanical Properties and Microstructures of Bulk Metallic Glass by Laser Cladding**

Han-Seop Lee, Byung-Chul Lim, Sang-Heup Park (Kongju National Univ.), Yeong-San Son (Korea polytechnics Ⅳ), and Jong-Jae Lee (Hankook Coating)

Poster I-41 **Influence of a magnetic field in laser welding of carbon steel**

Chul Ku Lee (Seoul National Univ. of Science and Technology)

Poster I-42 **Comparison of Laser Weldability between AZ31B-H24 and AZ31B-O**

Junghan Lee (Technical Institute of Sungwoo Hitech Co., LTD), Jongdo Kim, Mookeun Song (Korea Maritime Univ.), and Moonyong Lee (Technical institute of Sungwoo Hitech Co.,LTD)

Poster I-43 **Research Trend of Hybrid Laser Beam Welding Technology**

Hwan Tae Kim (Korea Institute of Science and Technology Information) and Sang Cheol Kil (Korea Institute of Science and Technology)

Poster I-44 **Laser welding of Be-free AZ31 Mg alloy**

Minjung Kang and Cheolhee Kim (KITECH)

Poster I-45 **Comparison of Plasma Emission Signals in Fiber Laser and NdYAG Laser Welding for In-process Monitoring**

Chang-Je LEE (BEST F.A), Jong-Do KIM (Korea Maritime Univ.), and Yu-Chan KIM (BEST F.A)

Poster I-46 **Fabrication of Metal Fuel Rodlets for Sodium-cooled Fast Reactor**
KIM KI-HWAN, OH SEOK-JIN, KIM SOO-SUNG, LEE CHONG-TAK, and LEE CHAN-BOCK (Korea Atomic Energy Research Institute)

Poster I-47 **Effect of precooling and preheating on hot-cracking and microstructure of aluminum 2024-O single pulsed laser welds**
bita derakhshani, farshid malek (tarbat modares Univ.), and mohammad javad torkamany (Paya Partov Laser Research Center)

Poster I-48 **Effects of flows velocity on the Grooving Corrosion of the welded ERW pipe under the conditions of different heat input**
Jaeseong Kim, Young Kim, and Boyoung Lee (Korea Aerospace Univ.)

Poster I-49 **Abstract for Strengthening Technique of Weld-bonded Joint in Aluminum Alloy**
Chunfeng Zhao, Zhen Luo, and Yang Li (Tianjin Univ., China)

Poster I-50 **Numerical analysis of nugget formation in weld-bonding of dual phase steels**
Jie Shen and yansong Zhang (Shanghai Jiao Tong Univ.)

Poster I-51 **A study on the characteristic of resistance spot welding with regard to GA 1.2GPa, CP and TRIP steels**
Seungmin shin and Sehun Rhee (Hanyang univ.)

Poster I-52 **Analysis of Three-Sheet Spot Welding on Different**

Thickness Aluminum
jia liu zhen luo, and yang bai (TJ Univ.)

Poster I-53 **Sheet Thickness Influence on Weld Nugget Shift during Resistance Spot Welding of Three-Al alloys Sheets**
Yang Bai, Zhen Luo , and Jia Liu (Tianjin Univ.)

Poster I-54 **microstructure simulation of Resistance Spot Welding nugget**
MengNan Feng and Zhen Luo (Tianjin Univ.)

Poster I-55 **Study of the Deformation of Resistance Spot Welding Based on the Digital Image Correlation Technology**
Tao Yuan, Zhen Luo, Hongwei Song (Univ.), and Shoubin Li (Shandong)

Poster I-56 **Microstructure and mechanical properties of resistance spot welded advanced high strength steel**
Yangyang Zhao, Yansong Zhang, and Xinmin Lai (Shanghai Jiao Tong Univ.)

ThA1

01. Metallurgy, Weldability & Corrosion

19. Welding Metallurgy IV

Thu., May 10, 2012 / 10:00 ~ 11:50 **Room A**

10:00 ~ 10:30 **ThA1-1** **[Keynote] Narrow gap welding for heavy steel plate manufacturing**
B*ing Du and xiaoyu li (Harbin Welding Institute)*

10:30 ~ 10:50 **ThA1-2** **Understanding of SSC characteristics for API X52 spiral pipe**
Young Hune Kim, Woo Hyun Song, and Min Hyun Cho (POSCO)

10:50 ~ 11:10 **ThA1-3** **Local Electrochemical Corrosion Characteristics of Carbon Steel in Seawater**
Yan Zou (Shandong Academy of Sciences), Jia Wang, Wei Wang (Ocean Univ. of China), Qiang Bai, Lin-lin Zhang (Shandong Academy of Sciences)

11:10 ~ 11:30 **ThA1-4** **A new insight into grain boundary engineering for mitigation of HAZ liquation cracking in nickel-based superalloys**
Hyun Uk Hong, In Soo Kim, Baig Gyu Choi, Young Soo Yoo and Chang Yong Jo Korea Institute of Materials Science)

11:30 ~ 11:50 **ThA1-5** **Microstructure, Mechanical Property and Corrosion Resistance of Duplex Stainless Steel Welds**
Jeong Kil Kim and Jong Sub Lee (POSCO)

ThB1

06. Sensing and Monitoring/Welding Processes / Welding Automation

20. Sensing and Monitoring/Welding Processes/Welding Automation III

Thu., May 10, 2012 / 10:00 ~ 11:55 **Room B**

10:00 ~ 10:30 **ThB1-1** **[Keynote] Vision Based Systems for Monitoring and Control of Arc and Laser-Arc hybrid Welding Processes**
William Lucas (Univ. of Liverpool)

10:30 ~ 10:50 **ThB1-2** **A Study on Seam Tracking Algorithm Considering Weld Groove Geometry**
Hyeongsoon Moon, Sunghoon Kho, and Jongcheol Kim (Hyundai Heavy Industries Co., Ltd)

10:50 ~ 11:10 **ThB1-3** **Development of Real-time Monitoring System for Underwater Wet Welding**
Chuanbao Jia, Xin Yuan, Jicai Feng, Fang Wang, Yongpeng Du, Ning Guo, and Ziqiang Yin (Shandong Academy of Sciences Institute of Oceanographic Instrumentation)

11:10 ~ 11:35 **ThB1-4** **[Invited] Application of Visual Sensor to Robotic Plasma Welding System**
Satoshi Yamane, Taro Takanashi, Takahiro Godo (Saitama Univ.), Kazumichi Hosoya, Toru Nakajima, and Hikaru Yamamoto (Hitachi Construction Machinery)

11:35 ~ 11:55 **ThB1-5** **New Real-time Arc Weld Monitoring Method using Hidden Markov Model**
Yoha Hwang and Jong Min Lee (KIST)

ThC1

08. Electrical Resistance Welding

21. Electrical Resistance Welding IV

Thu., May 10, 2012 / 10:00 ~ 11:55 **Room C**

10:00 ~ 10:25 **ThC1-1** **[Invited] Quality assurance strategies of resistance spot welding for automotive body application**
Yongjoon Cho, Kyeong Jin Kim (Hyundai Motor Company), Yeong-Do Park (Dong-Eui Univ.), Jae-Ho Choi, and In-Sung Chang (Hyundai Motor Company)

10:25 ~ 10:45 **ThC1-2** **Failure mode of DP600 spot welds: Effect of loading conditions**
Majid Pouranvari (Islamic Azad Univ.)

10:45 ~ 11:10 **ThC1-3** **Study on Improving Weldability of 1GPa Grade Twin Induced Plasticity Steel Using Inverter DC Constant Powel Welding**
Jiyoung Yu (Hanyang Univ.), Gyosung Kim, Duyoul Choi (POSCO), and Sehun Rhee (Hanyang Univ.),

11:10 ~ 11:35 **ThC1-4** **[Invited] Prediction of Fracture Mode in Resistance Spot Welds of Automotive High Strength Steels**
Duyoul Choi and Jiho Lim (POSCO)

11:35 ~ 11:55 **ThC1-5** **Simulation of Aluminium Resistance Spot Welding based on Thermal-magnetic model**
Yang Li, Zhen Luo, Wenbo Xuan, Naifeng Fan, Rui Wang and Sansan Ao (Tianjin Univ.)

ThD1

02. Residual Stress/Distortion/Modeling

22. Welding Mechanism and Process

Thu., May 10, 2012 / 10:00 ~ 11:20 **Room D**

10:00 ~ 10:20 **ThD1-1** **Modelling of the effect of hydrogen diffusion on the inclusions during arc welding**
Andrew Mullis (Leeds Univ.)

10:20 ~ 10:40 **ThD1-2** **Welding Mechanics of Mg Product**
Choi Kwang (RIST)

10:40 ~ 11:00 **ThD1-3** **Influence of heat affected zone during high frequency induction-based line heating upon permanent deformation of thick SS400 plate**
Kwang Seok LEE (Korea Institute of Materials Science)

11:00 ~ 11:20 **ThD1-4** **Numerical analysis and Experiment for multi-point press stretch forming applicable to curved hull of Aluminum ship**
LEE JANG HYUN, HWANG SE YUN (Inha Univ.), JEONG WOO CHEOL (Inha Technical College), and BAN IN HWAN(Inha Univ.)

ThE1

05. Friction Stir Welding/Process

23. FSW: Dissimilar Materials

Thu., May 10, 2012 / 10:00 ~ 11:20 **Room E**

10:00 ~ 10:20 **ThE1-1** **Using friction Stir Processing for improving the weldability**

Seyed Mostafa Mousavizade (Sabzevar Tarbiat Moallem Univ., Iran), Hidetoshi Fujii (Osaka Univ., Japan), and Elahe Nejat (Sabzevar Tarbiat Moallem Univ., Iran)

10:20 ~ 10:40 **ThE1-2** **Mechanical properties and microstructures in a friction stir welded lap joints of Al6061-T6 aluminum alloy and SS400 mild steel**

Jeon Geun Hong, Bang Hee Seon and Bang Han Sur (CHOSUN Univ.)

10:40 ~ 11:00 **ThE1-3** **Mechanical and metallurgical characteristics in a friction stir welded overlap joints of STS304 stainless steel and SS400 mild steel**

Jeon Geun Hong, Bang Hee Seon and Bang Han Sur (CHOSUN Univ.)

11:00 ~ 11:20 **ThE1-4** **Fabrication of Graphene-Aluminum Metal Matrix Composite Joints by Friction Stir Spot Welding**

Chi-Sung Jeon , Md. Tariqul Hasan , Sung-Tae Hong, Seung-hyun Hur (Univ. of Ulsan), Hoon-Hwe Cho, and Heung Nam Han (Seoul National Univ.)

ThF1

07. Laser / Electron Beam Welding & Processing

24. Properties and Characterization

Thu., May 10, 2012 / 10:00 ~ 11:25 **Room F**

10:00 ~ 10:25 **ThF1-1** **[Invited] Introduction of laser welding method using hot wire system**
Kenji Shinozaki, Motomichi Yamamoto, and Kohta Kadoi (Hiroshima Univ.)

10:25 ~ 10:45 **ThF1-2** **Effect of nanoclay on weld strength and seam width for CO2 laser welding of polypropylene - clay nanocomposite**
mohammad reza nakhaei, nasroolla bani mostafa arab (Shahid Rajaee Teacher Training Univ.), and ghasem naderi (Iran Polymer and Petrochemical Institute)

10:45 ~ 11:05 **ThF1-3** **Scattering of laser beam in porous ceramic powder joining**
Hae Woon Choi, Soo Won Kim, and Young Min Lee (Keimyung Univ.)

11:05 ~ 11:25 **ThF1-4** **Influence of laser surface processing on the tribological performance of PVD-coated surfaces**
Dong-Jun Kim, Jae-Yong Kim, Sung-Min Kim, Joung-Hyun La, and Sang-Yul Lee (Korea Aerospace Univ.)

ThA2

01. Metallurgy, Weldability & Corrosion

25. Welding Metallurgy V

Thu., May 10, 2012 / 13:10 ~ 14:55 **Room A**

13:10 ~ 13:35 **ThA2-1** **[Invited] TBA**
Prof. Chung Yun Kang (Pusan Univ. Korea)

13:35 ~ 13:55 **ThA2-2** **Simulation of microstructure and liquation cracking in 5083 aluminum alloy**
Cheolho Park, Heimi Kwon (Pusan National Univ.), Inpyo Hong, Daesun Kim (Hyundai Heavy Industries Company), and Namhyun Kang (Pusan National Univ.)

13:55 ~ 14:15 **ThA2-3** **The Examination of Repetitive Repair Effects on the Al-5083 H321 Alloy's Mechanical Properties and Microstructure in GTAW Welding**
Ramin Saberi (Islamic Azad Univ., Iran) and Ebrahim Heshmatdehkordi (Iranian Corrosion Association)

14:15 ~ 14:35 **ThA2-4** **Dissimilar Metal Joining of Steel to Aluminum using the Arc Heat Source**
Yong Kim, Kiyoung Park, Pyeongwon Park (IAE), Jongduck Seo, and Changyong Lim (ShinYoung Co. Ltd.)

14:35 ~ 14:55 **ThA2-5** **Effect of Buttering & Non-Buttering on Mechanical Properties and Microstructure of Welded Dissimilar Metals**
Winarto M.Sc. Muhammad Anis (Universitas Indonesia), and Teguh Puji Hertanto (IKPT)

ThB2

06. Sensing and Monitoring/Welding Processes / Welding Automation

26. Sensing and Monitoring/Welding Processes/Welding Automation IV

Thu., May 10, 2012 / 13:10 ~ 14:50 **Room B**

13:10 ~ 13:30 **ThB2-1** **A study on Optimization of welding Parameters for thin plate in Electro Gas Welding**
Kyungtae Shim, Jaeseung Jeon, and Jeongsoo Lee (Hanjin Heavy Industries and Construction Co. Ltd)

13:30 ~ 13:50 **ThB2-2** **Optimization of High current MIG Welding Conditions for Aluminum 5083**
Sejin Park, Yunsok Ha, ChangGuk Park and Changgil Kweon (Samsung Heavy Industry)

13:50 ~ 14:10 **ThB2-3** **Visual-based Measurement and Control of Dynamic Weld Pool in Gas Metal Arc Welding of Aluminum**
Yu Shi, Ding Fan, and Xianfeng song (Lanzhou Univ. of Technology)

14:10 ~ 14:30 **ThB2-4** **Effect of waveform design on the short circuit transfer mode of robot welding**
sanghun ryu, sanggu choi, kyungju kim, jongchul kim, and jaegeon kim (HIRI, HHI)

14:30 ~ 14:50 **ThB2-5** **Molten pool forming process of rotating arc narrow gap horizontal GMAW**
Ning Guo, Yanfei Han, Meirong Wang, Ziqiang Yin, and Linlin Zhang (Shandong Academy of Science)

ThC2

08. Electrical Resistance Welding

27. Electrical Resistance Welding V

Thu., May 10, 2012 / 13:10 ~ 14:10 **Room C**

13:10 ~ 13:30 **ThC2-1** **Analysis of fracture behavior after the application of pre-strain and paint-baking on the Resistance spot welded TRIP 780**
Byung-Hyun Shin, Chul-yung Choi (Pusan National Univ.), and Yeong-Do Park (Dong-Eui Univ.)

13:30 ~ 13:50 **ThC2-2** **Resistance welding of High Strength Steel, Challenges and Improving Spot Quality with modern adaptive Mid-Frequency Weld Timers**
Mues Ulrich and Poell Karl (Matuschek Messtechnik GmbH)

13:50 ~ 14:10 **ThC2-3** **A novel annular projection welding system using eccentricity-free secondary current delivery configuration for joining of tubular joint in ECV**
Hee S. Chang (Professor Myongji Univ.) and Young J. Ahn (Dongil Machinery Co.,Ltd.)

ThD2

03. Welding Strength/Integrity

28. Special Issues in Fracture of Welded Joints

Thu., May 10, 2012 / 13:10 ~ 14:40 **Room D**

13:10 ~ 13:40 **ThD2-1** **[Keynote] Constraint-Based Assessment of Fracture of Welded Components**
Fumiyoshi Minami (Osaka Univ.)

13:40 ~ 14:00 **ThD2-2** **Effect factor of brittle rack propagation path in welded joint with Thick Steel Plate**
Gyu Baek An, Kang Mook Ryu (POSCO), Wan Chuck Woo (KAERI), Jeong Ung Park (Chosun Univ.), and Jong Sub Lee (POSCO)

14:00 ~ 14:20 **ThD2-3** **Evaluation Model for Hydrogen-Induced Fracture of High Strength Steel Welds Based on the Local Approach**
Mitsuru Ohata and Fumiyoshi Minami (Osaka Univ.)

14:20 ~ 14:40 **ThD2-4** **Characteristics of HAZ Fracture Toughness for High Strength Steel According to Heat Input**
Moon Dong Hyun, Kim Myung Hyun (Pusan National Univ.), and Oh Chong In (Total Marine Service Co., Ltd.)

ThE2

04. Arc Physics/Visual/ Simulation

29. Arc Physics/Visual/Simulation I

Thu., May 10, 2012 / 13:10 ~ 15:05 **Room E**

13:10 ~ 13:40 **ThE2-1** **[Keynote] Modeling of Human Welder Response to 3D Weld Pool Surface**
YuMing Zhang (Univ. of Kentucky)

13:40 ~ 14:05 **ThE2-2** **[Invited] The importance of metal vapour in arc welding**
Anthony Murphy (CSIRO Materials Science and Engineering)

14:05 ~ 14:25 **ThE2-3** **Numerical modeling of fume formation in arc welding**
Shinichi Tashiro (Osaka Univ.), Anthony Murphy (CSIRO), and Manabu Tanaka (Osaka Univ.)

14:25 ~ 14:45 **ThE2-4** **3D molten pool dynamics behavior in twin arc welding**
Dae-Won Cho, Suck-Joo Na (KAIST), Min-Hyun Cho (POSCO), and Jong-Sub Lee (POSCO)

14:45 ~ 15:05 **ThE2-5** **The study on Nitrogen permeation into the weld metal of Super Duplex Stainless Steel by TIG Welding**
Jae-Hyung Lee (Doosan Heavy Industries & Construction), Cheol-Gyu Park , Jong-Hun Jang (KISWEL Co., Ltd), Jae-Ho Jun, Jae-Gyu Byun, Byong-Ho Jung, and Sang-Myung Cho (Pukyung National Univ.)

ThF2

09. Electronic Packaging Reliability

30. Microjoining Characterizations I

Thu., May 10, 2012 / 13:10 ~ 14:55 **Room F**

13:10 ~ 13:35 **ThF2-1** **[Invited] Characterization of Micro Solder Bumps Fabricated by the Self-Formation Method**
Kiyokazu Yasuda (Nagoya Univ.)

13:35 ~ 13:55 **ThF2-2** **Melting point depression of tin nanoparticles manufactured by ultrasonic energy**
Seoung Youn Lee (Korea Aerospace Univ.)

13:55 ~ 14:15 **ThF2-3** **Relationship Between Young's Modulus and Crystal Orientation of Cu6Sn5 Phase formed on the Sn0.7wt%Cu/(110)Cu interface**
zhihao Zhang, Mingyu li (Harbin Institute of Technology, Shenzhen, China), and Jongmyung kim (Jeonnam Provincial College)

14:15 ~ 14:35 **ThF2-4** **Non-Linear Viscoelastic Characteristics of Sn-Ag-Cu Solder Pastes used in Electronics Assembly Applications**
N. N. Ekere, Erica HiuLaamChan and Sabuj Mallik (Univ. of Greenwich)

14:35 ~ 14:55 **ThF2-5** **Insulation resistance property of polyurethane conformal coating for automotive electronic devices**
Won Sik Hong and Chulmin Oh (Korea Electronics Technology Institute)

ThA3

01. Metallurgy, Weldability & Corrosion

31. Welding Metallurgy VI

Thu., May 10, 2012 / 15:10 ~ 16:55 **Room A**

15:10 ~ 15:35 **ThA3-1** **[Invited] In-situ observation techniques for phase transformation during welding**
Yu-ichi Komizo (Osaka Univ.)

15:35 ~ 15:55 **ThA3-2** **Evaluation of hydrogen delayed fracture suseptibility on microstructure for various grade high strength deposited weld metals**
Tae Woo Lee, Jae Seok Yoo (Pusan National Univ.), Seo Jeong Park, Byung Hyun Yoon, Woong Seong Chang (RIST), and Namhyun Kang (Pusan National Univ.)

15:55 ~ 16:15 **ThA3-3** **Eco-Green Corrosion Inhibitor from Rice Husk Ash for Carbon Steel**
Norinsan Othman, Nadzirah Mohamad, and Azman Jalar (The National Univ. of Malaysia)

16:15 ~ 16:35 **ThA3-4** **The effect of titanium on the microstructure and mechanical properties of HSLA multipass welds with tensile strength of over 900MPa**
Yongjoon Kang, Jihun Jang, and Changhee Lee (Hanyang Univ.)

16:35 ~ 16:55 **ThA3-5** **Visual analysis of phase transformation during the weld solidification**
Xinfang Zhang, Hidenori Terasaki, and Yuichi Komizo (Osaka Univ.)

ThB3

06. Sensing and Monitoring/Welding Processes / Welding Automation

32. Sensing and Monitoring/Welding Processes/Welding Automation V

Thu., May 10, 2012 / 15:10 ~ 16:50 **Room B**

15:10 ~ 15:30 **ThB3-1** **Development and Implementation of a New Joining Process for Endless Hot Rolling**
Jong-Sub Lee, Youn-Hee Kang, and Tea-Sung Jun (POSCO)

15:30 ~ 15:50 **ThB3-2** **Welding process stability evaluation of underwater wet manual metal arc welding**
Hu jiakun, Wu Chuansong, and Jia chuanbao (Shandong Univ.)

15:50 ~ 16:10 **ThB3-3** **Development of twin tandem EGW process for heat input reduction**
Hyoung Jin Park, Young Ho An, Won Taek Hwang, and Jong Sub Lee (POSCO)

16:10 ~ 16:30 **ThB3-4** **The effect of discharge time on joint quality for aluminum/steel dissimilar tubular joining using electromagnetic force**
Ji-Yeon Shim (KITECH), Ill-Soo Kim (Mokpo National Univ.), and Bong-Yong Kang (KITECH)

16:30 ~ 16:50 **ThB3-5** **GMA brazing of galvanized and aluminized steel sheets to Al 5052 alloy**
Minjung Kang, Youngnam Ahn, and Cheolhee Kim (KITECH)

ThC3

14. Inspection / Evaluation / Education & Qualification

33. Inspection

Thu., May 10, 2012 / 15:10 ~ 17:00 **Room C**

15:10 ~ 15:40 **ThC3-1** **[Keynote] Assessment of Steel Microstructure Evolution During Thermal Treatment by Magnetic and Electronic Non-Destructive Techniques**
Brajendra Mishra, David Olson, and Shai Mier (Colorado School of Mines)

15:40 ~ 16:00 **ThC3-2** **AE Characteristics of Stress Corrosion Crack in type 304 stainless steel pipe**
Youngkwan Woo, Hyunmin Lim, Jaesung Kim (Korea Aerospace Univ.), Sungsik Kang (Korea Inst. of Nuclear Safety), and Boyoung Lee (Korea Aerospace Univ.)

16:00 ~ 16:20 **ThC3-3** **FSM-monitoring of Fatigue Crack in Lattice stiffened Steel Plate Deck**
You-Chul Kim (Osaka Univ.), Hirohata Mikihito (Nagoya Univ), and Kyong-Ho Chang (Chung-Ang Univ)

16:20 ~ 16:40 **ThC3-4** **Probabilistic Rattle Noise Detection for Polymer Structure Degraded by Environmental Changes**
Che Kyu Lim (Korea Aerospace Univ.)

16:40 ~ 17:00 **ThC3-5** **Crack growth prediction under variable loading condition based on real test data**
Sang Hyuck Leem , Dawn An , Che Kyu Lim, Joo-Ho Choi , and Woongki Hwang (Korea Aerospace Univ.)

ThD3

03. Welding Strength/Integrity

34. Issues in Strenth Evaluation of Welds

Thu., May 10, 2012 / 15:10 ~ 16:35 **Room D**

15:10 ~ 15:35 **ThD3-1** **[Invited] Application of Inherent Deformation and Interface Element to Prediction of Welding Distortion during Assembly Process from Cutting through Straightening**
Hidekazu Murakawa (Osaka Univ.)

15:35 ~ 15:55 **ThD3-2** **New Methods in Joining Aluminum in Body in White production**
Fritz Luidhardt and Jörg Eggers (Harms & Wende GmbH & Co KG)

15:55 ~ 16:15 **ThD3-3** **A comparative study on direct and pulsed current gas tungsten arc welding of Inconel 617**
morteza shamanian and fakhredin ashrafizadeh (isfahan Univ. of technology)

16:15 ~ 16:35 **ThD3-4** **A study on low tmeperature strength evaluation in Thick plate welded material.**
Sun chul Huh, Gwi nam Kim, and joun sung Park (Gyeongsang National Univ.)

ThE3

04. Arc Physics/Visual/ Simulation

35. Arc Physics/Visual/Simulation II

Thu., May 10, 2012 / 15:10 ~ 16:55 **Room E**

15:10 ~ 15:35 **ThE3-1** **[Invited] Multi-physics modeling and experimental validation of keyhole plasma arc welding**
C.S. Wu, T. Zhang, and Z.M. Liu (Shandong Univ.)

15:35 ~ 15:55 **ThE3-2** **Numerical Simulation of Gas Metal Arc with Metal Vapor for Heat Source in Welding**
Yoshihiro Tsujimura, Shinichi, and Manabu Tanaka (Osaka Univ.)

15:55 ~ 16:15 **ThE3-3** **Numerical Study on Molten Pool Flow and Alloying Element Distribution in Laser-GMA Hybrid Welding**
Won-Ik Cho, Suck-Joo Na (KAIST), and Jung-Ho Cho (Chungbuk National Univ.)

16:15 ~ 16:35 **ThE3-4** **Laser Welding of Aluminum Alloy Tailored Blank and Numerical Simulation**
Ding FAN, Shurong YU, Jinhui XIONG, and Gang WANG (Lanzhou Univ. of Technology)

16:35 ~ 16:55 **ThE3-5** **A study on the welding characteristics of plug arc spot welding according to the changing a teaching position**
Bo-young Lee, Kyung-min Lee, Young-kwan Woo (Korea Aerospace Univ.), Buk-dong Yoon, Min-ki Jeong (KIA MOTORS), and Moon-soo Pakr (NGV)

ThF3

09. Electronic Packaging Reliability

36. Microjoining Characterizations II

Thu., May 10, 2012 / 15:10 ~ 16:35 **Room F**

15:10 ~ 15:35 **ThF3-1** **[Invited] Recent advances in anisotropic growth of interfacial Cu6Sn5 phase: evidence, kinetic mechanism, and service reliability issue**
Mingyu li (Harbin institute of technology, China)

15:35 ~ 15:55 **ThF3-2** **Growth orientations of Cu6Sn5 formed at Sn-based solders/Cu interfaces**
Ming Yang, Mingyu Li (Harbin Institute of Technology), and Jongmyung Kim (Jeonnam Provincial College)

15:55 ~ 16:15 **ThF3-3** **Analysis on Characterization of Ag Circuits Fabricated by Direct Printing and Electron Beam Evaporation**
Kwang-Seok Kim (Sungkyunkwan Univ.), Woo-Ram Myung (Sungkyunkwan Univ.), and Seung-Boo Jung (Sungkyunkwan Univ.)

16:15 ~ 16:35 **ThF3-4** **Preparation and characterization of Sn-Ag-Cu solder alloys in pyrophosphate and iodide based bath**
Dae gyu Shin, Chul wung Kim, Jin ki Cho, and Hee chul Lee (Korea Polytechnic Univ.)

Poster II

Poster Session II

Thu., May 10, 2012 / 16:50 ~ 18:30 **Lobby, 2F**

Poster II-01 **Effect of rotation speed and feed ratio on mechanical and microstructure properties of friction stir welding of AA6061 and AA7277**
saeid sattari

Poster II-02 **Measurement of mechanical properties in weld zone of nuclear material by instrumented indentation technique**
Kee-nam Song (KAERI)

Poster II-03 **Crush strength analysis of a spacer grid for PWR Fuel considering mechanical properties in weld zone**
Kee-nam Song (KAERI)

Poster II-04 **High-temperature structural analysis of a small-scale PHE prototype considering mechanical properties in weld zone**
Kee-nam Song (KAERI)

Poster II-05 **Assessment of fracture mechanical characteristics at the weld of Ni base super alloy 617 below the low fatigue limit**
Tae kyun Kim, Young Soo Park, and Dong ho Bae (Sungkyunkwan Univ)

Poster II-06 **A study on mechanical behavior of alloy 718 welded**

joint for blow forming
Ho-Sung Lee (Korea Aerospace Research Institute), Woo-Hyun Cho (Univ. of Science & Technology), Jong-Hoon Yoon, Joon-tae Yoo (Korea Aerospace Research Institute), and Ji-Ung Choi (Univ. of Science & Technology)

Poster II-07 **The failure Analysis of fractured Duplex stainless steel Screen of Condenser Tube Cleaning for Seawater Desalination in Nuclear and Thermal Power Plants**
BokSu Jang, YoungMin, NamHoon Kim, and JinHyun Koh (Korea Univ. of Technology and Education)

Poster II-08 **The research on the properties of the resistance corrosion layers of Clad steel according to the welding condition and heat treatment condition**
Chulku Lee (Seoul National Univ. of Science and Technology)

Poster II-09 **Experimental Study on the Fatigue Reliability of an End Cap Welding in a Nuclear Annular Fuel Rod under a Simulated Loading Condition**
Young-Ho Lee and Hyung-Kyu Kim (Korea Atomic Energy Research Institute)

Poster II-10 **Effect of Weld Joint Geometry on Elastic-Plastic Collapse of Natural Gas Pipelines**
Jong-hyun Baek, Young-pyo Kim, and Woo-sik Kim (Korea Gas Corporation)

Poster II-11 **Effect of Cr content on the microstructure and mechanical properties of Fe-Cr-C hardfacing alloys**
Hee-Dae Im, Young-Joon Kim, Woong Kil (ESAB SeAH Corp.), Yinsheng He, Kejian, and Keesam Shin

(Changwon National Univ.)

Poster II-12 **The Effects of Magnetism in Narrow-gap TIG Welding of Thick Plates**

Qing Jie SUN, Wen Jie LI, Duo, and Ji Cai FENG (Harbin Institute of Technology at Weihai)

Poster II-13 **The study of the narrow gap TIG arc characteristics under transverse alternating magnetic field**

Qing Jie SUN, Yun Lu JIANG, Duo LIU, and Ji Cai FENG (Harbin Institute of Technology at Weihai)

Poster II-14 **Grain growth during laser linear and weaving welding of Al 5J32 alloy**

Cheolhee Kim (KITECH), Minjung Kang (KITECH), and Namhyun Kang (Pusan Univ.)

Poster II-15 **Influence of additional electronic current on friction stir welding process by a multi-physics fields coupled model and FEM**

Jian LUO (State Key Laboratory of Mechanical Transmission, Chongqing Univ., Chongqing), Junfeng XIANG (State Key Laboratory of Mechanical Transmission, Chongqing Univ., Chongqing), Jie Chen (Chongqing Special Equipment Quality Safe Inspection Center, Chongqing), and Yanhong FAN (State Key Laboratory of Mechanical Transmission, Chongqing Univ., Chongqing)

Poster II-16 **Effects of Surface Finishes on Interfacial Reaction Characteristics of Sn-3.5Ag and Sn-0.7Cu Solder Bumps**

Jae-Myeong Kim (Andong National Univ.), Sung-Hyuk Kim (Andong National Univ.), Sehoon Yoo (Korea Institute of Industrial Technology), and Young-Bae Park

(Andong National Univ.)

Poster II-17 **Characteristics of low temperature cure type NCP flip chip process accessibility**

Won-Jung Choi (KITECH, Inha Univ.), Hae-Yeon Kim (KITECH, Inha Univ.), Jea-Won Jang (KITECH), Mok-Soon Kim (Inha Univ.), and Jun-Ki Kim (KITECH)

Poster II-18 **Failure mode and mechanism of multi-layer flexible embedded module based on Physics-of-Failure(PoF)**

Won Sik Hong (Korea Electronics Technology Institute), Chulmin Oh (Korea Electronics Technology Institute), Sung-Taik Hong (Samsung Techwin Co., LTD), Woo-Suk Choi (Samsung Techwin Co., LTD), and Joong-Do Kim (Samsung Techwin Co., LTD)

Poster II-19 **EMBEDDED ACTIVE DEVICE FOR BENDABLE ELECTRONIC MODULE**

Sung-Taik Hong (Samsung Techwin), Woo-Suk Choi (Samsung Techwin), Won Sik Hong (Korea Electronics Technology Institute), Chulmin Oh (Korea Electronics Technology Institute), and Joong-Do Kim (Samsung Techwin)

Poster II-20 **Remaining Life Prediction of Flat-plate Heat Pipe in Use based on the Observation of Temperature Change**

Hyun Jin Kim (Korea Aerospace Univ.)

Poster II-21 **Effects of reflow process in microstructure and tensile fracture property of Sn-9Zn/Cu joint interface layer**

Hsiao Yi-Da, Hung Fei-Yi, Lui Truan-Sheng, and Chen Li-Hui (National Cheng Kung Univ., TAIWAN)

Poster II-22 **Evaluation of fine pitch IG(Immersion Gold)for high**

reliability PCB in mobile module
joon kyun lee (Korea Institute of Industrial Technology) and jin seop sim (Korea Institute of Industrial Technology)

Poster II-23 **Process accessibility of high temperature cure type NCP flip chip package**
Hae-Yeon Kim (1Korea Institute of Industrial Technology), Won-Jung Choi (1Korea Institute of Industrial Technology), Eun-Tack Jeung (1Korea Institute of Industrial Technology), Mok-Soon Kim (2School of Materials Science & Engineering, Inha Univ.), and Jun-Ki Kim (1Korea Institute of Industrial Technology)

Poster II-24 **Study on Micro-structure of Low Alpha Lead Free Solder**
Do hyun Jung (Univ. of Seoul), Jae pil Jung (Univ. of Seoul), Kumar Santosh (Univ. of Seoul), Sung Chul Hong (Univ. of Seoul), Xu Zeng Feng (Univ. of Seoul), and Hyun kyu Lee (Duksan Hi-metal CO., LTD.,)

Poster II-25 **The reflectance of displacement deposition Sn and SnAg for LED lead frame**
Zengfeng Xu, Santosh Kumar (Univ. of Seoul), Semi Oh (Korea Polytechnic Univ), Jae Pil Jung (Univ. of Seoul,), and Kyoung Kook Kim (Korea Polytechnic Univ.)

Poster II-26 **Bonding characteristics of adding nano Ni particles in magnetic properties and electromagnetic interference shielding of Sn-40Al alloy powders**
Hung Fei-Shuo, Hung Fei-Yi, Lui Truan-Sheng, Chen, and Chiang Che-Ming (National Cheng Kung Univ.)

Poster II-27 **A reliable welding method for carbon nanotubes to**

aluminum surface

Yao Anren (School of Materials Science and Engineering, Tianjin Univ.), Luo Zhen (School of Materials Science and Engineering, Tianjin Univ.), and Zhang Jianwu (School of Materials Science and Engineering, Tianjin Univ.)

Poster II-28 **Hybrid Integration of Optical Subassembly Module with a WDM Filter Based on Multimode Interference using Flip-chip Bond Technique**

Jung Woon Lim (Korea Photonics Technology Institute), Swook Hann (Korea Photonics Technology Institute), Sung Hwan Hwang (Korea Photonics Technology Institute), Seon Hoon Kim (Korea Photonics Technology Institute), Boo-Gyoun Kim (Soongsil Univ.), and Byung Sup Rho (Korea Photonics Technology Institute)

Poster II-29 **FPCB bonding process using Nd:YAG laser patterning**

Hyuk Hoon Shim (1Institute for Industrial Technology Policy) and Jong Hyeong Kim (Seoul National Univ. of Science &Technology)

Poster II-30 **An efficient edge traces technique for stack chip interconnection**

Sun-Rak Kim (KAIST), Jae Hak Lee (KIMM), and Seung Seob Lee (KAIST)

Poster II-31 **Platform technology of surface mounting technology for fine-sized chip**

Kwon Sang-Hyun (Korea Institute of Industrial Technology), Kim Jeong-Han (Korea Institute of Industrial Technology), Lee Chang-Woo (Korea Institute of Industrial Technology), and Yoo Sehoon (Korea Institute of Industrial Technology)

Poster II-32 **Properties of Au/Pd ion sputter coated PDMS sheet after RF plasma surface treatment**
Kiyokazu Yasuda (Nagoya Univ.)

Poster II-33 **Interface microstructure and mechanical property of titanium clad steel sheets**
K.S. Lee (Korea Institute of Materials Science), Y.N. Kwon (Korea Institute of Materials Science), S.Y. Shin (POSTECH), H.K. Sung (POSTECH), S. Lee (POSTECH), and Y.S. Lee (Korea Institute of Materials Science)

Poster II-34 **DC Electroplating for Cu-Ni composite layer and suppression of Kirkendall voids**
Sang-Soo Chee (Seoul National Univ. of Science and Technology) and Jong-Hyun Lee (Seoul National Univ. of Science and Technology)

Poster II-35 **Influence of annealing upon interface microstructure and subsequent mechanical properties of STS-Al-Mg 3-ply clad sheet.**
Lee kwang Seok (Korea Institure of Materials Science, Materials Deformation Group), Lee Su Eun (Korea Institure of Materials Science, Materials Deformation Group), and Lee Young Sun (Korea Institure of Materials Science, Materials Deformation Group)

Poster II-36 **Liquid-solid interface bonding of Al-Cu hybrid metal**
K. S. Lee, S. E. Lee, D. H. Yoon (Korea institute of Materials Science), Y.-M. Kim, Lydia Y. Aguirre-Perales, I.-H Jung (McGill Univ.), and Y. N. Kwon (Korea institute of Materials Science)

Poster II-37 **Flux residue effect on the electrochemical migration of Sn-3.0Ag-0.5Cu**

Jung-Hwan Bang and Chang-Woo Lee (KITECH)

Poster II-38 **Characteristics of diffusion bonded Ti alloy to AISI 304 stainless steel**

Se-Hwan Lee and Heon-Suk Hong(Agency for Defense Develpment)

Poster II-39 **Effect of Indium Content on the Oxidation and Dross Characteristics of Sn-2Ag-3Bi-xIn Solders**

Ae-jeong Jeon (Pusan Univ.), Sung-jun Kim (Samsung Electronics Co. Ltd.), Sang-hoon Lee (Korea Institute of Materials Science), and Chung-yun Kang (Pusan Univ.)

Poster II-40 **Change of Microstructure in the Bonded Interlayer of Ni Base Superalloy, GTD-111 with Changing of Cooling rates**

Hoejun Heo (Pusan National Univ.), Jaekeun Hong (Korea Institute of Materials Science), and Chungyun Kang` (Pusan National Univ.)

Poster II-41 **A study on the Interfacial Reaction and Bond strength in Zirconia and Titanium alloy using Ag-Cu-Sn-Ti**

Il Ho Jeong, Sang Yoon Park, and Jae Pil Jung (Univ. of Seoul)

Poster II-42 **Diffusion bonding of Ti-6Al-4V to Al7075 using a Sn-based interlayer**

Mohammad Saleh Kenevisi (Amirkabir Univ. of Technology (Tehran Polytechnic)) and Seyed Mohammad Mousavi Khoie (Amirkabir Univ. of Technology (Tehran Polytechnic))

Poster II-43 **Diffusion Bonding of Ni-base Superalloys for the Application of VHTR Intermediate Heat Exchanger**

Injin Dah, Donghoon Kim, and Changheui Jang (KAIST)

Poster II-44 **Characterization of hydrophilic steel surface using laser ablation processing**
jiwhan noh, Jae-Hoon Lee (KIMM), and Suckjoo Na (KAIST)

Poster II-45 **Chemical Modification of Nano-carbons and Silver Nanowires for Transparent Conducting Films**
Do Hyeong Kim, Bona Kim, Young Soo Yun, and Hyoung-Joon Jin (Inha Univ.)

Poster II-46 **Physical Properties of Anodic Film Formed on 7075 Al Injection Mold in Oxalic-Citric Mixed Acid Electrolyte**
SeongHo Han (KITECH)

Poster II-47 **Machining Error and Draft Angle Modeling by Using Response Surface Method in Micro End-milling**
Tae-Il Seo, Ji-Hyun Cho (Univ. of Incheon), and Gil-Sang Yoon (Korea Institute of Industrial Technology)

Poster II-48 **High reflectivity metal sputtering for cellular phone case**
Young Sik Song (KITECH)

Poster II-49 **Knowledge sharing platform for designing cellular phone cases**
Tae-Sung Jung and Du-Soon Choi (Technical College)

Poster II-50 **Systematization of 2cavity Injection Mold Fabrication Process for Mobile External Case**
Jeong-Won Lee, Jeong-Yeon Park, Gun-Hee Kim, and Gil-Sang Yoon (Systematization of 2cavity Injection Mold Fabrication Process for Mobile External Case)

Poster II-51 **A study on CF4-based plasma modification for the improvement of metal-to-glass adhesion**
Hyung Soo Kim, Da Sol Han, Seong Eui, and Hee Chul Lee (Korea Polytechnic Univ.)

Poster II-52 **Relationship between adhesive joint strength and surface free energy of cold-rolled steel**
Kim Min-Su, Lee So-Jeong, Lee Jong-Dae (Korea Institute of Industrial Technology), Choe Young-Son (Pusan National Univ.), Kim Jong-, and Kim Jun-Ki (Korea Institute of Industrial Technology)

Poster II-53 **Effects of CaCO3 and MgO as Welding Flux on GMA Overlay Weld Geometry**
Nam-Hoon Kim, Jin-Hyun Koh, Hui-Hun Suh, Ji-Hui Kim, In-Ju Kim, and Jun-Ki Kim (Korea Institute of Industrial Technology)

Poster II-54 **The electrodeposition of copper for through-hole with high aspect ratio in multilayer PCB fabrication**
Seong Ho Son, Hyeong Mi Kim, Sung Cheol Park, and Hyo-Soo Lee (Korea Institute of Industrial Technology)

Poster II-55 **Machining Characteristics of Copper and Graphite Electrodes for Die-sinking EDM of Hardened Mold Steel**
Jin-seok Yang (Korea Institute of Industrial Technology)

Poster II-56 **A Simulation of in-mold decoration molding process for uniting thin-film with thermoplastic part**
Sung-Hee Lee and Jong-Won Lee (KITECH)

Poster II-57 **Effect of UNSM on the microstructural evolution of**

Inconel 690 Alloy

Kejian Li, Yinsheng He, Zhixin Wan (Changwon National Univeristy), InShik Cho, ChangSoon Lee, InGyu Park (Sun Moon Univ.), and Keesam Shin (Changwon National Univeristy)

Poster II-58 **Welding Process Management System for Quality Guaranteed**

Sang-Ki Park, Yean-Shic Ahn, and Doo-Song Gil (KEPRI)

Poster II-59 **The Health Evaluation of Pipe Welding Point by Using Guided wave Inspection method**

Ahn Yeon-Shik, Park Sang-Ki, and Gil Doo-Song (Korea Electric Power Research Institute)

Poster II-60 **A Study on the Tensile Characteristics of High Strength Steels according to Grain Size Number using Acoustic Emission**

Sang-yun Lee, Young-kwan Woo, Woong-gi Hwang, and Bo-young Lee (Korea Aerospace Univ.)

Poster II-61 **Study of generating mechanism about stress corrosion cracking**

Jun-young Nam, Kyung-min Lee, woong-gi Hwang, and Bo-young Lee (Korea aerospace Univ.)

Poster II-62 **Evaluation of Reheat Cracking Susceptibility with Simulated Fusion Zone in 600MPa High Strength Cr-Mo-V Steel**

Kyongwoon Lee (Doosan Heavy Industries & Construction), Hyesung Na (Pusan National Univ.), Dongjin Kim (Doosan Heavy Industries & Construction), and Chungyun Kang (Pusan National Univ.)

Poster II-63 **Rheological Characteristics of Jet A-1/SiO2 Gel Propellant and Comparisons of Mixing Device for Simulant Gel production**

Jaewoo Kim, Doosung Jun, and Heejang Moon (Korea Aerospace Univ.)

FA1

01. Metallurgy, Weldability & Corrosion

37. Welding Metallurgy VII

Fri., May 11, 2012 / 10:00 ~ 12:05 **Room A**

10:00 ~ 10:25 **FA1-1** **[Invited] TBA**
Dr. Jong Sub Lee (POSCO Korea)

10:25 ~ 10:45 **FA1-2** **Investigation of the Effects of Preheat Temperature on Al-5083 Alloy's Microstructure in GMAW Welding**
Ramin Saberi (Islamic Azad Univ., Iran) and Ebrahim Heshmatdehkordi (Iranian Corrosion Association)

10:45 ~ 11:05 **FA1-3** **Oxide layer of Double-V Welded Aluminum Alloy**
Abas Haron, Che Lah Nur Azida (Universiti Kuala Lumpur Malaysia France Institute), Jalar Azman, and Othman Norinsan Kamil (Universiti Kebangsaan Malaysia)

11:05 ~ 11:25 **FA1-4** **Optimization of weld bead geometry of titanium alloys by Taguchi method and evaluation of microstructure and mechanical properties**
Nazmul Huda (Dong-Eui Univ.)

11:25 ~ 11:45 **FA1-5** **Microstructure and properties of as-welded and post-weld heat treated dissimilar Ti-6Al-4V and Ti-6.5Al-3.5Mo-1.5Zr-0.3Si joints by linear friction welding**
Tiejun Ma, Bin Zhong, Wenya, Yong Zhang, and Siqian Yang (Northwestern Polytechnical Univ.)

11:45 ~ 12:05 **FA1-6** **Effect of Ni and micro-alloy elements on the toughness of flux cored weld metal**
J. T. Choi), S. G. Park, and Y. I. Kim (Hyundai Heavy Industry)

FB1

10. Electronic Packaging Materials

38. PCB Modules

Fri., May 11, 2012 / 10:00 ~ 11:30 **Room B**

10:00 ~ 10:30 **FB1-1** **[Keynote] From Microjoining to Nanojoining**
Y. Norman Zhou, Anming Hu (Univ. of Waterloo), and Gui-Sheng Zou (Tsinghua Univ.)

10:30 ~ 10:50 **FB1-2** **Optimization of solder printing efficiency for ultrafine electronic components**
Sang-Hyun, Jun-Ki Kim, Chang-Woo Lee, and Sehoon Yoo (Korea Institute of Industrial Technology)

10:50 ~ 11:10 **FB1-3** **Correlations between Interfacial Reaction Characteristics and Reliabilities of Sn-3.0Ag-0.5Cu and Sn-1.2Ag-0.7Cu-0.4In Solder Joints**
Jae-Myeong Kim, Jong-Myeong Park, Sehoon Yoo (, and Young-Bae Park (Andong national Univ.)

11:10 ~ 11:30 **FB1-4** **Estimation of Process-Induced Deformation During TSV Stacked Bonding**
Kim Kyoung-Ho (Seoul National Univ. of Science and Technology), Lee Haeng-Soo (Ulsan College), and Choa Sung-Hoon (Seoul National Univ. of Science and Technology)

FC1

14. Inspection / Evaluation / Education & Qualification

39. Inspection - Qualification

Fri., May 11, 2012 / 10:00 ~ 11:40 **Room C**

10:00 ~ 10:20 **FC1-1** **Non-destructive evaluation of weld penetration during arc welding**
Ling Shih Fu (Nanyang Technological Univ. of Singapore)

10:20 ~ 10:40 **FC1-2** **Studies to enhance accuracy of expecting shape and size of thermal fatigue crack**
Woonggi Hwang, Kyungmin Lee, Youngkwan Woo (Korea Aerospace Univ.), Nokwon Kwag (Sae-An Engineering Corp.), and Boyoung Lee (Korea Aerospace Univ.)

10:40 ~ 11:00 **FC1-3** **International standards for welder qualification "ISO 9606 series " : Non-Conformities**
Shahin Rahimmalek (MAPNA Generator Co. (PARS)) and Alireza Samimi Motaghi (MAPNA Generator Co. (PARS))

11:00 ~ 11:20 **FC1-4** **The significance of competency standards development to cultivate competent welders**
Jin Hyun Koh, Seong Joo Choi, and Chick Yeul Lee (Korea Univ. of Technology and Education)

11:20 ~ 11:40 **FC1-5** **Technical mismatches in Specification and Qualification of welding procedures for metallic materials -welding procedure test - "ISO 15609 , ISO 15614 STANDARD series "**
ALIREZA SAMIMI and SHAHIN RAHIMMALEK (MAPNA GENERATOR CO. (PARS))

FD1

11. Nano/Microjoining Process

40. Display and Case Modules

Fri., May 11, 2012 / 10:00 ~ 11:50 **Room D**

10:00 ~ 10:30 **FD1-1** **[Keynote] Low-temperature joining technique for electronics packaging by sintering of nano-scale Ag particles**
Akio Hirose (Osaka Univ.)

10:30 ~ 10:50 **FD1-2** **A Study of High-intensity and Micro Pattern Manufacturing Technology in Mobile Optical Parts**
Young Bae Ko (Korea Institute of Industrial Technology, Dankook Univ.), In Ki Min (Dankook Univ.), and Kyung Hwan Yoon (Dankook Univ.)

10:50 ~ 11:10 **FD1-3** **An Experimental Study on the Replication of Micro Optical Pattern in Injection-Molded 2.5 inch LGP for Mobile Application**
inki Min (Dankook Univ.), Youngbae Ko (KITECH), and Kyunghwan Yoon (Dankook Univ.)

11:10 ~ 11:30 **FD1-4** **A Stucy on the Micro Endmilling Deflection according to Impact Force in the Slot Cutting-face Penetration**
Jong-In Son, Jeong-Won Lee, Gun-Hee, and Gil-Sang Yoon (Korea Institute of Industrial Technology)

11:30 ~ 11:50 **FD1-5** **Development of standard platform for mobile phone housings**
Du-Soon Choi and Tae-Sung Jung (Inha Technical College)

FE1

12. Diffusion Bonding, Brazing, TLP Bonding, Soldering

41. Diffusion Bonding, Brazing, TLP Bonding, Soldering

Fri., May 11, 2012 / 10:00 ~ 11:50 **Room E**

10:00 ~ 10:30 **FE1-1** **[Keynote] A New Reactive TLP Bonding of Steel and Mg Alloys**
Toshihiko Koseki (The Univ. of Tokyo)

10:30 ~ 10:50 **FE1-2** **Dissimilar laser brazing of sialon to WC-Co alloy using the Ag-Cu-Ti activated filler metal**
Kimiaki Nagatsuka, Shoitirou Yoshida (Osaka Univ.), Yoshihisa Sechi (Kagoshima Prefectural Institute of Industrial Technology), and Kazuhiro Nakata (Osaka Univ.)

10:50 ~ 11:10 **FE1-3** **Isothermal solidification time during TLP bonding of IN718/Ni-Si-B-Fe/IN718**
Majid Pouranvari, Ali Ekrami, and Amir Hosein Kokabi (Sharif Univ. of Technology)

11:10 ~ 11:30 **FE1-4** **Effect of Filler Metal Composition on Tensile strength in arc brazed joints of 1000MPa grade DP steel**
Hyesung Na, Youngho Cho (Pusan Nat'l Univ.), Sookhwan Kim (RIST), and Chungyun Kang (Pusan Nat'l Univ.)

11:30 ~ 11:50 **FE1-5** **A comparison of two modeling methods for residual stress prediction in the bonded compliant seal of planar solid oxide fuel cell**
Wenchun Jiang and Wanchuck Woo (KAERI)

FF1

13. Surface Modification

42. Surface Modification

Fri., May 11, 2012 / 10:00 ~ 11:20 **Room F**

10:00 ~ 10:20 **FF1-1** **Tailoring the particle impact conditions to produce ultrafine grained Ni deposits by a kinetic spraying process**
Gyuyeol Bae and Changhee Lee (Hanyang Univ.)

10:20 ~ 10:40 **FF1-2** **Study on property of surfacing welding layer of 42CrMo**
Wang Hao and Luo Zhen (Tianjin Univ, China)

10:40 ~ 11:00 **FF1-3** **Mechanical properties of multi-walled carbon nanotube reinforced face-centered cubic metal matrix composites fabricated by kinetic and thermal spray technologies**
Kicheol Kang and Changhee Lee (Hanyang Univ.)

11:00 ~ 11:20 **FF1-4** **Developing organic corrosion inhibitor from biomass waste of rice straw for metal industries**
Solhan Yahya, Norinsan, and Azman Jalar
(The National Univ. of Malaysia)