80 2011
OSAKA UNIVERSITY

Visual-JW2010

11-12 November, 2010
Hotel Hankyu Expo Park, Osaka, Japan

The International Symposium on
Visualization in Joining & Welding Science
through Advanced Measurements and Simulation,
and
Advanced Materials Development and
Integration of Novel Structured Metallic and Inorganic Materials
in conjunction with
Symposium on the Research Activities of
Joint Usage / Research Center on Joining and Welding

FINAL PROGRAM

Organized by Joining and Welding Research Institute, Osaka University
Co-organized by Japan Welding Society

Visual-JW2010

In the year 2010, the International Symposium on Visualization in Joining & Welding Science through Advanced Measurements and Simulation, and Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials in conjunction with symposium on the research activities of Joint Usage / Research Center on Joining and Welding will be held on 11-12, November at the Hotel Hankyu Expo Park in Osaka, Japan.

The Symposium aims to promote direct exchange of the latest scientific and technological information related to visualization of complex phenomena in material processing through advanced measurements and simulation. It will also provide a good opportunity to discuss on the future and the strategy regarding R&D of materials processing.

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Osamu Takai, Nagoya University, Japan
Ai Ping Wu, Tsinghua University, China
Chuan Song Wu, Shandong University, China
Kimihiro Yamashita, Tokyo Medical and Dental University, Japan

Schedule of the Symposium

	Thursday 11-November				
Room	Room A	Room B	Room C	Room D	Room E
Session Name					
09:00-09:10	Opening Ceremony at Room G				
09:10-10:00	Keynote Lecture 1 at Room G				
10:00-10:50	Keynote Lecture 2 at Room G				
10:50~11:00	Coffee Break				
Session Name	Visualization of joining and welding process (1)	Visualization of advanced material processing (1)	Visualization of mechanics in joining and welding (1)	Visualization of metallurgy in joining and welding (1)	Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (1)
11:00-11:25	JWP-1	AMP-1	MCJW-1	MTJW-1	AMDI-1
11:25-11:50	JWP-2	AMP-2	MCJW-2	MTJW-2	AMDI-2
11:50-12:15	JWP-3	AMP-3	MCJW-3	MTJW-3	AMDI-3
12:15-12:40	JWP-4	AMP-4	MCJW-4	MTJW-4	AMDI-4
12:40-13:40	Lunch				
Session Name	Visualization of joining and welding process (2)	Visualization of advanced material processing (2)	Visualization of mechanics in joining and welding (2)	Visualization of metallurgy in joining and welding (2)	Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (2)
13:40-14:05	JWP-5	AMP-5	MCJW-5	MTJW-5	AMDI-5
14:05-14:30	JWP-6	AMP-6	MCJW-6	MTJW-6	AMDI-6
14:30-14:55	JWP-7	AMP-7	MCJW-7	MTJW-7	AMDI-7
14:55-15:20	JWP-8	AMP-8	MCJW-8	MTJW-8	AMDI-8
15:20-15:40	Coffee Break				
Session Name	Visualization of joining and welding process (3)	Visualization of quality, safety and reliability (1)	Visualization of mechanics in joining and welding (3)	Visualization of metallurgy in joining and welding (3)	Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (3)
15:40-16:05	JWP-9	QSR-1	MCJW-9	MTJW-9	AMDI-9
16:05-16:30	JWP-10	QSR-2	MCJW-10	MTJW-10	AMDI-10
16:30-16:55	JWP-11	QSR-3	MCJW-11	MTJW-11	AMDI-11
16:55-17:20	JWP-12	QSR-4	MCJW-12	MTJW-12	AMDI-12
17:20-18:20	Poster at Room F				
18:30-20:30	Reception at Room G				

Schedule of the Symposium

	Friday 12-November			
Room	Room A	Room B	Room C	Room D
Session Name	The research activities of Joint Usage / Research Center on Joining and Welding (Joining and Welding Processing 1)	The research activities of Joint Usage / Research Center on Joining and Welding (Visualization & Evaluation 1)	The research activities of Joint Usage / Research Center on Joining and Welding (Smart Processing 1)	
9:00-9:25	RAJU-JW1	RAJU-VE1	RAJU-SP1	
9:25-9:50	RAJU-JW2	RAJU-VE2	RAJU-SP2	
9:50-10:15	RAJU-JW3	RAJU-VE3	RAJU-SP3	
10:15-10:30	Coffee Break			
Session Name	The research activities of Joint Usage / Research Center on Joining and Welding (Joining and Welding Processing 2)	The research activities of Joint Usage / Research Center on Joining and Welding (Visualization & Evaluation 2)	The research activities of Joint Usage / Research Center on Joining and Welding (Smart Processing 2)	
10:30-10:55	RAJU-JW4	RAJU-VE4	RAJU-SP4	
10:55-11:20	RAJU-JW5	RAJU-VE5	RAJU-SP5	
11:20-11:45	RAJU-JW6	RAJU-VE6	RAJU-SP6	
11:45-12:00	General discussion	General discussion	General discussion	
12:00-13:20	Lunch			
Session Name	Visualization of joining and welding process (4)	Visualization of joining and welding process (5)	Visualization of mechanics in joining and welding (4)	Visualization of processing of nano & micro materials (1)
13:20-13:45	JWP-13	JWP-17	MCJW-13	PNMM-1
13:45-14:10	JWP-14	JWP-18	MCJW-14	PNMM-2
14:10-14:35	JWP-15	JWP-19	MCJW-15	PNMM-3
14:35-15:00	JWP-16	JWP-20	MCJW-16	PNMM-4
15:00-15:20	Coffee Break			
Session Name	Visualization of joining and welding process (6)	Visualization of mechanics in joining and welding (6)	Visualization of mechanics in joining and welding (5)	Visualization of processing of nano & micro materials (2)
15:20-15:45	JWP-21	MCJW-21	MCJW-17	PNMM-5
15:45-16:10	JWP-22	MCJW-22	MCJW-18	PNMM-6
16:10-16:35	JWP-23	MCJW-23	MCJW-19	PNMM-7
16:35-17:00	JWP-24	MCJW-24	MCJW-20	PNMM-8

TECHNICAL PROGRAM

-Oral Presentation-

Thursday 11-November

Room G

9:00-9:10: Opening ceremony

Greetings: Prof. Hidekazu Muarakawa, Osaka University
The Conference Chairman

Prof. Kazuhiro Nakata, Osaka University
The Director of Joining and Welding Research Institute, Osaka University

9:10-10:50: Keynote lectures

Keynote lecture 1 ”Recent Topics of Bulk Glassy Alloys”
Prof. Akihisa Inoue, Tohoku University
The President of Tohoku University

Keynote lecture 2 "Ex-situ and In-situ Characterization Techniques for Comprehensive Visualization of Welds”
Prof. Suresh Babu, Ohio State University

Visualization in Joining & Welding Science through Advanced Measurements and Simulation

Room A

11:00-12:40: Visualization of joining and welding process (1) (JWP)

Chair Persons: Suck-Joo Na (KAIST), Korea
Manabu Tanaka (Osaka Univ.), Japan

JWP-1 **Invited Lecture**: "Three-dimensional computational modelling of MIG welding"
Anthony Bruce Murphy (CSIRO), Australia

JWP-2 **Invited Lecture**:"Weld pool development and stirring behavior of AlCu4SiMg aluminum alloy during GTA welding hybrid a longitudinal electromagnetic field"
Jian Luo (Chongqing Univ.), China

JWP-3 "Numerical simulation of molten pool flow for various welding parameters in V-groove GMA pipe welding"
Dae-Won Cho, Suck-Joo Na (KAIST), Min-Hyun Cho and Jong-Sub Lee (POSCO), Korea

JWP-4 "Three-dimensional simulation of a flow in an arc weld pool by SPH method"
Masaya Shigeta, Masumi Ito, Seiichiro Izawa and Yu Fukunishi (Tohoku Univ.), Japan

13:40-15:20: Visualization of joining and welding process (2) (JWP)

Chair Persons: Anthony Bruce Murphy (CSIRO), Australia
Masaya Shigeta (Tohoku Univ.), Japan

JWP-5 **Invited Lecture**: "Numerical simulation and vision-based sensing of key-holing process in plasma arc welding"
Zuming Liu, Xiaojie Wang and Chuan Song Wu (Shandong Univ.), China

JWP-6 **Invited Lecture**: "A Study on the macro-micro physical properties in pulsed arc plasma"
Yonglun Song, Sibo Yan, Tianjiao Xiao and Xiaohong Yang (Beijing Univ. of Technology), China

JWP-7 "Evaporation phenomena of magnesium during the pulsed-MIG arc welding of aluminum alloy"
Wang Jing-bo, Nishimura Hitoshi(Panasonic Welding Systems Co., Ltd.) and Katayama Seiji(Osaka Univ.), Japan

JWP-8 "Coupling of GMA - process modeling with power source regulation -Next Level of Virtual Welding realized in Software SimWeld -"
Kohei Ono, Tetsuo Era, Tomoyuki Ueyama (DAIHEN (OTC) Corporation), Japan, Oleg Mokrov, Uwe Reisgen (ISF Welding and Joining Institute) and Vitaliy Pavlyk (Eisenbau Krämer GmbH), Germany

15:40-17:20: Visualization of joining and welding process (3) (JWP)

Chair Persons: Yonglun Song (Beijing Univ. of Technology), China
Hidetoshi Fujii (Osaka Univ.), Japan

JWP-9 "Experimental and numerical study of friction stir welding with double-shaft stir probe"
Xu Zhongfeng and Lu Hao (Shanghai Jiao Tong Univ.), China

JWP-10 "Experimental and numerical studies of material flow phenomenon during welding by friction stirring"
Yoichiro Shimoda, Masami Tsubaki, Toshiaki Yasui and Masahiro Fukumoto (Toyohashi Univ. of Technology), Japan

JWP-11 "Effects of tool geometry and process conditions on material flow and strength of friction stir spot welded joint"
Shohei Horie, Kenji Shinozaki, Motomichi Yamamoto, Kota Kadoi, Hiroki Nakashin (Hiroshima Univ.), Japan and Thomas H. North (Univ. of Toronto), Canada

JWP-12 "Study on defect in the intersection of VPPAW and FSW"
Yu Yang, Li Bao Tian, Jiang Fan and Chen Shu Jun (Beijing Univ. of Technology), China

Room B

11:00-12:40: Visualization of advanced material processing (1) (AMP)

Chair Persons: Steve W Simpson (Univ. of Sydney), Australia
Hiroshi Nishikawa (Osaka Univ.), Japan

AMP-1 **Invited Lecture**: "Integration of Titanium and Copper-Clad-Molybdenum to Graphite Foam for Thermal Management Applications"
Mrityunjay Singh (Ohio Aerospace Institute), USA

AMP-2 "Joining of C/C composite to TiBw-TC4 alloy using composite filler materials"
Tiesong Lin, Minxuan Yang (Harbin Institute of Technology), Chao Huang (Aerospace Research Institute of Materials & Processing Technology), Guotong Qian (Shaoxing tianlong tin materials co.,ltd) and Yu Liu (Harbin Institute of Technology), China

AMP-3 "Numerical visualization on melting and solidification of micron-sized metallic particles by laser irradiation"
Kazuyuki Takase, Toshiharu Muramatsu and Takahisa Shobu (Japan Atomic Energy Agency), Japan

AMP-4 "Joining aluminum to red copper by high-frequency induction brazing with argon shielding"
Zhang Hongtao, Jicai Feng and Hongyun Zhao (Harbin Institute of Technology), China

13:40-15:20: Visualization of advanced material processing (2) (AMP)

Chair Persons: Mrityunjay Singh (Ohio Aerospace Institute), USA
Makoto Takahashi (Osaka Univ.), Japan

AMP-5 "Interfacial microstructure and mechanical properties of TiAl brazed joints using Ti-Ni-V filler alloy"
Xiaoguo Song, Jian Cao and Jicai Feng (Harbin Institute of Technology), China

AMP-6 "Development of interface bonding between thermally sprayed ceramic lamellae for high performance coatings"
Chang-Jiu Li, Guan-Jun Yang and Cheng-Xin Li (Xi'an Jiaotong Univ.), China

AMP-7 "Microstructure and strength joints of Ti_2AlNb alloy brazed by TiNiNb"
Peng He (Harbin Institute of Technology), Guotong Qian (Shaoxing tianlong tin materials co.,ltd) and Yu Liu (Harbin Institute of Technology), China

AMP-8 "Ti-Ni-Nb alloy for brazing C/SiC composites to Nb"
Yuzhang Liu, Lixia Zhang, Chengbo Liu, Zhenwen Yang, Hongwei Li and Jicai Feng (Harbin Institute of Technology), China

15:40-17:20: Visualization of quality, safety and reliability (1) (QSR)

Chair Persons: Peng He (Harbin Institute of Technology), China
Hidenori Terasaki (Osaka Univ.), Japan

QSR-1 **Invited Lecture**: "Weld process management using data visualization"
Steve W Simpson, Peter W Hughes and Michael Rados (Univ. of Sydney), Australia

QSR-2 **Invited Lecture**: "Nonlinear ultrasound and its applications in quality inspection and damage assessment in metallic materials"
Jin-Yeon Kim, Laurence Jacobs (Georgia Tech) and Jianmin Qu (Northwestern Univ.), USA

QSR-3 "Can smart automated weld visualization turn inspection costs into a profit?"
Jean-Paul Boillot, Jeffrey Scott Noruk (Servo-Robot Inc.), USA and Nobumasa Torii (Servo-Robot Japan), Japan

QSR-4 "Measurement of fatigue damage parameter by sacrificial test piece and thermography"
Yoshihiro Sakino (Osaka Univ.), Takahide Sakagami (Kobe Univ.) and You-Chul Kim (Osaka Univ.), Japan

Room C

11:00-12:40: Visualization of mechanics in joining and welding (1) (MCJW)

Chair Persons: Christopher Edward Truman (Univ. of Bristol), UK
Akira Maekawa (Institute of Nuclear Safety System, Inc.), Japan

MCJW-1 **Invited Lecture**: "Characteristic and mechanism on the distortion of friction stir welded aluminum alloy sheet"
Dong-yang, Yan, Aiping Wu (Tsinghua Univ.), China, Juergen Silvanus (EADS, Innovation Works), Germany, Zeng-lei Zhang and Qing-yu Shi (Tsinghua Univ.), China

MCJW-2 "The effect of low transformation temperature weld filler metal on welding residual stress -Modeling by FEM-"
Masashi Nawafune (Osaka Univ.), Japan, Miloslav Beres (Imperial College London), UK, Adan Vega (Technological Univ. of Panama), Panama, Hisashi Serizawa and Hidekazu Murakawa (Osaka Univ.), Japan

MCJW-3 "The influence of the solid state phase transformation on welding deformation of low alloy high strength steel"
Yang Xiao, Chen Junmei and Lu Hao (Shanghai Jiao Tong Univ.), China

MCJW-4 "Experimental and FEM evaluation of mechanical properties of hot extruded rapidly solidified powder metallurgy Mg-Al-Mn-Ca alloy"
Ayman Hamada Elsayed, Katsuyoshi Kondoh (Osaka Univ.) and Ninshu Ma (JSOL Corporation), Japan

13:40-15:20: Visualization of mechanics in joining and welding (2) (MCJW)

Chair Persons: Yu Luo (Shanghai Jiao Tong Univ.), China
Dean Deng (Chongqing Univ.), China

MCJW-5 **Invited Lecture**: "Optimising residual stress measurements through the use of measurement simulation"
Christopher Edward Truman and David J Smith (Univ. of Bristol), UK

MCJW-6 "Residual stress measurement of large-bore stainless steel pipe with butt-welded joint by inherent strain method"
Akira Maekawa (Institute of Nuclear Safety System, Inc.), Keiji Nakacho (Osaka Univ.) Ninshu Ma (JSOL corp.), Japan and Reiko Sato (Osaka Univ.), Japan

MCJW-7 "Residual stress generated by LBW on HT780"
You-Chul Kim and Mikihito Hirohata (Osaka Univ.), Japan

MCJW-8 "Structure parameters optimization of air conditioning compressor based on welding deformation numerical model"
Yongzhi Li, Hao Lu, Junmei Chen and Liping Ren (Shanghai Jiao Tong Univ.), China

15:40-17:20: Visualization of mechanics in joining and welding (3) (MCJW)

Chair Persons: Aiping Wu (Tsinghua Univ.), China
Keiji Nakacho (Osaka Univ.), Japan

MCJW-9 **Invited Lecture**: "Study on prediction of welding deformation for large-scale structure by T-E-P FEM using 3D shell element"
Xueyuan Zhang, Yu Luo and Yang Wang (Shanghai Jiao Tong Univ.), China

MCJW-10 "Fast finite element stress and deformation prediction for large thick-wall welded cylinder with angle-inserting elbow"
Zhang Kerong, Zhang Jianxun (Xi'an Jiaotong Univ.), Huang Siluo and Qiu Yiqiang (The Challenge Petrochemical Machinery Corporation of Maoming), China

MCJW-11 "FEM prediction of residual stress and deformation in a set-in nozzle joint focusing on the effect of welding direction"
Kazuo Ogawa (Japan Nuclear Energy Safety Organization), Japan, Dean Deng (Chongqing Univ.), China, Shoichi Kiyoshima (Research Center of Computational Mechanics Inc) and Hidekazu Murakawa (Osaka Univ.), Japan

MCJW-12 "Thermal elastic plastic analysis for welding problem of large scale models"
Norihiro Tanaka, Atsushi Kawahara, Hisashi Serizawa, Hidekazu Murakawa (Osaka Univ.), Japan

Room D

11:00-12:40: Visualization of metallurgy in joining and welding (1) (MTJW)

Chair Persons: Suresh Babu (Ohio State Univ.), USA
Kazuyoshi Saida (Osaka Univ.), Japan

MTJW-1 **Invited Lecture**: "Synchrotron diffraction for visualization of solid state phase transformations"
Thomas Kannengiesser, Arne Kromm and Stephan Brauser (Federal Institute for Materials Research and Testing), Germany

MTJW-2 "In-situ observation of martensite transformation and retained austenite in supermartensitic stainless steel"
Shuoyuan Zhang, Hidenori Terasaki and Yu-ichi Komizo (Osaka Univ.), Japan

MTJW-3 "In-situ observation of phase transformation during laser welding processes"
Tomonori Yamada, Yukihiro Yonemoto, Susumu Yamashita, Toshiharu Muramatsu (Japan Atomic Energy Agency) and Yu-ichi Komizo (Osaka Univ.), Japan

MTJW -4 "Phase Transformation characterization in 2205 duplex stainless steel submerged arc weld"
Wang Zhao Dong and Yuan Guo (Northeastern Univ.), USA

13:40-15:20: Visualization of metallurgy in joining and welding (2) (MTJW)

Chair Persons: Thomas Kannengiesser (Federal Institute for Materials Research and Testing), Germany
Kenji Shinozaki (Hiroshima Univ.), Japan

MTJW-5 **Invited Lecture**: "Numerical simulation on Type IV cracking of ASME P92 steel at high temperature"
Hong Yang Jing, Llan yong Xu and Lei Zhao (Tianjin Univ.), China

MTJW-6 "Numerical simulation of austenite retention in triplex stainless steel weld metals"
Kazuyoshi Saida, Arata Hayata, Hiroyuki Ogiwara and Kazutoshi Nishimoto (Osaka Univ.), Japan

MTJW-7 "Prediction of hardness in HAZ of low-alloy steel produced by temper bead welding using neural network"
Lina Yu, Yuma Nakabayashi, Shinsuke Itoh (Osaka Univ.), Masashi Kameyama (Japan Power Engineering and Inspection Corporation), Shinro Hirano, Naoki Chigusa (The Kansai Electric Power Co., Inc.), Kazuyoshi Saida, Masahito Mochiduki and Kazutoshi Nishimoto (Osaka Univ.), Japan

MTJW-8 "Surface tension of molten iron measured by oscillating droplet method using electromagnetic levitation -Influence of oxygen adsorption on surface tension-"
Shumpei Ozawa, Suguru Takahashi, Shoji Suzuki, Hiroharu Sugawara (Tokyo Metropolitan Univ.),Taketoshi Hibiya (Keio Univ.) and Hiroyuki Fukuyama (Tohoku Univ.), Japan

15:40-17:20: Visualization of metallurgy in joining and welding (3) (MTJW)

Chair Persons: Hong Yang Jing (Tianjin Univ.), China
Yu-ichi Komizo (Osaka Univ.), Japan

MTJW-9 "Effect of welding sequences on the microstructure of electron beam welded TA15 titanium alloy and 304 stainless steel joints with copper filler metal"
Wang Ting, Zhang Binggang, Chen Guoqing and Feng Jicai (Harbin Institute of Technology), China

MTJW-10 "Effect of grain size on solidification cracking susceptibility of type 347 stainless steel during laser welding"
Kenji Shinozaki (Hiroshima Univ.), Japan, Peng Wen (Tsinghua Univ.), China, Motomichi Yamamoto, Kota Kadoi (Hiroshima Univ.), Yusuke Kohno (Mitsubishi Heavy Industry) and Takuo Komori (Hiroshima Univ.), Japan

MTJW-11 "Image processing analysis for growth of carbide particles promoted SR embrittlement in HAZ of 2 1/4Cr-1Mo steel"
Hiroshi Kawakami, Koreaki Tamaki, Jippei Suzuki, Kanta Takahasi, Yousuke Imae and Soichiro Ogusu (Mie Univ.), Japan

MTJW-12 "Fine-grained microstructural observation of a nugget zone in friction stir welded pure copper"
Xie Guang Ming and Tian Yong (Northeastern Univ.), USA

Room E

11:00-12:40: Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (1) (AMDI)

Chair Persons: Mikio Fukuhara (Tohoku Univ.), Japan
Yuichi Setsuhara (Osaka Univ.), Japan

AMDI-1 **Invited Lecture**: "Cooerative researches in Tohoku University"
Mikio Fukuhara (Tohoku Univ.), Japan

AMDI-2 **Invited Lecture**: "Approach for the project on advanced materials development and integration of novel structured metallic and inorganic materials by materials and structures laboratory of Tokyo Institute of Technology"
Kiyoshi Okada (Tokyo Institute of Technology), Japan

AMDI-3 **Invited Lecture**: "Materials joining technologies and interface science for integration of novel structured metallic and inorganic materials"
Yuichi Setsuhara and Kazuhiro Nakata (Osaka Univ.), Japan

AMDI-4 **Invited Lecture**: "Nanofabrication of novel structured metallic and inorganic materials for electrical application -Activities of nanotechnology research center in INN, Waseda University-"
Hiroshi Kawarada, Shuichi Shoji and Takayuki Homma (Waseda Univ.), Japan

13:40-15:20: Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (2) (AMDI)

Chair Persons: Fumihiro Wakai (Tokyo Institute of Technology), Japan
Mikiko Saito (Waseda Univ.), Japan

AMDI-5 **Invited Lecture**: "Biomedical materials researches in IBB-TMDU"
Takao Hanawa (Tokyo Medical and Dental Univ.), Japan

AMDI-6 **Invited Lecture**: "Synthesis and properties of hybrid-type polymer membranes for fuel cells at intermediate temperatures"
Toshinobu Yogo (Nagoya Univ.), Japan

AMDI-7 **Invited Lecture**: "Synthesis and properties of new Au-based glassy alloys -Development of new Au-based glassy alloys for thermoplastic and catalytic materials-"
Wei Zhang, Hai Guo, Mingwei Chen (Tohoku Univ.), Yasunori Saotome (Institute for Materials Research) and Akihisa Inoue (Tohoku Univ.), Japan

AMDI-8 **Invited Lecture**: "Development and joining of advanced novel structured inorganic materials -Materials and Structures Laboratory, Tokyo Institute of Technology-"
Fumihiro Wakai, T. Akatsu, Y. Shinoda, H. Kawaji and T. Atou (Tokyo Institute of Technology), Japan

15:40-17:20: Advanced Materials Development and Integration of Novel Structured Metallic and Inorganic Materials (3) (AMDI)

Chair Persons: Takao Hanawa (Tokyo Medical and Dental Univ.), Japan
Nagahiro Saito (Nagoya Univ.), Japan

AMDI-9 **Invited Lecture**: "Evolution of laser welding to dissimilar materials joining"
Seiji Katayama and Yousuke Kawahito (Osaka Univ.), Japan

AMDI-10 **Invited Lecture**: "Introduction to vector materials science and bioengineering"
Kimihiro Yamashita (Tokyo Medical and Dental Univ.), Japan

AMDI-11 **Invited Lecture**: "Nanoparticles synthesis through solution plasma processing"
Chiaki Terashima, Junko Hieda, Xiulan Hu, Nagahiro Saito and Osamu Takai (Nagoya Univ.), Japan

AMDI-12 **Invited Lecture**: "Preparation of metal nano particles using electrochemical deposition -Pt nano patterned electrodes-"
Mikiko Saito, Jun Mizuno and Takayuki Homma (Waseda Univ.), Japan

Friday 12-November

The research activities of Joint Usage / Research Center on Joining and Welding

Room A

9:00-10:15: The research activities of Joint Usage / Research Center on Joining and Welding (Joining and Welding Processing 1) (RAJU-JW)

Chair Persons: Takuya Tsumura (Osaka Univ.), Japan

RAJU-JW-1 **Invited Lecture**: "Investigations on frequency shift probes for monitoring of electron conditions in nano-materials processing plasmas"
Keiji Nakamura and Hideo Sugai (Chubu Univ.), Japan

RAJU-JW-2 **Invited Lecture**: "Dissimilar laser brazing of single crystal diamond and tungsten carbide"
Yoshihisa Sechi (Kagoshima Prefectural Institute of Industrial Technology and Osaka Univ.) and Kazuhiro Nakata (Osaka Univ.), Japan

RAJU-JW-3 **Invited Lecture**: "Joining mechanism between aluminum and polypropylene resin using inert material by laser irradiation"
Makoto Hino, Yutaka Mitooka (Industrial Technology Research Institute of Okayama Prefecture) and Seiji Katayama (Osaka Univ.), Japan

10:30-11:45: The research activities of Joint Usage / Research Center on Joining and Welding (Joining and Welding Processing 2) (RAJU-JW)

Chair Persons: Yousuke Kawahito (Osaka Univ.), Japan

RAJU-JW-4 **Invited Lecture**: "Modeling of temperature distribution with metal vapour in pulsed TIG including influence of radiative absorption"
Toru Iwao, Yusuke Mori, Tadashi Sakai, Hiroyuki Taki, Takuya Shimokura (Tokyo City Univ.), Shinichi Tashiro, Manabu Tanaka (Osaka Univ.) and Motoshige Yumoto (Tokyo City Univ.), Japan

RAJU-JW-5 **Invited Lecture**: "Control of wire meting behavior using coaxial hybrid solid wire -Sevelopment of pure Ar-MIG welding-"
Terumi Nakamura (National Institute for Materials Science), Kazuo Hiraoka and Manabu Tanaka (Osaka Univ.), Japan

RAJU-JW-6 **Invited Lecture**: "Newly developed novel transparent conductor of Mg(OH)2-C compounds"
Toshiro Kuji (Tokai Univ.), Japan

Room B

9:00-10:15: The research activities of Joint Usage / Research Center on Joining and Welding (Visualization & Evaluation 1) (RAJU-VE)

Chair Persons: Hidenori Terasaki (Osaka Univ.), Japan

RAJU-VE-1 **Invited Lecture**: “Developments of real-time monitoring method of welding”
Toshio Matsubara (Tokushima Prefectural Industrial Technology Center), Hidenori Terasaki, Hiroyuki Otsuka and Yu-ichi Komizo (Osaka Univ.), Japan

RAJU-VE-2 **Invited Lecture**: “Image measurement of welding distortion of pipe joint in two-phase flow separator”
Shinsuke Itoh (Osaka Univ.), Masakazu Shibahara (Osaka Prefecture Univ.), Masahito Mochizuki (Osaka Univ.), Japan

RAJU-VE-3 **Invited Lecture**: “Microstructure of Cr_3Si coatings on austenitic stainless steel by spark plasma sintering”
Akio Nishimoto, Atsuhiro Miyata and Katsuya Akamatsu (Kansai Univ.), Japan

10:30-11:45: The research activities of Joint Usage / Research Center on Joining and Welding (Visualization & Evaluation 2) (RAJU-VE)

Chair Persons: Yoshihiro Sakino (Osaka Univ.), Japan

RAJU-VE-4 **Invited Lecture**: “Modification of thermally sprayed cemented carbide layer by friction stir processing”
Y. Morisada (Osaka Municipal Technical Research Institute), H. Fujii (Osaka Univ.), T. Mizuno, G. Abe (AMC Corporation), T. Nagaoka and M. Fukusumi (Osaka Municipal Technical Research Institute), Japan

RAJU-VE-5 **Invited Lecture**: “Ultimate strength of aluminum alloy plates in compression considering joining locations”
Ichiro Okura (Osaka Univ.), Japan

RAJU-VE-6 **Invited Lecture**: “Development of analytical method for welding mechanics using idealized explicit FEM”
Masakazu Shibahara and Kazuki Ikushima (Osaka Prefecture Univ.), Japan

Room C

9:00-10:15: The research activities of Joint Usage / Research Center on Joining and Welding (Smart Processing 1) (RAJU-SP)

Chair Persons: Soshu Kirihara (Osaka Univ.), Japan

RAJU-SP-1 **Invited Lecture**: "Phase transformation at interface using femtosecond laser irradiation"
Shingo Kanehira, Masakazu Nishimura, Kiyotaka Miura and Kazuyuki Hirao (Kyoto Univ.), Japan

RAJU-SP-2 **Invited Lecture**: "Laser micro-machinability of electric-field-assisted ion-exchanged glass"
Souta Matsusaka (Chiba Univ.), Masahiro Tsukamoto and Nobuyuki Abe (Osaka Univ.) and Takehiro Watanabe (Chiba Univ.), Japan

RAJU-SP-3 **Invited Lecture**: "Dynamic mechanical behavior of Sn-Ag-Cu lead-free solders by tensile test under high strain rate"
Kiyokazu Yasuda (Nagoya Univ.), Yoshihiro Sakino, Ikuo Shoji and Tadashi Takemoto (Osaka Univ.), Japan

10:30-11:45: The research activities of Joint Usage / Research Center on Joining and Welding (Smart Processing 2) (RAJU-SP)

Chair Persons: Hiroya Abe (Osaka Univ.), Japan

RAJU-SP-4 **Invited Lecture**: "Oxide nanosheets and their assemblies for new ceramic joining and smart processing"
Minoru Osada and Takayoshi Sasaki (International Center for Materials Nanoarchitectonics, National Institute for Materials Science and CREST, JST), Japan

RAJU-SP-5 **Invited Lecture**: "Evaluation of magnetite and related iron compounds in the teeth chiton using X-ray and electron analyses"
Chiya Numako (Tokushima Univ.), Kazuyoshi Sato (Gunma Univ.), Hiroya Abe and Satoshi Ohara (Osaka Univ.), Japan

RAJU-SP-6 **Invited Lecture**: "Characterization and control of nanoparticle dispersion behavior for smart processing in liquid phase"
Hidehiro Kamiya, Motoyuki Iijima, Shun Takenouchi, Chihiro Iinuma (Tokyo Univ. of Agriculture and Technology) and Makio Naito (Osaka Univ.), Japan

Visualization in Joining & Welding Science through Advanced Measurements and Simulation

Room A

13:20-15:00: Visualization of joining and welding process (4) (JWP)

Chair Persons: Chuan Song Wu (Shandong Univ.), China
Yousuke Kawahito (Osaka Univ.), Japan

JWP-13 **Invited Lecture**: "Simulations of weld pool dynamics and its visualization"
S.-J. Na, W.-I. Cho and D.-W. Cho (KAIST), Korea

JWP-14 "Effect of plume and induced hot air above specimen on beam refraction during laser welding"
Masami Mizutani Yosuke Kawahito and Seiji Katayama, (Osaka Univ.), Japan

JWP-15 "Numerical simulation of laser welding processes with CIP finite volume method "
Susumu Yamashita, Yukihiro Yonemoto, Tomonori Yamada (Japan Atomic Energy Agency), Tomoaki Kunugi (Kyoto Univ.) and Toshiharu Muramatsu (Japan Atomic Energy Agency), Japan

JWP-16 "Numerical analysis of the effect of welding parameters in laser-GMA hybrid welding"
Won-Ik Cho, Suck-Joo Na (KAIST), Cheolhee Kim and Dong-Cheol Kim (KITECH), Korea

15:20-17:00: Visualization of joining and welding process (6) (JWP)

Chair Persons: Laurent D'Alvise (Cenaero), Belgium
Masahiro Tsukamoto (Osaka Univ.), Japan

JWP-21 "Development of welding method for wide gap lap joint of steel sheet using laser welding with hot-wire
Motomichi Yamamoto, Kenji Shinozaki, Kota Kadoi, Daigo Fujita, Takeshi Inoue (Hiroshima Univ.), Mitsugu Fukahori and Yoichiro Kitahara (Mazda Motor Corporation), Japan

JWP-22 "Development of high-efficiency / high-quality hot-wire laser fillet welding process"
Kohta Kadoi, Kenji Shinozaki, Motomichi Yamamoto (Hiroshima Univ.), Daisuke Takayanagi (Mitsubishi Heavy Industry), Akihiro Nishimoto (Hiroshima Univ.), Katsura Owaki (IHI Inspection & Instrumentation Co. Ltd.) and Kotarou Inose (IHI Corporation), Japan

JWP-23 "Innovation of laser direct joining between metal and plastic"
Yousuke Kawahito and Seiji Katayama (Osaka Univ.), Japan

JWP-24 "High brightness laser cutting of CFRP"
KwangWoon Jung, Seiji Katayama and Yousuke Kawahito (Osaka Univ.), Japan

Room B

13:20-15:00: Visualization of joining and welding process (5) (JWP)

Chair Persons: Jian Luo (Chongqing Univ.), China
Nobuyuki Abe (Osaka Univ.), Japan

JWP-17 **Invited Lecture**: "Advanced materials joining in Harbin Institute of Technology"
Jicai Feng, Peng He and Jian Cao (Harbin Institute of Technology), China

JWP-18 **Invited Lecture**: "Modelling of the electron beam welding process applied to aircraft engine components"
Laurent D'Alvise (Cenaero), Belgium

JWP-19 "Visulization of fluid flow and heat transfer in resistance spot weld nugget"
Li Yongbing, Qi Shen and Guanlong Chen, (Shanghai Jiao Tong Univ.), China

JWP-20 "Visualization of underwater explosive welding process by numerical simulation for the welding of amorphous film(s) onto a stainless steel base plate"
Akihisa Mori (Sojo Univ.), Kazuyuki Hokamoto, Kotaro Mizumachi, Palavesamuthu Manikandan (Kumamoto Univ.), Hisamichi Kimura, Akihisa Inoue (Tohoku Univ.), Takuya Tsumura and Kazuhiro Nakata (Osaka Univ.), Japan

15:40-17:00: Visualization of mechanics in joining and welding (6) (MCJW)

Chair Persons: Hui Huang (Huazhong Univ. of Science and Technology), China
Hisashi Serizawa (Osaka Univ.), Japan

MCJW-21 "Concept of inherent strain, inherent stress, inherent deformation and inherent force for prediction of welding distortion and residual stress"
Hidekazu Murakawa (Osaka Univ.), Japan, Dean Deng (Chongqing Univ.), China and Ninshu Ma (JSOL corp.), Japan

MCJW-22 "Inherent strain calculation from inverse analysis of measured welding deformation based on python of ABAQUES CAE"
Haiyan Zhao, Wenchong Niu, Peng Wang, Xingzhe Yu, Hongwen He (Tsinghua Univ.), China and Tadashi Sugimura (MHI), Japan

MCJW-23 "Application of inherent deformation and interface element to prediction of welding distortion during assembly process"
Dean Deng (Chongqing Univ.), China, Hidekazu Murakawa, Ninshu Ma and Hisashi Serizawa (Osaka Univ.), Japan

MCJW-24 "Development of simulation system JWELD for assemble deformation of welded structures"
Ninshu Ma, Isaku Chimura (JSOL Corp.) and Hidekazu Murakawa (Osaka Univ.), Japan

Room C

13:20-15:00: Visualization of mechanics in joining and welding (4) (MCJW)

Chair Persons: Lu Hao (Shanghai Jiao Tong Univ.), China
Ninshu Ma (Osaka Univ.), Japan

MCJW-13 **Invited Lecture**: "Prediction of inherent deformation produced in steel plates with initial curvature bended by line heating"
Adan Vega, Amaly Fong (Technological Univ. of Panama), Panama and Hidekazu Murakawa (Osaka Univ.), Japan

MCJW-14 "The Comparison on several kinds of T-E-P FEM software for welding"
Yang Wang, Yu Luo and Xueyuan Zhang (Shanghai Jiao Tong Univ.), China

MCJW-15 "Finite element simulation of multi-pass welding process with rezoning technique"
Hui Huang, Yao Zhao, Hua Yuan (Huazhong Univ. of Science and Technology) and Defang Hu (Wuchang Shipbuilding Industry Company Ltd.), China

MCJW-16 "Prediction and measurement of welding distortion of thin shell structures"
Jiangchao Wang, Ninshu Ma, Hidekazu Murakawa (Osaka Univ.), Japan, Bugang Teng and Shijian Yuan (Harbin Institute of Technology), China

15:40-17:00: Visualization of mechanics in joining and welding (5) (MCJW)

Chair Persons: Adan Vega (Technological Univ. of Panama), Panama
Yoshiki Mikami (Osaka Univ.), Japan

MCJW-17 **Invited Lecture**: "Investigation on ductility dip cracking susceptibility of filler metal 82 in welding"
Chen Jingqing, Lu Hao (Shanghai Jiao Tong Univ.), China

MCJW-18 "Prediction of welding deformation for double bottom structure in cargo hold of 50000 DWT multipurpose ship"
Jing Li and Yu Luo (Shanghai Jiao Tong Univ.), China

MCJW-19 "Microstructure and mechanical properties of overlaying specimens in GMAW hybrid an additional longitudinal electromagnetic field"
Jian Luo (Chongqing Univ.), China

MCJW-20 "Flowing behaviors affected by different parameters and multi-materials in GTA weld pool hybrid a longitudinal electromagnetic field"
Jian Luo (Chongqing Univ.), China

Room D

13:20-15:00: Visualization of processing of nano & micro materials (1) (PNMM)

Chair Persons: Jianmin Qu (Northwestern Univ.), USA
Satoshi Ohara (Osaka Univ.), Japan

PNMM-1 **Invited Lecture**: "Numerical simulation of impact toughness of welded joints for X80 pipeline steel"
Jianxun Zhang (Xi'an Jiaotong Univ.), Xiong Qinren (China National Petroleum Corporation), Yang Zhongna and Zheng Li (Xi'an Jiaotong Univ.), China

PNMM-2 "Electronic states of noble gas-metal systems -molecular orbital visualization of noble gas-metal systems-"
Wataru Takahara (Osaka Univ.), Japan

PNMM-3 "Comparative study on the stress conditions in copper versus gold wire bonding processes -Substantial causes of under pad damage when using copper wire were revealed-"
Baohua Chang, Wei Jiang, Hua Huang, Dong Du (Tsinghua Univ.), China and Norman Zhou (Univ. of Waterloo), Canada

PNMM-4 "Numerical analysis of deformation and thermal behavior during ultrasonic Al ribbon bonding"
Shinji Suzuki, Yusuke Oyama, Masakatsu Maeda, and Yasuo Takahashi (Osaka Univ.), Japan

15:40-17:00: Visualization of processing of nano & micro materials (2) (PNMM)

Chair Persons: Jianxun Zhang (Xi'an Jiaotong Univ.), China
Yasuo Takahashi (Osaka Univ.), Japan

PNMM-5 "Visualization of heat and stress flows in thermodynamic crystals fabricated by laser scanning stereolithography"
Soshu Kirihara, Yasunori Uehara, Yohtei Takinami and Satoko Tasaki (Osaka Univ.), Japan

PNMM-6 "Visualizations of microwave emissions through pure copper photonic crystals"
Yohei Takinami and Soshu Kirihara (Osaka Univ.), Japan

PNMM-7 "Visualizations of terahertz frequency amplifications in water cells introduced into alumina diamond photonic crystals"
Noritoshi Ohta , Toshiki Niki and Soshu Kirihara (Osaka Univ.), Japan

PNMM-8 "Generation of Fe nanoparticles under thermally pinched He-H_2 arc plasma"
Junichi Noma, Yuya Ueshima, Takehisa Fukui (Kurimoto,LTD.), Hiroya Abe, Manabu Tanaka and Makio Naito (Osaka Univ.), Japan

TECHNICAL PROGRAM

-Poster Presentation-

Thursday 11-November

Room F-1

17:20-18:20: Poster (PT)

PT-1 "Role of ambient pressure on splat formation and coating adhesion strength during thermal spraying process"
Yang Kun, Ebisuno Yoshinobu, Tanaka Kazuhiro, Takashi Usami, Masahiro Fukumoto, Toshiaki Yasui and Motohiro Yamada (Toyohashi Univ. of Technology), Japa

PT-2 "Repair heavy-duty generator rotor shaft by electro spark deposition process"
Ruijun Wang, Weiping Wang, Yufen Lü and Hehong Tian (Chinese Academy of Agricultural Mechanization Sciences), China

PT-3 "Visualization of nugget formation in resistance spot welding of multi-stackup sheets"
Yansong Zhang, Jie Shen (Shanghai Jiao Tong Univ.) and PC Wang (General Motors Research & Development Center), China

PT-4 "Development of wettability evaluation equipment for solder paste using laser displacement method"
Ikuo Shohji, Issei Oya, Toshihiro Isaka, Ikuo Shohji (Gunma Univ.), Masashi Nishimuro, Kiyoshi Hiramoto (Sanyo Seiko Manufacturing Co., Ltd.) and Hironaga Miyamoto (Yamanashi Pref. Industrial Technology Center), Japan

PT-5 "Examination of improvement effect of surface modification of Cu with organic acid on solder pastes wettability using a laser displacement meter"
Ikuo Shohji, Yukinari Aoki and Ikuo Shohji (Gunma Univ.), Japan

PT-6 "Effect of welding direction on weld bead formation in high power fiber laser and MAG arc hybrid welding"
Takahiro Murakami, Minhyo Shin and Kazuhiro Nakata (Osaka Univ.), Japan

PT-7 "Numerical analysis on effects of power source characteristics on arc properties in gas tungsten arc"
Yoshihiro Tsujimura, Shinichi Tashiro and Manabu Tanaka (Osaka Univ.), Japan

PT-8 "Experimental observation of cleaning action of cathode spots in AC TIG welding of aluminum plates"
Shinichi Tashiro, Hiroshi Sawato and Manabu Tanaka (Osaka Univ.), Japan

PT-9 "Numerical simulation of heat source properties of pulsed tungsten inert gas arc"
Kuniyoshi Ito, Shinichi Tashiro and Manabu Tanaka (Osaka Univ.), Japan

PT-10 "Numerical analysis of weld pool formation mechanism in TIG welding in consideration of influence of emitter material adding to tungsten cathode"
Tasuku Zeniya, Shinichi Tashiro, Manabu Tanaka (Osaka Univ.), Eri Yamamoto, Kei Yamazaki and Keiichi Suzuki (KOBE STEEL, LTD.), Japan

PT-11 "Efficiency comparison between iterative substructure method and commercial software"
Linjie Zhang, Zhang Jianxun (Xi'an Jiaotong Univ.), China, Hisashi Serizawa and Hidekazu Murakawa (Osaka Univ.), Japan

PT-12 "Experiment and numerical simulation in temperature distribution and welding distortion in GMA welding"
Satoshi Yamane, Takuya Yamazaki, Tomoaki Kaneta (Saitama Univ.), Toru Nakajima and Hikaru Yamamoto (Hitachi Construction Machinery Co., Ltd), Japan

PT-13 "Measurement of dynamical variation in two-dimensional temperature distribution of TIG pulsed-arcs"
Hiroshi Sawato, Shinichi Tashiro, Kazuhiro Nakata, Manabu Tanaka (Osaka Univ.), Eri Yamamoto, Kei Yamazaki and Keiichi Suzuki (KOBE STEEL, LTD.), Japan

PT-14 "Improvement of bead formation in plasma MIG welding process in pure argon atmosphere"
Tsubasa Katayama, Shinichi Tashiro and Manabu Tanaka (Osaka Univ.), Japan

PT-15 “Roll bonding of dissimilar sheets of SPCC and A1050 aluminum”
Toshiya Shibayanagi, Suou Saruwatari, Makoto Takahashi and Kenji Ikeuchi (Osaka Univ.), Japan

PT-16 “Material flow in friction stir welding of dissimilar aluminum alloy sheets”
Toshiya Shibayanagi, Shuhei Yoshikawa and Kenji Ikeuchi (Osaka Univ.), Japan

PT-17 “Mechanism of undercut in high speed welding based on moveless TIG welding”
Lu Zhenyang, Huang Pengfei, Chen Shujun and Li Yan (Beijing Univ. of Technology), China

PT-18 “Numerical analysis of the influence of shielding gas on metal transfer mode”
Keiji Kadota and Hirata Yoshinori (Osaka Univ.), Japan

PT-19 “In-process monitoring and adaptive control for micro welding of titanium”
Hiroshi Nakamura, Yousuke Kawahito and Seiji Katayama (Osaka Univ.), Japan

PT-20 “Numerical analysis on heat source characteristics of two-electrodes TIG arc”
Yosuke Ogino, Yoshinori Hirata and Kazufumi Nomura (Osaka Univ.), Japan

PT-21 “Fundamental research on micro discharge process -Research on discharge of sub-millimeter size process-”
Mingon Park, Yoshinori Hirata and Kazufumi Nomura (Osaka Univ.), Japan

PT-22 “Influence of magnet configurations on magnetic controlled TIG arc welding”
Kazufumi Nomura, Yosuke Ogino, Takuya Haga and Yoshinori Hirata (Osaka Univ.), Japan

PT-23 “Visualization of EM process by FEM”
Yu Chun and Lu Hao (Shanghai Jiao Tong Univ.), China

PT-24 “Numerical simulation of fusion zone shape of lotus-type porous metals produced by laser welding”
Takuya Tsumura, Hideo Nakajima and Kazuhiro Nakata (Osaka Univ.), Japan

PT-25 “Numerical simulate on the coupled arc and pool for GTAW using a unified mathematical model”
Lei Yongping, Shi Yaowu, Lin Jian, Lu Zhenyang and Xiao Rongshi (Beijing Univ. of Technology), China and Hidekazu Murakawa (Osaka Univ.), Japan

PT-26 “Prediction of 475°C embrittlement in stainless steel welds using phase field model”
Kazuyoshi Saida and Kazutoshi Nishimoto (Osaka Univ.), Japan

PT-27 “Metallurgical mechanism of ductility-dip cracking in multipass welds of alloy 690”
Hironori Okauchi, Yuki Nomoto, Hiroyuki Ogiwara, Kazuyoshi Saida and Kazutoshi Nishimoto (Osaka Univ.), Japan

PT-28 “Interfacial reaction between Sn-3.0Ag-0.5Cu solder/Co-P plating and Ni-Co-P plating”
Tomoya Daito, Hiroshi Nisikawa, Tadashi Takemoto (Osaka Univ.) and Takashi Matsunami (Okuno Chemical Industries Co., Ltd.), Japan

PT-29 “Formation of reaction layers at anodically-bonded metallic glass/silicate glass interfaces”
Makoto Takahashi, Yuuki Watatani and Kenji Ikeuchi (Osaka Univ.), Hisamichi Kimura and Akihisa Inoue (Tohoku Univ.), Japan

PT-30 “The dissymmetry of friction stir welding joints and variable polarity plasma arc welding joints study”
Chen Shujun, Wang Long and Yu yang (Beijing Univ. of Technology), China

PT-31 “Industrial application of welding temperature field and distortion visualization using FEA”
Thomas Kannengiesser (Federal Institute for Materials Research and Testing), Raphael Thater (Fraunhofer Institute for Production Systems and Design Technology IPK), William Perret, Christopher Schwenk (Federal Institute for Materials Research and Testing), Uwe Alber (AUDI AG) and Michael Rethmeier (Federal Institute for Materials Research and Testing), Germany

PT-32 “EBSP-based crystal plasticity FEM simulation of microscopic stress distribution in weld metal”
Yoshiki Mikami, Keisuke Sogabe and Masahito Mochizuki (Osaka Univ.), Japan

PT-33 “Prospective design of weld joint between first and side walls in test blanket module for ITER”
Shinichiro Nakamura, Hisashi Serizawa (Osaka Univ.), Hiroyasu Tanigawa (Japan Atomic Energy Agency) and Hidekazu Murakawa (Osaka Univ.), Japan

PT-34 “Effect of plate thickness and weld position on distortion & residual stress on the GMAW welded structural steel”
Dr. Ir. Winarto (Univ. of Indonesia), Indonesia

PT-35 “Preliminary numerical research of microstructural fracture behavior in metal by using interface element”
Seigo Tomiyama, Hisashi Serizawa, Tsuyoshi Hajima and Hidekazu Murakawa (Osaka Univ.), Japan

PT-36 “Thermoreversible colloidal gelation for direct-assembly of nanoparticles”
Akira Kondo, Masahiro Andatsu, Hiroya Abe and Makio Naito (Osaka Univ.), Japan

PT-37 “Dispersion control of magnetic nanoparticles for functional fluids”

Shinya Yamanaka, Hiroya Abe, Makio Naito (Osaka Univ.), Yuya Ueshima and Junichi Noma (Kurimoto, LTD.), Japan

PT-38 “Molecular dynamics analysis of fcc nanowire under torsional loading”
Takaki Ogawa (JSOL Corporation) and Akihiro Nakatani(Osaka Univ.), Japan

PT-39 “Structuring of YSZ nanocrystal chains and their application on active composite SOFC cathodes”
Takanori Mahara, Shinya Yamanaka, Akira Kondo (Osaka Univ.), kazuyoshi Sato (Gunma Univ.), Hiroya Abe and Makio Naito (Osaka Univ.), Japan

PT-40 “Visualization of mechanical properties in alumina dental crowns fabricated by using laser scanning stereolithography”
Satoko Tasaki, Soshu Kirihara and Taiji Soumura (Osaka Univ.), Japan

PT-41 “Accurate fabrication of artificial bone models of hydroxyapatite ceramics and biofluid visualization in porous scaffold structures”
Chiaki Maeda, Satoko Tasaki and Soshu Kirihara (Osaka Univ.), Japan

PT-42 “Visualization of grain boundary on metal surface by nanosecond laser irradiation”
Daisuke Tone, Masahiro Tsukamoto, Toshiya Shibayanagi (Osaka Univ.), Shinzi Motokoshi, Masayuki Fujita (Institute for Laser Technology) and Nobuyuki Abe (Osaka Univ.), Japan

PT-43 “The evaluation of YSZ+Al_2O_3 composite TBC against hot corrosion”
Abbas Afrasiabi (Khorasan Research Institute for Food Science and Technology), Iran and Akira Kobayashi (Osaka Univ.), Japan

PT-44 “Investigation of microwave discharge plasma generated under atmosphere pressure”
Yoshiyuki Takao (Nishinippon Institute of Technology) and Akira Kobayashi (Osaka Univ.), Japan

PT-45 “Combinatorial analysis of plasma-polymer interactions for formation of inorganic-soft materials hybrid structure”
Kosuke Takenaka, Ken Cho, Yuichi Setsuhara (Osaka Univ.), Masaharu Shiratani (Kyushu Univ.), Makoto Sekine and Masaru Hori (Nagoya Univ.), Japan

PT-46 “Observation of hole formation process in plasma arc drilling”
Kazuomi Kusumoto, Hao Son and Satoshi Ishikawa (Gunma Univ.), Japan

PT-47 “Simulations and visualizations of grid erosion in ion engines - Prediction of ion engine lifetime-”
Masakatsu Nakano (Tokyo Metropolitan College of Industrial Technology), Japan

PT-48 “Acquiring information of weld quality in Nd:YAG keyhole laser welding based on visual sensing”
Gao Jin Qiang (Shandong Univ.), Qin Guo-liang (China Academy of Engineering Physics), Yang Jia-lin (Shandong Univ.), China , He Jian-guo and Zhang Tao

Room F-2

17:20-18:20: Poster (PT-A)

PT-A1 "Effects of alloying elements on thermal stability of Ni-Cr-P-B glassy alloys"
Canfeng Fang, Wei Zhang and Akihisa Inoue (Tohoku Univ.), Japan

PT-A2 "Fabrication and thermoelectric properties of eco-friendly silicides for thermoelectric power generation using waste heat"
Takashi Itoh (Nagoya Univ.), Japan

PT-A3 "Production of Ni-Cr-P-B metallic glass-coated bipolar plates for fuel cell by high velocity oxy-fuel (HVOF) spray-coating method"
Shin-ichi Yamaura, Sung Chul Kim, Akihiro Makino and Akihisa Inoue (Tohoku Univ.), Japan

PT-A4 "Fabrication of zirconium oxide solid electrolytes with ordered porous structures by using micro stereolithography"
Soshu Kirihara and Satoko Tasaki (Osaka Univ.), Japan

PT-A5 "Applications of Oxide Ceramics in Aqueous Systems"
Katsuro Hayashi, Ken-ichi Katsumata and Kiyoshi Okada (Tokyo Institute of Technology), Japan

PT-A6 "Application to catalyst of mayenite consisting of ubiquitous elements"
Kenzi Suzuki (Nagoya Univ.), Japan

PT-A7 "Nanoporous palladium by dealloying melt-spun $Co_{20}Pd_{80}$ alloys"
Yingmin Wang, Wei Zhang and Akihisa Inoue (Tohoku Univ.), Japan

PT-A8 "Arrangement of Pd nanoparticles on SDS-functionalized single-walled carbon nanotubes"
Zhenquan Tan, Hiroya Abe, Makio Naito and Satoshi Ohara (Osaka Univ.), Japan

PT-A9 "Nano-carbon structures on silicon carbide"
Wataru Norimatsu and Michiko Kusunok (Nagoya Univ.), Japan

PT-A10 "Room-temperature Coulomb oscillation of Ni-Nb-Zr-H glassy alloys with nonosize clusters"
Mikio Fukuhara, HajimeYoshida and Akihisa Inoue (Tohoku Univ.), Japan

PT-A11 "Fabrication and characteristics of short-channel a-IGZO TFTs"
Toshio Kamiya, Nobuto Kobayashi, Kenji Nomura and Hideo Hosono (Tokyo Institute of Technology), Japan

PT-A12 "Carbon nanotube via for integrated systems"
Hiroshi Kawarada, M. Iizuka, D.Yokoyama (Waseda Univ.), Japan

PT-A13 "Superconductivity of the $Ni_{0.324}Nb_{0.216}Zr_{0.36}H_{0.1}$ glassy alloys"
Hajime Yoshida, Mikio Fukuhara and Akihisa Inoue (Tohoku Univ.), Japan

PT-A14 "Magnetic anisotropy of glassy ferromagnet/ferroelectrics heterostructures"
Tomoyasu Taniyama, Yasuhiro Shirahata, Mitsuru Itoh (Tokyo Institute of Technology), Parmanand Sharma, Mikio Fukuhara and Akihisa Inoue (Tohoku Univ.), Japan

PT-A15 "Direct Au-Au flip-chip bonding with vacuum ultraviolet (VUV) treatment"
Naoko Unami (Waseda Univ.), Japan

PT-A16 "Enhancement of solderability of $Cu_{60}Zr_{30}Ti_{10}$ bulk metallic glass by dealloying in hydrofluoric acid solution"
Takehiro Naoi, Hiroshi Nishikawa, Tadashi Takemoto, Hiroya Abe (Osaka Univ.), Mikio Fukuhra and Akihisa Inoue (Tohoku Univ.), Japan

PT-A17 "Local structures of amorphous $(Ni_{0.6}Nb_{0.4})_{100-x}Zr_x$(x=30, 35, 40) alloys by XAFS"
Makoto Matsuura (Tohoku Univ.), Kazuya Konno (National College of Technology-Sendai), Mikio Fukuhara (Tohoku Univ.), Nobuhisa Fujima (Sizuoka Univ.) and Akihisa Inoue (Tohoku Univ.), Japan

PT-A18 "Studies of VUV, VUV/O_3 and O_2 plasma treated cyclo-olefin polymer for low-temperature direct bonding"
Hidetoshi Shinohara, Jun Mizuno and Shuichi Shoji (Waseda Univ.), Japan

PT-A19 "Effects of photon irradiation in UV and VUV regions during plasma processing of organic materials"
Ken Cho, Kosuke Takenaka, Yuichi Setsuhara (Osaka Univ.), Masaharu Shiratani (Kyushu Univ.), Makoto Sekine and Masaru Hori (Nagoya Univ.), Japan

PT-A20 "Single layer PDMS flexible parallel wall microvalvets"
D. H. Yoon, D. Wakui, Tetsushi Sekiguchi and S. Shoji (Nanotechnology Research Center), Japan

PT-A21 "Microstructure of interface between particles in Ni-based glassy matrix composites produced by spark

plasma sintering”
Guoqiang Xie, Dmitri V Louzguine-Luzgin, Hisamichi Kimura (Tohoku Univ.), Fumihiro Wakai (Tokyo Institute of Technology) and Akihisa Inoue (Tohoku Univ.), Japan

PT-A22 “Electrochemical behavior, microstructure and bioactivity of Ti-based metallic glasses”
Fengxiang Qin, Xinmin Wang, Guoqiang Xie, Kunsu Son, Takeshi Wada (Tohoku Univ.), Nobuhiro Matsushita (Tokyo Institute of Technology), Masahiro Tsukamoto (Osaka Univ.), Takao Hahawa (Tokyo Medical and Dental Univ.) and Akihisa Inoue (Tohoku Univ.), Japan

PT-A23 “Advanced biomaterials integration by designing functional interfaces of novel structured metallic, inorganic and organic materials”
Nobuhiro Matsushita, Tomofumi Susaki, Toshiyuki Ikoma, Tomohiko Yoshioka (Tokyo Institute of Technology), Masahiro Tsukamoto (Osaka Univ.), Xie Guoqiang, Xinmin Wang, Mitsuo Niinomi (Tohoku Univ.), Akiko Nagai, Naoyuki Nomura, Takao Hanawa, Kimihiro Yamashita (Tokyo Medical and Dental Univ.), Junzo Tanaka and Kiyoshi Okada (Tokyo Institute of Technology), Japan

PT-A24 “Evaluation of magnetic susceptibility of a Zr-based bulk glassy alloy to suppress artifacts in magnetic resonance imaging”
Naoyuki Nomura (Tokyo Medical and Dental Univ.), Guoqiang Xie, Kunsu Son (Tohoku Univ.), Yusuke Tsutsumi, Hisashi Doi (Tokyo Medical and Dental Univ.), Akihisa Inoue (Tohoku Univ.) and Takao Hanawa (Tokyo Medical and Dental Univ.), Japan

PT-A25 “Development of metallic glass for bio-material and evaluation of artificial joint - Animal inspection and its evaluation of the Ti-based metallic glassy alloys-”
XinMin Wang, K.S. Son, T. Wada. F.X. Qin (Tohoku Univ.), Japan, S.L. Zhu (Tianjin Univ.), China, N. Matsushita (Tokyo Institute of Technology), M. Tsukamoto (Osaka Univ.), T. Hanawa (Tokyo Medical and Dental Univ.), M. Niinomi and A. Inoue (Tohoku Univ.), Japan

PT-A26 “Development of a novel integrated iontophoresis electrode consisting of metallic and drug-loaded layers”
Tomohiko Yoshioka, Norio Saito, Toshiyuki Ikoma (Tokyo Institute of Technology), Naoki Ohashi (National Institute for Materials Science), Haruka Haida, Shizuka Ando, Ryo Wakita, Haruhisa Fukayama (Tokyo Medical and Dental Univ.), Masahiro Umino (TTI ellebeau) and Junzo Tanaka (Tokyo Institute of Technology), Japan

PT-A27 “Responses of osteoblast to surface modified bulk metallic glass”
Akiko Nagai, Kimihiro Yamashita (Tokyo Medical and Dental Univ.), Sayaka Maruyama, Nobuhiro Matsushita, Kiyoshi Okada (Tokyo Institute of Technology), Nobuyuki Abe, Masahiro Tsukamoto (Osaka Univ.), Kunsu Son, Xinmin Wang, Guoqiang Xie and Akihisa Inoue (Tohoku Univ.), Japan

PT-A28 “Improving the bioactivity of the Ti-based BMGs by microstructures formation with femtosecond laser”
Togo Shinonaga, Masahiro Tsukamoto, Tone Daisuke (Osaka Univ.), Sayaka Maruyama, Nobuhiro Matsushita (Tokyo Institute of technology), Takeshi Wada, Xinmin Wang (Tohoku Univ.), Hiroshi Honda (National Institute for Materials and Science) and Nobuyuki Abe (Osaka Univ.), Japan

PT-A29 “Properties of Ti based metallic glassy alloys for femto sec laser treatment - Development of Ti-based Metallic Glassy alloys with high corrosion resistances-”
Kunsu Son, E.S. Park, Guoqiang Xie, Xinmin Wang, (Tohoku Univ.), Masahiro Tsukamoto (Osaka Univ.) and Akihisa Inoue (Tohoku Univ.), Japan

PT-A30 “Effect of PEG immobilization on blood compatibility of titanium-based bulk metallic glass modified with femtosecond laser irradiation”
Yusuke Tsutsumi, Hisashi Doi, Naoyuki Nomura, Takao Hahawa (Tokyo Medical and Dental Univ.), Nobuyuki Abe, Masahiro Tsukamoto (Osaka Univ.), Kunsu Son, Xinmin Wang, Guoqiang Xie and Akihisa Inoue (Tohoku Univ.), Japan

PT-A31 “Joining of ceramic nanocrystals and bio-molecules towards bio-medical applications”
Satoshi Ohara (Osaka Univ.), Kazuyoshi Sato (Gunma Univ.), Zhenquan Tan (Osaka Univ.) and Mitsuo Umetsu (Tohoku Univ.), Japan

PT-A32 “Cu-based metallic glass surfacemodified with Cu for soldering -Productions and applications of Cu clad metallic glass-”
Takeshi Terajima (Osaka Univ.), Hisamichi Kimura and Akihisa Inoue (Tohoku Univ.), Japan

PT-A33 “Shock-assisted joining between metallic glass and ceramics”
Toshiyuki Atou, Shintaro Mukogawa (Tokyo Tech.), Hisamichi Kimura, Shum Ito (Tohoku Univ.) and Masae Kikuchi (Kansei Center, Tohoku Fukushi Lab.), Japan

PT-A34 “Friction stir welding of bulk metallic glasses to pure Cu and pure Al -The application of FSW to the hard-to-weld materials-”
Yufeng Sun, Youngsu Ji and Hidetoshi Fujii (Osaka Univ.), Japan

PT-A35 “Development of plasma MIG brazing process of advanced materials”
Shinichi Tashiro, Tsubasa Katayama and Manabu Tanaka (Osaka Univ.), Japan

PT-A36 “Developments of hybrid in-situ observation system to study the microstructural change of metallic alloys”
Hidenori Terasaki and Yu-ichi Komizo (Osaka Univ.), Japan

PT-A37 “Real-time monitoring for fabricating plasmonic spectral filters using spectroscopic attenuated total reflection method”
Kensuke Murai (National Institute of Advanced Industrial Science and Techology), Japan

PT-A38 “Measurement of fracture behavior of Zr-based metallic glass by thermograpy”
Yoshihiro Sakino, Yui Izumi, Toshio Kuroda (Osaka Univ.), Takahide Sakagami (Kobe Univ.) and You-Chul Kim (Osaka Univ.), Japan

PT-A39 “Development of amorphous boron carbon oxynitride film for transmission electron microscope with environmental-cell system”
Takaomi Matsutani, Hidenori Tsutsui (KINKI Univ.) and Tadahiro Kawasaki (Nagoya Univ.), Japan

PT-A40 “Properties of metallic glass coatings sprayed by gas tunnel type plasma spraying”
Akira Kobayashi, Toshio Kuroda (Osaka Univ.), Hisamichi Kimura and Akihisa Inoue (Tohoku Univ.), Japan

PT-A41 “Inter-granular cracking of a splat of zirconia coating fabricated by plasma spraying technique”
Koji Fujimoto (The Univ. of Tokyo), Japan, Refat El-Sheikhy (King Saud Univ.), Saudi Arabia and Akira Kobayashi (Osaka Univ.), Japan

PT-A42 “Tungsten coatings on reduced-activation ferritic/martensitic steel by plasma spray technique”
Kazutoshi Tokunaga (Kyushu Univ.), Akira Kobayashi (Osaka Univ.), Kuniaki Araki, Tadashi Fujiwara, Yoshio Miyamoto, Kazuo Nakamura (Kyushu Univ.), Akira Kurumada (Ibaraki Univ.), Masayuki Tokitani, Suguru Masuzaki (National Institute for Fusion Science), Koichiro Ezato, Satoshi Suzuki, Mikio Enoeda and Masato Akiba (Japan Atomic Energy Agency), Japan

PT-A43 “Behavior of arc plasma for thermal barrier coating preparation - Plasma plume length determined from light intensity-”
Kazuo Koike, Norifumi Ono (Tohoku Gakuin Univ.) and Akira Kobayashi (Osaka Univ.), Japan

PT-A44 “Titanium oxide film deposition by vortex air thermal plasma assisted spray pyrolysis deposition”
Yasutaka Ando (Ashikaga Institute of Technology) and Akira Kobayashi (Osaka Univ.), Japan

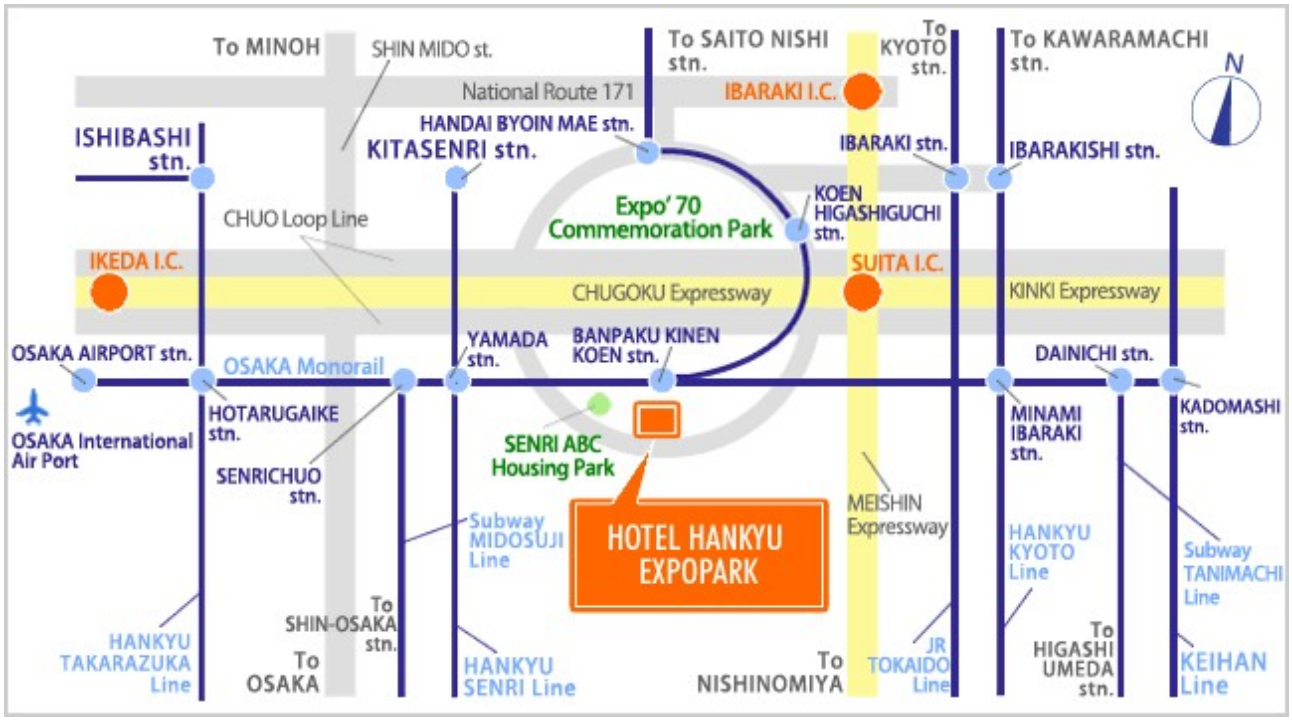
Oral Presentation Guide

(1) A crystal-liquid projector will be equipped for presentation at each room. Overhead projector for transparencies will be NOT available.
(2) A laptop computer with Windows XP & PowerPoint 2003 is also equipped in each room. A USB memory or a CD-ROM is available for installation of your PowerPoint file to the laptop computer. Power Point 2007 file, pptx file, will be NOT acceptable.
(3) You are able to use your own laptop computer for your presentation. The projector has only a usual analog mini D-sub 15 pin connector. Please bring an adapter for interface conversion, if necessary.
(4) The presentation time including discussion is 25min (presentation: 20min, discussion:5min)
(5) You are requested to confirm if your presentation slides are properly projected on a screen before the session.

Author's Guide to Prepare Posters for the Poster Session at Room F

(1) ***Language*****:** Poster must be written in ***English***. Poster must include the title of your paper, names & affiliations of authors, abstract, object, procedures, results & discussion, conclusions, etc.
(2) ***Board size for poster*****:** W85 cm X H115 cm. Poster must be within the board size.
(3) ***Your board*****:** The author can find your board due to a sign of your presentation number, for example "PT-1" at the upper left on the board. The author must finish to pin your poster on the board by 12:00 on November 11.
(4) ***Presentation*****:** The author must stand at the front of your board during the Poster Session from 17:20 to 18:20 and can present your paper to attendees. Presentation must be done in ***English***.
(5) ***After Poster Session*****:** Please take off your poster from the board at once.

Location of Hotel Hankyu Expo Park



HOTEL HANKYU EXPO PARK
1-5 Senri-Banpaku-koen Suita, 565-0826 Osaka, Japan
TEL: +81-6-6878-5151 / FAX: +81-6-6878-3456
URL: http://www.htl-expopark.jp/en

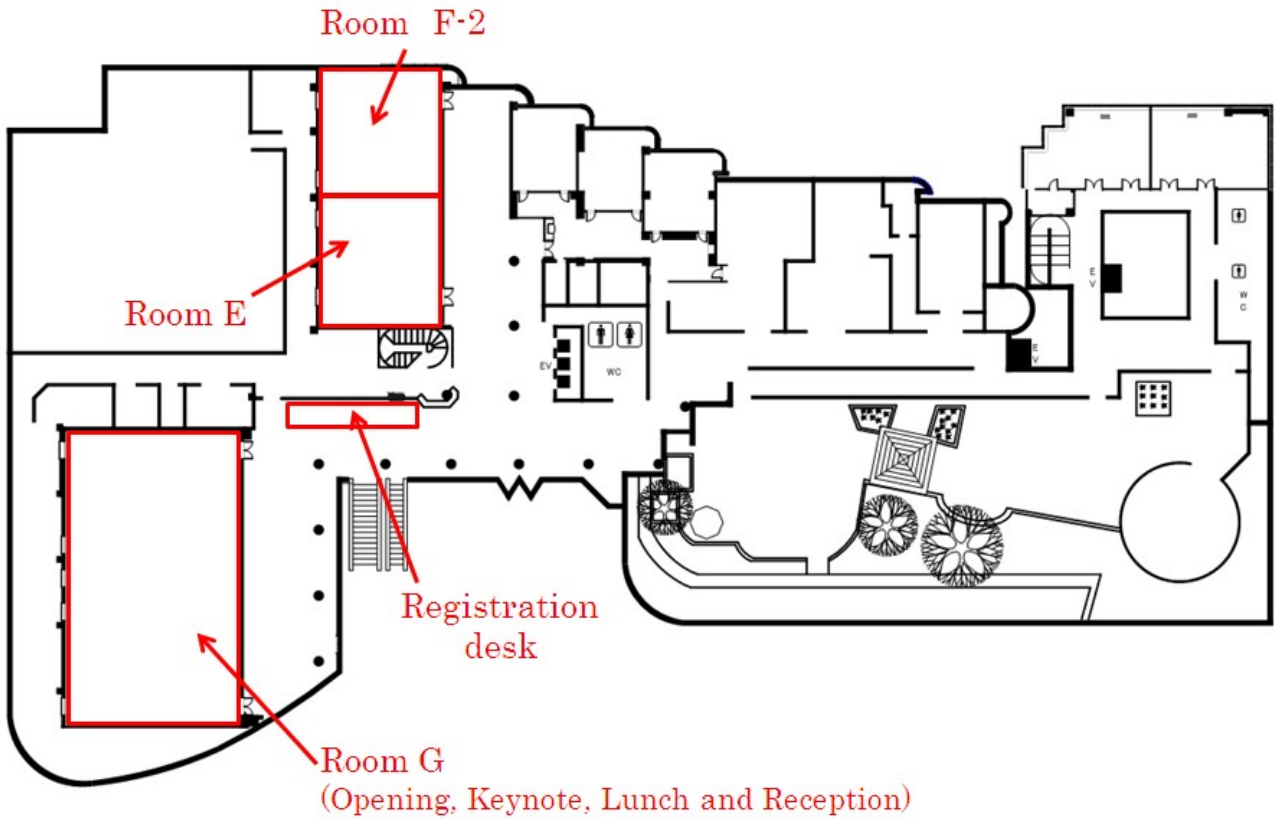
Access to the hotel by train

From Umeda and Shin-Osaka Stations
Take the Midosuji subway line to Senri Chuo Station and change to the Osaka Monorail bound for Kadoma-shi or Saito-nishi. Get off at Banpaku Kinen Koen Station and walk for five minutes.

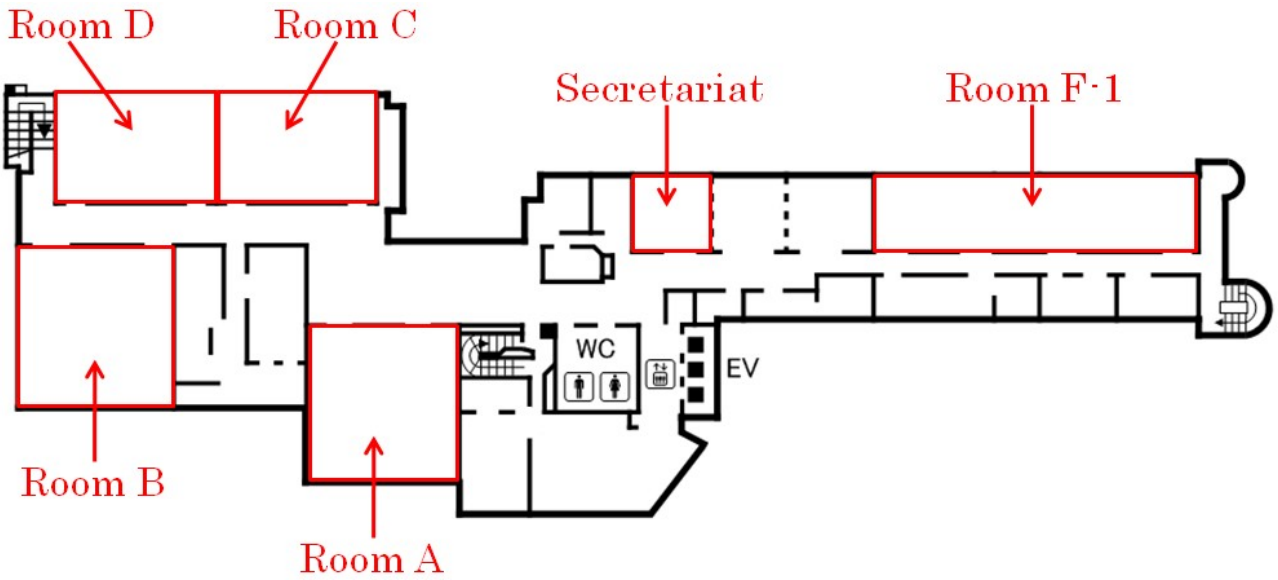
From Osaka International Airport
Take the Osaka Monorail and get off at Bampaku Kinen Koen Station. The hotel is a five-minute walk away.

From Kyoto Station
-Take the JR Tokaido Honsen line and get off at Ibaraki Station. The hotel is a 10-minute bus or taxi ride away.
-Take the Hankyu Kyoto Line and transfer to the Osaka Monorail bound for Osaka International Airport. Get off at Banpaku Kinen Koen Station. The hotel is a five-minute walk from here.

Map of Hotel Hankyu Expo Park



2nd Floor



3rd Floor

Joining and Welding Research Institute, Osaka University
11-1, Mihogaoka, Ibaraki, Osaka 567-0047, Japan
Tel & Fax: +81 6 6879 8645