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- PA-1 Thermal-mechanical coupling analysis for CDFW of U75V rail steel by numerical simulation and experimental validation**
Zhang Han(1), Zhu Zhiming(2)
1) Tsinghua University, China, 2) Tsinghua University, China
- PA-2 Nanoparticles Joining Mechanisms in Stereolithographic Additive Manufacturing**
Soshu Kirihara, Fiona Spirrett
Osaka University, Japan
- PA-3 Mechanical property analysis of High hardness Die steel using Flux Cored-Wire Arc Manufacturing(FC-WAAM)**
Chang Jong Kim(1), Seok Kim(1,2), Young Tae Cho(1,2)
1) Changwon National University, Korea, 2) Changwon National University, Korea
- PA-4 [Cancelled] Mechanical Strength Characterization of Additively Manufactured Composites via Rotational Toolpath in FDM 3D Printing**
Ye Jin Kim(1), Seok Kim(1,2), Young Tae Cho(1,2)
1) Changwon National University, Korea, 2) Changwon National University, Korea
- PA-5 Additive manufacturing of gas turbine blades through arc heat source prediction and control**
Gwang Ho Jeong(1), Seok Kim(1,2), Young Tae Cho(1,2)
1) Changwon National University, Korea, 2) Changwon National University, Korea
- PA-6 Structural Analysis of AISI 316LSi Multilayer Joint Made by Wire Arc Additive Manufacturing**
Milan Maronek, Katarina Bartova, Jozef Barta, Tomas Gracik
Slovak University of Technology, Slovakia
- PA-7 Proposal of New Weibull Stress Equation Based On The Damage Assessment for Steel Structures Subjected To Cyclic Pre-Strain**
Rafael Magalhaes de Melo Freire, Oie Naoya, Tomoya Kawabata
The University of Tokyo, Japan
- PA-8 Effect of Offset Value of Microstructure and Properties of Aluminum/Steel Fluxless Cutting-assisted Welding BrazingJoint**
Huibin Xu, Pan Tan, Bangjin Li, Donghua Yang
Chongqing University of Technology, China
- PA-9 Hardness Distribution Prediction Of High Strength Steel Spot Welds**
Tadashi Kasuya(1), Takaaki Kondo(2), Kei Saito(2), Junya Inoue(1), Manabu Enoki(1)
1) The University of Tokyo, Japan, 2) Nissan Motor Corporation, Japan
- PA-10 Influence of Oxygen Partial Pressure on Surface Tension of Liquid Titanium**
Yusaku Seimiya(1), Ryo Shinazawa(1), Tomohiro Katsumi(1), Yu Kudo(1), Ishikawa Takehiko(2,3), Shumpei Ozawa(1)
1) Chiba Institute of Technology, Japan, 2) Japan Aerospace Exploration Agency, Japan, 3) The graduate University for Advanced Studies, Japan

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- PA-11 Interface microstructure evolution of dissimilar aluminium and medium carbon steel friction stir welded joints using Zn interlayer**
Mohamed Ismail Saleh, Yoshiaki Morisada, Kohsaku Ushioda, Hidetoshi Fujii
Osaka University, Japan
- PA-12 Metals as Carbon Dioxide Atmosphere Fuel Materials**
Wataru Takahara, Akio Hirose
Osaka University, Japan
- PA-13 Intermetallic Compound Formation on Al/Fe Interface Produced by Surface Activated Bonding**
Shun Tokita(1), Ryo Nagase(1), Yutaka S. Sato(1), Ogawa Kazuhiro(2), Ichikawa Yuji(2)
1) Tohoku University, Japan, 2) Tohoku University, Japan
- PA-14 Microscale tensile testing to identify dominant factors for macroscopic fracture strength of friction stir spot welded joints between 6061 aluminum alloy and steel**
Tomoki Matsuda, Toshiya Ogaki, Mitsuru Ohata, Akio Hirose
Osaka University, Japan
- PA-15 Loading mode effect on brittle fracture toughness under large-scale yielding**
Kazuma Shimizu, Mitsuru Ohata, Hiroto Shoji
Osaka University, Japan
- PA-16 Dissimilar Welding Of New High Oxidation Material - THOR 115 With Grade 92**
Michal Urzysnicok(1), Krzysztof Kwiecinski(2)
1) ZELKOT, Poland, 2) Research Network LUKASIEWICZ - INSTITUTE OF WELDING, Poland
- PB-1 Flaw Detection and Evaluation in Friction Stir Welded Joints of Aluminum Alloy AA5083 for Shipbuilding by the High Resolution Computed Radiography and the High Resolution Computer Tomography**
Luis C. Fabricio Filho(1), Armando H. Shinohara(1), Gustavo D. Donatelli(2)
1) Federal University of Pernambuco, Brazil, 2) CERTI Foundation, Brazil
- PB-2 Data Science Techniques to Extract Information from Image Data**
Hikomichi Nagao(1,2), Shin-ichi Ito(1,2), Ryosuke Kaneko(2,1)
1) The University of Tokyo, Japan, 2) The University of Tokyo, Japan
- PB-3 Integrated Framework of Microstructure-Based Simulation for Fatigue Life Prediction of Welded Joints**
Takayuki Shiraiwa, Fabien Briffod, Manabu Enoki
The University of Tokyo, Japan
- PB-4 Evaluation of bending specimens in standard qualification test for welding technique using deep learning**
Tetsuya Uedera(1), Taiga Motoki(2), Keigo Matsuura(3), Kenji Shinozaki(4)
1) National Institute of Technology, Kure College, Japan, 2) Hiroshima University Graduate School, Japan, 3) National Institute of Technology, Kure College Advanced Course, Japan, 4) National Institute of Technology, Kure College, Japan

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- PB-5 A Study on the Selection of Seam Tracking Signals in Tandem Welding**
Bo Wook Seo(1), Seok Kim(1,2), Young Tae Cho(1,2)
1) Changwon National University, Korea, 2) Changwon National University, Korea
- PB-6 [Cancelled] Durability of anticorrosive coated steel-CFRP structural adhesive joint under high temperature and high humidity**
Toshiaki Iwata
National Institute of Maritime, Port and Aviation Technology, Japan
- PB-7 Behavior of hydrogen in duplex stainless steel weld metal investigated by means of hydrogen microprint technique**
Touya Hada(1), Toshiaki Manaka(1), Takanori Hino(1), Masaki Uno(2)
1) National Institute of Technology, Niihama college, Japan, 2) Shikoku Welding Electrode Co.,Ltd., Japan
- PB-8 Improving Fatigue Strength of Butt-Welded High-Strength Steel with Portable Laser Peening Device**
Kato Tomoharu(1), Yoshihiro Sakino(2), Yuji Sano(3,4,5), Yoshio Mizuta(4), Satoshi Takaki(5), Tomonao Hosokai(4)
1) Kindai University, Japan, 2) Kindai University, Japan, 3) National Institutes of Natural Sciences, Japan, 4) Osaka University, Japan, 5) LAcubed Co., Ltd., Japan
- PB-9 Development of cold spot joining (solid state resistance spot joining) method for various steels**
Hidetoshi Fujii(1), Takumi Aibara(1), Masayoshi Kamai(1), Yoshiaki Morisada(1), Takaaki Miyauchi(2), Shinichi Hasegawa(2)
1) Osaka University, Japan, 2) Daihen Corporation, Japan
- PB-10 Study on Mechanical Properties of Advanced Multi-Material Dissimilar Lap Joints**
Hisashi Serizawa
Osaka University, Japan
- PB-11 Hairpin welding of pure copper using hybrid laser system with a blue diode laser and a single-mode fiber laser**
Shumpei Fujio(1), Yuji Sato(2), Keisuke Takenaka(2), Rika Ito(2), Masahiro Tsukamoto(2)
1) Graduate School of Engineering, Osaka University, Japan, 2) Joining and Welding Research Institute, Osaka University, Japan
- PB-12 [Cancelled] Pulsed Laser-Arc Hybrid Welding: High Speed Camera Investigation Of The Power Sources Synchronization Effects**
Jaroslav Bruncko(1), Miroslav Michalka(1), Michal Simek(2), Rastislav Ormandy(2), Tomas Szewczyk(2)
1) International Laser Centre SCSTI Bratislava, Slovakia, 2) First Welding Company, Inc.Slovakia
- PB-13 Experimental study of dominant factors for droplet ejection from tungsten electrode during AC TIG welding**
Kenta Iida(1), Hisaya Komen(1), Masaya Shigeta(2), Manabu Tanaka(1)
1) Osaka University, Japan, 2) Tohoku University, Japan

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- PB-14** **Effect of Temperature Gradient on Residual Stress Depth profiles**
HONGXI WANG(1), Yoshihiro Sakino(2), Wataru Kodama(2)
1) Kindai University, Japan, 2) Kindai University, Japan
- PB-15** **Simulation of heat source characteristics during arc spot welding with constricted nozzle**
Hisaya Komen(1), Manabu Tanaka(1), Akihisa Murata(2), Tadasuke Murata(2)
1) Osaka University, Japan, 2) Murata Welding Laboratory Co., Ltd., Japan
- PB-16** **Numerical investigation of influencing factors of slag transportation process during metal active gas welding using incompressible smoothed particle hydrodynamics method**
Takamasa Fukazawa(1), Hisaya Komen(1), Masaya Shigeta(2), Manabu Tanaka(1), Mitsugi Fukahori(3), Naoko Saito(3), Tetsuo Yamada(4)
1) Osaka University, Japan, 2) Tohoku University, Japan, 3) Mazda Motor Corporation, Japan, 4) Mazda Motor Corporation, Japan
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