SLPC2022
The 4th Smart Laser Processing Conference
Organized by Japan Laser Processing Society (JLPS)
Co-organized by Joining and Welding Research Institute, Osaka University

SLPC 2022 » Oral Presentation

Session 1: Blue LD Processing

Tue. Apr 19, 2022 9:00 AM - 10:30 AM Pacifico Yokohama Conference Center (416+417)

Session Chair: Yuji Sato (Osaka University), Yasuhiro Okamoto (Okayama University)

9:00 AM - 9:30 AM WEB (On-time video, Q&A by Dr. S. Takeda)

[SLPC1-01(Invited)] Blue diode lasers with increased power creating new opportunities in material processing

*Markus Ruetering[1], Luisa-Marie Heine[1], Soern Ocylok[1], Mathias Schlett[1] (1. Laserline GmbH)

9:30 AM - 10:00 AM

[SLPC1-02(Invited)] Laser Welding for Copper with Blue-IR Hybrid Laser "BRACE^{TM}"

*Tomomichi Yasuoka[1], Nobuyasu Matsumoto[1], Kazuyuki Umeno[1], Masamitsu Kaneko[1], Tatsuya Yoshizaki[1], Takashi Kayahara[1], Takashi Shigematsu[1] (1. FURUKAWA ELECTRIC CO., LTD.)

10:00 AM - 10:15 AM

[SLPC1-03] KW-class blue direct diode laser for copper welding

*Masaya Suwa[1], Naoki Wakabayashi[1], Naoya Ishigaki[1], Minoru Yamada[1], Tomoyuki Hiroki[1], Shingo Uno[1], Koji Tojo[1], Masahiro Tsukamoto[2] (1. Shimadzu Corporation, 2. Joining and Welding Research Institute, Osaka University)

10:15 AM - 10:30 AM

[SLPC1-04] Copper alloy layer formation of high intensity blue diode lasers for inactivation of virus

*Yuji Sato[1], Keisuke Takenaka[1], Tsuneyoshi Kamata[2], Masahiro Tsukamoto[1]
(1. JWRI, Osaka University, 2. Mitsui Mining and Smelting Co. Ltd)

SLPC2022
The 4th Smart Laser Processing Conference
Organized by Japan Laser Processing Society (JLPS)
Co-organized by Joining and Welding Research Institute, Osaka University

SLPC 2022 » Oral Presentation

Session 2: Industrial Applications

Tue. Apr 19, 2022 10:45 AM - 12:00 PM Pacifico Yokohama Conference Center (416+417)

Session Chair: Yasuhiro Okamoto (Okayama University), Yuji Sato (Osaka University)

10:45 AM - 11:15 AM

[SLPC2-01(Invited)] Laser material processing in E-mobility

*Tsuyoshi Nakamura[1], Matthias Beranek[2] (1. TRUMPF Corporation, 2. TRUMPF Laser- und Systemtechnik GmbH)

11:15 AM - 11:30 AM

[SLPC2-02] Effects of Laser Peening with PDMS as Plasma Confinement Layer

*Yang Zhang[1], Takumi Besshi[1], Miho Tsuyama[1], Manabu Heya[2], Hitoshi Nakano[1] (1. Kindai University, 2. Osaka-sangyo University)

11:30 AM - 12:00 PM WEB (Remote-live)

[SLPC2-03(Invited)] Laser Weeding – A New Technology for Sustainable Weed Management

*Merve Wollweber[1], Tammo Ripken[1] (1. Laser Zentrum Hannover e.V.)

SLPC2022
The 4th Smart Laser Processing Conference
Organized by Japan Laser Processing Society (JLPS)
Co-organized by Joining and Welding Research Institute, Osaka University

SLPC 2022 » Oral Presentation

Session 3: AI/CPS Processing and Ultrashort Pulsed Laser Processing

Tue. Apr 19, 2022 1:15 PM - 3:00 PM Pacifico Yokohama Conference Center (416+417)

Session Chair: Aiko Narazaki (National Institute of Advanced Industrial Science and Technology), Rie Yamagishi (Fukuoka Institute of Technology)

1:15 PM - 1:45 PM

[SLPC3-01(Invited)] Femtosecond laser processing with adaptive optics based on machine learning

*Satoshi Hasegawa[1], Yoshio Hayasaki[1] (1. Utsunomiya University)

1:45 PM - 2:00 PM

[SLPC3-02] Laser welding depth classification by deep learning using laser welding surface emission observation images

*Toshifumi Kikuchi[1], Ryuma Takabatake[1], Tsubasa Fujimoto[1], Hiroshi Ikenoue[1], Daisuke Nakamura[1] (1. Kyushu University)

2:00 PM - 2:15 PM

[SLPC3-03] Estimating transistor characteristics from low temperature polycrystalline silicon surface images using deep learning

*Keita Katayama[1], Takayuki Kurashige[1], Takahiro Nagano[1], Yoshiaki Kakimoto[1,2], Akira Mizutani[1], Daisuke Nakamura[1], Tetsuya Goto[3], Hiroshi Ikenoue[1,2]
(1. Graduate School of Information Science and Electrical Engineering, Kyushu University, 2. Department of Gigaphoton Next GLP, Kyushu University, 3. New Industry Creation Hatchery Center, Tohoku University)

2:15 PM - 2:45 PM

[SLPC3-04(Invited)] Crystallinity evaluation in periodic structures induced by femtosecond laser pulses

*Reina Miyagawa[1], Daisuke Kamibayashi[2], Hirotaka Nakamura[2,3], Masaki Hashida[4,5], Heishun Zen[6], Takeshi Matsuoka[7], Hiroyuki Ogura[2], Daisuke Sagae[2], Yusuke Seto[8], Takahisa Shobu[9], Ai Tominaga[9], Osamu Eryu[1], Norimasa Ozaki[2,3]
(1. Nagoya Institute of Technology, 2. Graduate School of Engineering, Osaka University, 3. Institute of Laser Engineering, Osaka University, 4. Institute for Chemical Research, Kyoto University, 5. Research Institute of Science and Technology, Tokai University, 6. Institute of Advanced Energy, Kyoto University, 7. Institute for Open and Transdisciplinary Research Initiatives, Osaka University, 8. Graduate School of Science, Kobe University, 9. Quantum Beam Science Center, Japan Atomic Energy Agency)

2:45 PM - 3:00 PM

[SLPC3-05] Control of cell behavior on the PMMA surface by LIPSS with a femtosecond laser pulse

*Keisuke Takenaka[1], Yuji Sato[2], Masahiro Tsukamoto[2]
(1. Graduate school of engineering, Osaka university, 2. Joining and Welding Research Institute, Osaka University)

SLPC2022
The 4th Smart Laser Processing Conference
Organized by Japan Laser Processing Society (JLPS)
Co-organized by Joining and Welding Research Institute, Osaka University

SLPC 2022 » Oral Presentation

Session 4: Plenary Talks of SLPC2022

Tue. Apr 19, 2022 3:30 PM - 5:30 PM Pacifico Yokohama Conference Center (416+417)

Session Chair: Masahiro Tsukamoto (Osaka University), Yuji Sato (Osaka University)

3:30 PM - 4:10 PM

[SLPC4-01(Invited)] The Role of TRAFAM and AM Technology Developments

*Hideki Kyogoku[1] (1. Kindai University, Japan)

4:10 PM - 4:50 PM

[SLPC4-02(Invited)] Cyber-Physical System of laser processing

*Yohei Kobayashi[1] (1. The University of Tokyo)

4:50 PM - 5:30 PM WEB (Remote-live)

[SLPC4-03(Invited)] Fully Digitalized Production Chains for Medical Implants in Ophthalmology

*Reinhart Poprawe[1,2], Axel von Wallfeld[1], Uwe M. Clasen[1]
(1. AIXlens GmbH, Germany, 2. Fraunhofer Germany, Chair for Lasertechnology RWTH Aachen University, Germany)

Session 5: Micro Nano Processing

Wed. Apr 20, 2022 1:30 PM - 3:00 PM Pacifico Yokohama Conference Center (416+417)

Session Chair: Yoshio Hayasaki (Utsunomiya University), Miho Tsuyama (Kindai University)

1:30 PM - 1:45 PM WEB (Remote-live)

[SLPC5-01] Direct writing of SiC micropatterns in ambient atmosphere using near-infrared femtosecond laser sintering

*Tatsuru Kawabori[1], Masashi Watanabe[2], Yoshiyuki Imai[2], Xing Yan[2], Mizue Mizoshiri[1]
(1. Nagaoka University of Technology, 2. Japan Atomic Energy Agency)

1:45 PM - 2:00 PM WEB (Remote-live)

[SLPC5-02] Laser Processing for Shape Memory Actuators

*Marvin Schuleit[1], Benedict Theren[2], Burkhard Maaß[3], Bernd Kuhlenkötter[2], Cemal Esen[1], Andreas Ostendorf[1]
(1. Applied Laser Technologies, Ruhr University Bochum, 2. Production Systems, Ruhr University Bochum, 3. Ingpuls GmbH)

2:00 PM - 2:30 PM WEB (On-time video)

[SLPC5-03(Invited)] Damage-Less Singulation of Ultra-Thin Wafers using Stealth Dicing Technology

*Natsuki Suzuki[1], Koji Kuno[1], Takayuki Ohba[2] (1. Hamamatsu Photonics K.K., 2. Tokyo Institute of Technology)

2:30 PM - 2:45 PM

[SLPC5-04] Drilling characteristics of glass with large thermal expansion coefficient by short-pulse CO_2 laser

*Md. Ekhlasur Rahaman[1], Kazuyuki Uno[1]
(1. Integrated Graduate School of Medicine, Engineering and Agricultural Science, University of Yamanashi)

2:45 PM - 3:00 PM

[SLPC5-05] Time-resolved spectroscopy of glass ablation during micro-via processing using 248 nm excimer laser for semiconductor interposer packaging

*Yasufumi Kawasuji[1], Yasuhiro Adachi[1], Kazuhiko Moro[1], Kouji Kakizaki[1], Masakazu Washio[2] (1. Gigaphoton Inc., 2. Waseda University)

SLPC2022
The 4th Smart Laser Processing Conference
Organized by Japan Laser Processing Society (JLPS)
Co-organized by Joining and Welding Research Institute, Osaka University

SLPC 2022 » Oral Presentation

Session 6: Ultrashort Pulsed Laser Processing

Wed. Apr 20, 2022 3:15 PM - 5:00 PM Pacifico Yokohama Conference Center (416+417)

Session Chair: Masaki Hashida (Tokai University), Hitoshi Nakano (Kindai University)

3:15 PM - 3:30 PM

[SLPC6-01] Three-temperature model for laser processing of silicon and its dependence on laser parameters

*Prachi Venkat[1], Tomohito Otobe[1] (1. Kansai Photon Science Institute, National Institutes for Quantum Science and Technology, Kyoto)

3:30 PM - 4:00 PM

[SLPC6-02(Invited)] Ultrafast processing of glass by selective absorption of continuous-wave laser into transiently excited electrons

*Yusuke Ito[1], Reina Yoshizaki[1], Naohiko Sugita[1] (1. The University of Tokyo, Japan)

4:00 PM - 4:15 PM

[SLPC6-03] Holographic femtosecond laser processing of a glass with three-dimensionally arranged focused beams

*Yoshio Hayasaki[1], Honghao Zhang[1], Satoshi Hasegawa[1] (1. Utsunomiya University)

4:15 PM - 4:30 PM

[SLPC6-04] Multifocusing of ultrashort laser pulses using dispersion control techniques based on hybrid optics

*Jun Amako[1], Hidetoshi Nakano[1] (1. Faculty of Science and Engineering, Toyo University)

4:30 PM - 4:45 PM

[SLPC6-05] Precise generation of three-dimensional focused beams for holographic femtosecond laser processing

*Fumiya Ishita[1], Honghao Zhang[1], Satoshi Hasegawa[1], Yoshio Hayasaki[1]
(1. Center for Optical Research and Education , Utsunomiya University)

4:45 PM - 5:00 PM

[SLPC6-06] Holographic laser grooving using the scanning parallel beam method

*Yuta Nakamura[1], Tomonari Tanaka[1], Satoshi Hasegawa[1], Yoshio Hayasaki[1] (1. Utsunomiya University)

SLPC2022
The 4th Smart Laser Processing Conference
Organized by Japan Laser Processing Society (JLPS)
Co-organized by Joining and Welding Research Institute, Osaka University

Session 7: Short Wavelength Application

Thu. Apr 21, 2022 9:00 AM - 10:00 AM Pacifico Yokohama Conference Center (416+417)

Session Chair: Katsuhiro Mikami (Kindai University), Masahito Katto (University of Miyazaki)

9:00 AM - 9:30 AM

[SLPC7-01(Invited)] Study on Nanoscale Response of Silicon under Femtosecond Extreme Ultraviolet Irradiation

*Thanh-Hung Dinh[1], Toshiyuki Kitamura[1], Masahiko Ishino[1], Noboru Hasegawa[1], Yoshiteru Yonetani[1], Masaharu Nishikino[1]
(1. National Institutes for Quantum Science and Technology)

9:30 AM - 9:45 AM

[SLPC7-02] Progress of DUV・EUV Light Source and its Extension to Leading Edge Semiconductor Manufacturing

*Hakaru Mizoguchi[1], Koji Kakizaki[1], Hiroaki Nakarai[1], Hiroshi ikenoue[2], Seiji Shiratani[2], Yasutsugu Usami[1] (1. Gigaphoton, 2. Kyushu University)

9:45 AM - 10:00 AM

[SLPC7-03] Excimer laser doping of low-resistance Ni ohmic contacts to n-type 4H-SiC

*Yoshiaki Kakimoto[1,2], Keita Katayama[1], Takuma Yasunami[1], Tetsuya Goto[3], Daisuke Nakamura[1], Hiroshi Ikenoue[1]
(1. Kyushu University, 2. Gigaphoton Inc, 3. Tohoku University)

SLPC2022
The 4th Smart Laser Processing Conference
Organized by Japan Laser Processing Society (JLPS)
Co-organized by Joining and Welding Research Institute, Osaka University

SLPC 2022 » Oral Presentation

Session 8: Welding

Thu. Apr 21, 2022 1:30 PM - 3:00 PM Pacifico Yokohama Conference Center (416+417)

Session Chair: Yorihiro Yamashita (National Institute of Technology, Ishikawa College), Takahiro Kunimine (Kanazawa University)

1:30 PM - 1:45 PM

[SLPC8-01] Investigations of plasma effects from large-diameter Kilowatt cw laser beams on Aluminum samples

Canceled as of April 8

*Dominic Heunoske[1], Jens Osterholz[1] (1. Fraunhofer EMI)

1:45 PM - 2:00 PM

[SLPC8-02] Laser Welding of Ultra-high Strength Steel to Aluminum with Cold-sprayed Steel Coating Interlayer

*Kyohei Maeda[1,2], Yuji Sato[1], Reiichi Suzuki[2], Tetsuo Suga[1], Masahiro Tsukamoto[1] (1. Osaka University, 2. Kobe Steel)

2:00 PM - 2:15 PM WEB

[SLPC8-03] Increased gap bridgability and stability with multi-spot laser beam

*Joerg Volpp[1], Alexander Laskin[2] (1. Lulea University of Technology, 2. AdlOptica GmbH)

2:15 PM - 2:30 PM

[SLPC8-04] Study on Irradiation Method of Near-infrared Laser Beam in Welding of Copper

*Akihiro Ochi[1], Yasuhiro Okamoto[1], Akira Okada[1], Takeshi Yamamura[2], Norio Nishi[2] (1. Okayama University, 2. Kataoka Corporation)

2:30 PM - 3:00 PM WEB

[SLPC8-05(Invited)] Blue Diode Laser for Welding of Thin Foil Metals

*Tim Pasang[1], Pai-Chen Lin[2], Wojciech Misiolek[3], Jia-Yuan Wei[2], Shinichiro Masuno[4], Masahiro Tsukamoto[4], Eiji Hori[4], Yuji Sato[4], Yuan Tao[5], Danang Yudhistiro[6], Salahuddin Yunus[6]

(1. Department of Manufacturing, Mechanical Engineering and Technology, Oregon Institute of Technology, USA, 2. AIM-HI, National Chung Cheng University, Taiwan, 3. Loewy Institute, Department of Materials Science and Engineering, Lehigh University, USA, 4. Joining and Welding Research Institute (JWRI), Osaka University, Japan, 5. Department of Mechanical Engineering, Auckland University of Technology,New Zealand, 6. Department of Mechanical Engineering, Universitas Jember, Indonesia)

SLPC2022
The 4th Smart Laser Processing Conference
Organized by Japan Laser Processing Society (JLPS)
Co-organized by Joining and Welding Research Institute, Osaka University

SLPC 2022 » Oral Presentation

Session 9: Welding / Additive Manufacturing & Selective Laser Melting

Thu. Apr 21, 2022 3:15 PM - 4:30 PM Pacifico Yokohama Conference Center (416+417)

Session Chair: Takahiro Kunimine (Kanazawa University), Yorihiro Yamashita (National Institute of Technology, Ishikawa College)

3:15 PM - 3:30 PM

[SLPC9-01] Laser superposition processing technology using two beams with different energy densities

*Kazuo Hasegawa[1,2], Kan'ichi Tsunoda[1], Satoru Kato[1]
(1. Toyota central R&D labs., inc., 2. The Graduate School for the Creation of New Photonics Industries)

3:30 PM - 4:00 PM

[SLPC9-02(Invited)] Investigating new concepts for improving the additive manufacturing process on industrial level

*Markus Kogel-Hollacher[1], Frédéric Adam[1], Christian Staudenmaier[1], Matthias Strebel[1], Steffen Boley[3], Stan Watanabe[2]
(1. Precitec GmbH & Co. KG, Germany, 2. Precitec Japan Ltd, 3. Institut für Strahlwerkzeuge (IFSW))

4:00 PM - 4:15 PM

[SLPC9-03] Microstructures and Mechanical Properties of CrMnFeCoNi Multicomponent Alloys Additively Manufactured by Multi-Beam Laser DED

Kaito Nakagawa[1], Tatsuya Sakurai[1], Yorihiro Yamashita[2], *Takahiro Kunimine[1]
(1. Kanazawa University, 2. National Institute of Technology, Ishikawa College)

4:15 PM - 4:30 PM

[SLPC9-04] Experimental investigation and simulation of superelastic behavior of NiTi gyroid structures manufactured via SLM

*Stanisalv V. Chernyshikhin[1], Farzad Karimi[2], Igor V. Shishkovsky[1]
(1. Skolkovo Institute of Science and Technology, 2. Sharif University of Technology)

SLPC2022
The 4th Smart Laser Processing Conference
Organized by Japan Laser Processing Society (JLPS)
Co-organized by Joining and Welding Research Institute, Osaka University

Poster Session

Thu. Apr 21, 2022 10:30 AM - 12:00 PM Pacifico Yokohama Exhibition Hall A (Hall A IP)

[SLPCp-01] Consideration of Two-Dimensional CPC for Pumping Cavity of Solar-Pumped Laser

*Hirozumi Munakata[1], Tomomasa Ohkubo[1], Ei-ichi Matsunaga[1], Thanh-hung Dinh[2], Yuji Sato[3]
(1. Graduate School of Engineering, Tokyo University of Technology, 2. National Institutes for Quantum Science and Technology, 3. Joining and Welding Research Institute, Osaka University)

[SLPCp-02] Early stage of Si surface processing by femto-second Ti:sapphire laser pulses

*Masahito Katto[1], Masanori Kaku[1], Masahiro Tsukamoto[2], Yuji Sato[2], Atsushi Yokotani[1] (1. University of Miyazaki, 2. Osaka University)

[SLPCp-03] Spatial profile measurement of mid-infrared free electron laser for LIPSS research

*Shin-ichiro Masuno[1], Masaki Hashida[1,2], Heishun Zen[3], Takeshi Nagashima[4], Norimasa Ozaki[5], Hitoshi Sakagami[6], Shigeru Yamaguchi[7], Satoru Iwamori[2,8]
(1. Advanced Research Center for Beam Science, Institute for Chemical Research, Kyoto University, 2. Research institute of Science and Technology, Tokai University, 3. Institute of Advanced Energy, Kyoto University, 4. Faculty of Science and Engineering, Setsunan University, 5. Graduate School of Engineering, Osaka University, 6. National Institute for Fusion Science, 7. Department Physics, Tokai University, 8. Department of Mechanical Engineering, Tokai University)

[SLPCp-04] In situ measurement of LIPSS formation with high-spatiotemporal resolution

*Masaki Hashida[1], Shin-ichro Masuno[2], Yohei Tanaka[3,2], Heishun Zen[4], Takeshi Nagashima[5], Norimasa Ozaki[6], Hitoshi Sakagami[7], Shunsuke Inoue[2,3], Shigeru Yamaguchi[8], Satoru Iwamori[9]
(1. Research institute of Science and Technology, Tokai University, 2. Graduate School of Science, Kyoto University, 3. Institute for Chemical Research, Kyoto University, 4. Institute of Advanced Energy, Kyoto University, 5. Faculty of Science and Engineering, Setsunan University, 6. Graduate School of Engineering, Osaka University, 7. National Institute for Fusion Science, 8. Department Physics, Tokai University, 9. Department of Mechanical Engineering, Tokai University)

[SLPCp-05] Effects of Laser Irradiation Conditions on WC Particle Size and Hardness of WC-Co Cemented Carbide Processed by Directed Energy Deposition

*Yorihiro Yamashita[1], Takahiro Kunimine[2], Yoshinori Funada[3], Yuji Sato[4], Masahiro Tsukamoto[4]
(1. National Institute of Technology , Ishikawa College, 2. Institute of Science and Engineering, Kanazawa University, 3. Industrial Research Institute of Ishikawa, 4. Joining and Welding Research Institute, Osaka University)

[SLPCp-06] Micro-coating of pure copper by multi-beam LMD method with high intensity blue diode lasers

*Yuma Takazawa[1], Kazuhiro Ono[1], Yuki Morimoto[2], Keisuke Takenaka[1], Yuji Sato[3], Manabu Heya[2], Masahiro Tsukamoto[3]
(1. Graduate School of Engineering, Osaka University, 2. Faculty of Engineering, Osaka Sangyo University, 3. Joining and Welding Research Institute, Osaka University)

[SLPCp-07] Thin-film formation of polymer sheets by the CO_2 laser with the copper base

*Nobukazu Kameyama[1], Hiroki Yoshida[1] (1. Gifu University)

[SLPCp-08] Homogenization Towards a Grain Size of SLMed Plate with Modulated Pulsed Laser

*Yuta Mizuguchi[1], Masahiro Ihama[1], Yuji Sato[2], Norio Yoshida[2], Sasitorn Srisawadi[3], Dhritti Tanprayoon[3], Masahiro Tsukamoto[2]
(1. Osaka University, 2. Joining and Welding Research Institute, Osaka University, 3. National Metal and Materials Technology Center)

[SLPCp-09] Effect od ambient pressure on denudation zone for development of SLM in vacuum

*Masahiro Ihama[1], Yuta Mizuguchi[1], Keisuke Takenaka[2], Norio Yoshida[2], Yuji Sato[2], Tsukamoto Masahiro[2]
(1. Graduate School of Engineering, Osaka University, 2. Joining and Welding Research Institute, Osaka University)

[SLPCp-10] Copper rod formation using multi-beam laser metal deposition system with blue diode lasers

*Ritsuko Higashino[1], Yuji Sato[1], Keisuke Takenaka[1], Kazuhiro Ono[2], Yoshinori Funada[3], Yorihiro Yamashita[4], Nobuyuki Abe[1], Masahiro Tsukamoto[1]
(1. Joining and Welding Research Institute, Osaka University, 2. Graduate School of Engineering, Osaka University, 3. Industrial Research Institute of Ishikawa, 4. National Institute of Technology Ishikawa College)

[SLPCp-11] Real-time observation of molten pool shape in keyhole-type welding for stainless steel using a 16kW disk laser

*Tomoki Arita[1], Yoshiaki Kurita[2], Masami Mizutani[3], Yuji Sato[3], Hitoshi Nakano[1], Masahiro Tsukamoto[3]
(1. Graduate School of Science and Engineering, Kindai University, 2. Graduate School of Engineering, Osaka University, 3. Joining and Welding Research Institute, Osaka University)

[SLPCp-12] Investigation of keyhole dynamics in laser welding of pure copper using in situ X-ray observation system

*Shumpei Fujio[1], Tomoki Arita[2], Yoshiaki Kurita[1], Keisuke Takenaka[3], Masami Mizutani[3], Yuji Sato[3], Hitoshi Nakano[2], Masahiro Tsukamoto[3]
(1. Graduate School of Engineering, Osaka University, 2. Graduate School of Science and Engineering, Kindai University, 3. Joining and Welding Research Institute, Osaka University)

SLPC2022
The 4th Smart Laser Processing Conference
Organized by Japan Laser Processing Society (JLPS)
Co-organized by Joining and Welding Research Institute, Osaka University

SLPC 2022 » Oral Presentation

Awards & Closing Remark

Thu. Apr 21, 2022 4:30 PM - 5:00 PM Pacifico Yokohama Conference Center (416+417)

Session Chair: Masahiro Tsukamoto (Osaka University), Yuji Sato (Osaka University)

4:30 PM - 5:00 PM

[SLPC-Closing] Closing Remarks