

# SLPC2018

The Third Smart Laser Processing Conference 2018

April 24 – 26, 2018

Yokohama, Japan

<http://www.jlps.gr.jp/slpc2018/>

## *SLPC2018 Final Program*

*updated March 16, 2018*

<i>Chairs</i>	Masahiro Tsukamoto	<i>JWRI, Osaka University, Japan</i>
	Reinhart Poprawe	<i>Fraunhofer Institute for Laser Technology, Germany</i>
<i>Program Committee</i>	Yasuhiro Okamoto	<i>Okayama University, Japan</i>
<i>Steering Committee Chair</i>	Yuji Sato	<i>Osaka University, Japan</i>

# *Program*



# Oral Session

Day 1: Tuesday, April 24

Room 416+417

## Opening

09:00 Opening Remark, Masahiro Tsukamoto (Osaka University, Japan)

Room 416+417

## Session 1: Plenary Talks

Chair: Reinhart Poprawe (Fraunhofer Institute for Laser Technology, Germany)

9:10 SLPC1-1 **Plenary** A042

**Laser processing in flexible electronics**, Andreas Ostendorf<sup>1</sup>, Maren Kasischke<sup>1</sup>, <sup>1</sup>*Applied Laser Technologies, Ruhr-University Bochum, Germany*

9:50 SLPC1-2 **Plenary** A059

**Blue diode laser development for advanced materials processing**, Masahiro Tsukamoto<sup>1</sup>, <sup>1</sup>*Joining and Welding Research Institute, Osaka University, Japan*

10:30 Coffee Break

Room 416+417

## Session 2: Digital Production (AM and IoT) I

Chairs: Masahiro Tsukamoto (JWRI, Osaka University, Japan)  
Masahito Katto (University of Miyazaki, Japan)

11:00 SLPC2-1 **Invited** A041

**Latest trends of IoT and additive laser manufacturing**, Bastian Becker<sup>1</sup>, Antonio Candel-Ruiz<sup>1</sup>, Stephan Manz<sup>1</sup>, Dirk Wagner<sup>2</sup>, <sup>1</sup>*Sales Services, Lasertechnology, TRUMPF Laser- und Systemtechnik GmbH, Germany*, <sup>2</sup>*TRUMPF Laser GmbH, Germany*

11:30 SLPC2-2 **Invited** A069

**Toward cool laser manufacturing**, Yohei Kobayashi<sup>1</sup>, Shuntaro Tani<sup>1</sup>, <sup>1</sup>*The University of Tokyo, Japan*

12:00 Lunch time

Room 416+417

## Session 3: Digital Production (AM and IoT) II

Chairs: Bastian Becker (TRUMPF Laser- und Systemtechnik GmbH, Germany)  
Hitoshi Nakano (Kindai University, Japan)

13:30 SLPC3-1 A031

**Development of sputter-free selective laser melting for titanium plate fabrication**, Yuji Sato<sup>1</sup>, Masahiro Tsukamoto<sup>1</sup>, Takahisa Shobu<sup>2</sup>, Takaya Nishi<sup>3</sup>, Yorihiro Yamashita<sup>4</sup>, Ritsuko Higashino<sup>1</sup>, Hitoshi Nakano<sup>3</sup>, Nobuyuki Abe<sup>1</sup>, <sup>1</sup>*JWRI, Osaka University, Japan*, <sup>2</sup>*Japan Atomic Energy Agency, Japan*, <sup>3</sup>*Graduate School of Science and Engineering, Kindai University, Japan*, <sup>4</sup>*Industrial Research Institute of Ishikawa, Japan*

13:45 SLPC3-2 A017

**Development of selective laser melting system applied to fabricate controllable thin-walled metal microstructures**, Chung-Wei Cheng<sup>1</sup>, Siang-Yang Wu<sup>1</sup>, Mi-Ching Tsai<sup>2</sup>, <sup>1</sup>*Department of Mechanical Engineering, National Chiao Tung University, Taiwan*, <sup>2</sup>*Department of Mechanical Engineering, National Cheng Kung University, Taiwan*

- 14:00 SLPC3-3** **A008**  
**Advanced beam diagnostics for additive manufacturing laser scanner systems**, Andreas Koglbauer<sup>1</sup>, Stefan Wolf<sup>1</sup>, Otto Märten<sup>1</sup>, Reinhard Kramer<sup>1</sup>, <sup>1</sup>*Research & Development, PRIMES GmbH, Germany*
- 14:15 SLPC3-4** **A061**  
**Effect of laser power on molten pool track and microstructure in laser metal deposition of 316L stainless steel**, Manjajiah Mallaiah<sup>1</sup>, Jean Yves Hascoet<sup>1</sup>, Matthieu Rauch<sup>1</sup>, <sup>1</sup>*Department of Mechanics, Materials and Civil Engineering, Centrale Nantes, France*
- 14:30 SLPC3-5** **A030**  
**The in situ laser-induced synthesis of nickel-gold microstructures for non-enzymatic sensing of glucose**, Ilya I Tumkin<sup>1</sup>, Evgeniia M Khairullina<sup>1</sup>, Iliia A Aliabev<sup>1</sup>, Vladimir A Kochemirovsky<sup>1</sup>, Maxim S Panov<sup>1</sup>, <sup>1</sup>*Institute Chemistry, Saint Petersburg State University, Russia*
- 14:45 SLPC3-6** **A062**  
**Development of non-molten pool type laser coating**, Yorihiro Yamashita<sup>1</sup>, Yoshinori Funada<sup>1</sup>, Masahiro Tsukamoto<sup>2</sup>, Nobuyuki Abe<sup>2</sup>, Yuji Sato<sup>2</sup>, Yuu Sakon<sup>3</sup>, Kazuki Makinoshima<sup>3</sup>, <sup>1</sup>*Machinery and Metal, Industrial Research Institute of Ishikawa, Japan*, <sup>2</sup>*Laser Process, Joining and Welding Research Institute, Osaka University, Japan*, <sup>3</sup>*Development Section, Muratani Machine Inc, Japan*
- 15:00 Coffee break**

### Room 416+417

### Session 4: Advanced Laser and Industrial Applications

Chairs: Beat Neuenschwander (Institute for Applied Laser, Photonics and Surface Technologies ALPS, Bern University of Applied Sciences, Switzerland)  
 Yoshio Hayasaki (Ustunomiya University, Japan)

- 15:15 SLPC4-1** Invited **A036**  
**Latest diode laser technology and its industrial applications**, Markus A. Ruetering<sup>1</sup>, Christoph Ullmann<sup>1</sup>, Matthias Weinbach<sup>1</sup>, <sup>1</sup>*Laserline GmbH, Germany*
- 15:45 SLPC4-2** **A065**  
**Development of high-energy-class laser processing technologies using a laser-diode pumped 100-J pulse-shaped laser system**, Yoshio Mizuta<sup>1</sup>, Takashi Kurita<sup>1</sup>, Takeshi Watari<sup>1</sup>, Yuki Kabeya<sup>1</sup>, Takashi Sekine<sup>1</sup>, Yoshinori Tamaoki<sup>1</sup>, Koichi Iyama<sup>1</sup>, Yasuki Takeuchi<sup>1</sup>, Takaaki Morita<sup>1</sup>, Masateru Kurata<sup>1</sup>, Yuma Hatano<sup>1</sup>, Kazuki Kawai<sup>1</sup>, Yuki Muramatsu<sup>1</sup>, Takuto Iguchi<sup>1</sup>, Yoshinori Kato<sup>1</sup>, <sup>1</sup>*Central Research Laboratory Industrial development Center Power Laser Development Group, HAMAMATSU PHOTONICS K.K., Japan*
- 16:00 SLPC4-3** **A007**  
**Micromachining advances with hybrid fiber lasers**, Rajesh S Patel<sup>1</sup>, James Bovatsek<sup>1</sup>, Herman Chui<sup>2</sup>, <sup>1</sup>*Applications Engineering, Spectra-Physics, USA*, <sup>2</sup>*Product Marketing, Spectra-Physics, USA*
- 16:15 SLPC4-4** **A054**  
**Silicon carbide and gallium nitride wafer dicing technique**, Egidijus Vanagas<sup>1</sup>, Dziugas Kimbaras<sup>1</sup>, Aivaras Kazakevicius<sup>1</sup>, Karolis Zilvinas Bazilevicius<sup>1</sup>, <sup>1</sup>*Evana Technologies, UAB, Lithuania*
- 16:30 SLPC4-5** Student **A012**  
**Layer accurate controlled laser ablation of CFRP using optical distance measurement**, Daniel Holder<sup>1</sup>, Rudolf Weber<sup>1</sup>, Thomas Graf<sup>1</sup>, <sup>1</sup>*Institut für Strahlwerkzeuge (IFSW), University of Stuttgart, Germany*
- 16:45 SLPC4-6** **A015**  
**Heat accumulation controlled surface structuring of stainless steel**, Sebastian Faas<sup>1</sup>, Corrado Sciancalepore<sup>2</sup>, Rudolf Weber<sup>1</sup>, Luca Romoli<sup>3</sup>, Thomas Graf<sup>1</sup>, <sup>1</sup>*IFSW, University of Stuttgart, Germany*, <sup>2</sup>*National Interuniversity Consortium of Materials Science, INSTM-Research Unit of Parma, Italy*, <sup>3</sup>*Department of Engineering and Architecture, University of Parma, Italy*
- 17:00 Move to SLPC2018 Reception Room 419 (Reception time: 17:30-19:30)**

### Room 419

### SLPC2018 Reception

- 17:30 SLPC2018 Reception**  
**19:30**

## Day 2: Wednesday, April 25

**Room 501+502**

### Plenary Sessions of OPIC'18

09:00 Greetings  
 09:15 Plenary Session of OPIC'18  
 10:35 Break (without coffee)  
 10:50 Plenary Session of OPIC'18  
 12:10 Lunch time

**Room 302**

### Session 5: LIC+PLD+SLPC Joint Session 1

Chair: Kunihiko Washio (Paradigm Laser Research Ltd., Japan)

13:30 Introduction (SLPC, PLD, LIC)

13:45 SLPC5j-1 Invited A018

**Ab-initio large-scale simulation for initial stage of laser damage in transparent nano-materials**, Kazuhiro Yabana<sup>1</sup>, Mitsuharu Uemoto<sup>1</sup>, Shunsuke A. Sato<sup>2</sup>, Yuta Hirokawa<sup>3</sup>, Taisuke Boku<sup>1</sup>, <sup>1</sup>Center for Computational Sciences, University of Tsukuba, Japan, <sup>2</sup>Max Planck Institute for the Structure and Dynamics of Matter, Germany, <sup>3</sup>Graduate School of Systems and Information Engineering, University of Tsukuba, Japan

14:15 SLPC5j-2 Invited A024

**High throughput surface texturing of embossing rollers with fs-laser and polygon line scanner in fully synchronized mode**, Beat Jaeggi<sup>1,2</sup>, Adrian Stirnimann<sup>1</sup>, Guido Hennig<sup>3</sup>, Beat Neuenschwander<sup>1</sup>, <sup>1</sup>Institute for Applied Laser, Photonics and Surface technologies ALPS, Bern University of Applied Sciences, Switzerland, <sup>2</sup>LASEA Switzerland, Switzerland, <sup>3</sup>Daetwyler-Graephics AG, Switzerland

14:45 PLDj-1 Invited A070

**PLD18-68: Mechanisms of laser damage in optical components for PW-class laser systems**, Stavros G. Demos<sup>1</sup>, Alexei A. Kozlov<sup>1</sup>, Kyle Kafka<sup>1</sup>, James B. Oliver<sup>1</sup>, Semyon Papernov<sup>1</sup>, Brittany Hoffman<sup>1</sup>, Terrance J. Kessler<sup>1</sup>, Sheryl M. Gracewski<sup>1</sup>, John C. Lambropoulos<sup>1</sup>, <sup>1</sup>University of Rochester, USA

15:15 Coffee Break

**Room 302**

### Session 6: LIC+PLD+SLPC Joint Session 2

Chair: Takahisa Jitsuno (Osaka University, Japan)

15:45 PLDj-2 Invited A071

**PLD18-51: UV-induced aging leading to laser damage in the bulk of fused silica**, Frank R. Wagner<sup>1</sup>, Alexandre Beaudier<sup>1</sup>, Jean-Yves Natoli<sup>1</sup>, <sup>1</sup>Aix Marseille Univ, CNRS, Centrale Marseille, Institut Fresnel, France

16:15 LICj-1 Invited A072

**LICj-1: Ultrafast laser direct writing of periodic nanostructure in bulk semiconductor crystals**, Yasuhiko Shimotsuma<sup>1</sup>, <sup>1</sup>Department of Material Chemistry, Graduate School of Engineering, Kyoto University, Japan

16:45 LICj-2 Invited A073

**LICj-2: One-shot 3D giant-pulse micro-laser processing by LCOS direct control**, Yasuki Sakurai<sup>1</sup>, Yuji Hotta<sup>1</sup>, Ryohei Otowa<sup>1</sup>, Masashi Nishitaten<sup>1</sup>, Lihe Zheng<sup>2</sup>, Hiroshi Yamamoto<sup>2</sup>, Takunori Taira<sup>2</sup>, <sup>1</sup>SANTEC CORPORATION, Japan, <sup>2</sup>Institute for Molecular Science, Japan

17:15 Closing

17:20 To OPIC2018 Reception (on foot to InterContinental Ballroom, 3rd floor of InterContinental Yokohama Grand, 1-1-1 Minatomirai, Nishi-ku, Yokohama)

InterContinental Ballroom, 3rd floor of InterContinental Yokohama Grand (Free for OPIC2018 Attendees)

## OPIC 2018 Reception

18:00 OPIC 2018 Reception

20:00 End

## Day 3: Thursday, April 26

Room 416+417

### Session 7: Micro Nano Processing

Chairs: Andreas Ostendorf (Applied Laser Technologies, Ruhr-University Bochum, Germany)  
Masaki Hashida (Kyoto University, Japan)

9:00 SLPC7-1 **Student** A016

**Laser fluence and time-interval dependences of ablation suppression for titanium by double-pulse femtosecond laser irradiation**, Yuki Furukawa<sup>1, 2</sup>, Sadaoki Kojima<sup>1</sup>, Kensuke Teramoto<sup>1, 2</sup>, Shunsuke Inoue<sup>1, 2</sup>, Masaki Hashida<sup>1, 2</sup>, Shuji Sakabe<sup>1, 2</sup>, <sup>1</sup>Advanced Research Center for beam Science, Institute for Chemical Research, Kyoto University, Japan, <sup>2</sup>Graduate School of Science, Kyoto University, Japan

9:15 SLPC7-2 **Student** A002

**Deep drilling of metals with ultra-short laser pulses**, Daniel Johannes Förster<sup>1</sup>, Daniel Holder<sup>1</sup>, Thomas Arnold<sup>1</sup>, Rudolf Weber<sup>1</sup>, Thomas Graf<sup>1</sup>, <sup>1</sup>Institut für Strahlwerkzeuge IFSW, University of Stuttgart, Germany

9:30 SLPC7-3 **Student** A058

**Formation of microstructures on Ni film surface by nanosecond laser irradiation**, Kazuki Koda<sup>1</sup>, Wataru Kobayashi<sup>2</sup>, Hiro Imai<sup>2</sup>, Masahiro Tsukamoto<sup>3</sup>, <sup>1</sup>Department of Mechanical Engineering, Osaka University, Japan, <sup>2</sup>DENSO CORPORATION, Japan, <sup>3</sup>Joining and Welding Research Institute, Osaka University, Japan

9:45 SLPC7-4 A006

**Two-dimensional amorphous transitional metal oxides from laser ablation in liquids for photocatalytic hydrogen production**, Z.Y. Lin<sup>1</sup>, W.J. Li<sup>1</sup>, G.W. Yang<sup>1</sup>, <sup>1</sup>School of Materials Science & Engineering, Sun Yat-sen University, China

10:00 Break (without coffee)

Exhibition Hall A

### Session 8 : Poster Session & Exhibitions

10:30 Poster Session

12:00 Lunch Break (Complimentary Lunch will be served at Exhibition Hall from 12:00-13:30.)

Room 416+417

### Session 9: Cutting and Welding

Chairs: Yasuhiro Okamoto (Okayama University, Japan)  
Takahiro Nakamura (Tohoku University, Japan)

13:30 SLPC9-1 **Invited** A049

**Sensors in laser materials processing: Are they finally ready to take the lead?**, Ruediger Moser<sup>1</sup>, Matthias Strebel<sup>1</sup>, Tobias Beck<sup>2</sup>, Stephan André<sup>2</sup>, Martin Schoenleber<sup>2</sup>, Markus Kogel-Hollacher<sup>1</sup>, <sup>1</sup>R&D, Precitec GmbH & Co. KG, Gaggenau, Germany, <sup>2</sup>R&D, Precitec Optronik GmbH, Neu-Isenburg, Germany

14:00 SLPC9-2 **Student** A004

**High-quality high-speed welding of aluminum with 16 kW average laser power**, Christian Hagenlocher<sup>1</sup>, Florian Fetzter<sup>1</sup>, Rudolf Weber<sup>1</sup>, Thomas Graf<sup>1</sup>, <sup>1</sup>Institut fuer Strahlwerkzeuge, University of Stuttgart, Germany

14:15 SLPC9-3 A040

**High power fiber laser welding of aerospace alloys with filler wire**, Mohammed Naeem,  
*<sup>1</sup>Engineering/ Application, Prima Power Laserdyne, USA*

14:30 SLPC9-4 A026

**Latest laser welding technology - Potentials for difficult to weld steel grades**, Matthias Beranek<sup>1</sup>, *<sup>1</sup>TRUMPF Laser- und Systemtechnik GmbH, Germany*

14:45 SLPC9-5 A063

**High aspect ratio laser cutting of CFRP using nanosecond UV laser pulses**, Masahiro Moriyama<sup>1, 7</sup>, Akira Mizutani<sup>2</sup>, Shuntaro Tani<sup>4</sup>, Ryosuke Nakamura<sup>2</sup>, Atsushi Kosuge<sup>4</sup>, Isao Ito<sup>4</sup>, Zhigang Zhao<sup>4</sup>, Takashi Hira<sup>1</sup>, Yohei Kobayashi<sup>4,6</sup>, Hiroharu Tamaru<sup>1, 6</sup>, Norikatsu Mio<sup>3, 6</sup>, Makoto Kuwata-Gonokami<sup>5</sup>, Junji Yumoto<sup>1, 6</sup>, *<sup>1</sup>Institute for Photon Science and Technology, The University of Tokyo, Japan, <sup>2</sup>Department of Applied Physics, The University of Tokyo, Japan, <sup>3</sup>Photon Science Center, The University of Tokyo, Japan, <sup>4</sup>Institute for Solid State Physics, The University of Tokyo, Japan, <sup>5</sup>Department of Physics, The University of Tokyo, Japan, <sup>6</sup>Research Institute for Photon Science and Laser Technology, The University of Tokyo, Japan, <sup>7</sup>Toray Industries, Inc., Japan*

15:00 Coffee Break

## Room 416+417

### Session 10: Blue Laser Development and Processing

Chairs: Jim Bovatsek (Spectra-Physics, USA)

Masahiro Tsukamoto (JWRI, Osaka University, Japan)

15:30 SLPC10-1 Invited A037

**High power blue lasers development for copper material processing**, Jean-Michel Pelaprat<sup>1</sup>, Matthew Finuf<sup>1</sup>, Robert Fritz<sup>1</sup>, Mark Zediker<sup>1</sup>, *<sup>1</sup>NUBURU Inc, USA*

16:00 SLPC10-2 Invited A051

**High brightness blue direct diode laser for advanced materials processing**, K. Tojo<sup>1</sup>, N. Wakabayashi<sup>1</sup>, M. Yamada<sup>1</sup>, S. Uno<sup>1</sup>, N. Ishigaki<sup>1</sup>, T Hiroki<sup>1</sup>, J. Saikawa<sup>1</sup>, S. Masuno<sup>2</sup>, K. Asano<sup>3</sup>, K. Asuka<sup>4</sup>, N. Abe<sup>2</sup>, M. Tsukamoto<sup>2</sup>, *<sup>1</sup>Device Dept., Shimadzu Corporation, Japan, <sup>2</sup>Joining and Welding Research Institute, Osaka University, Japan, <sup>3</sup>Yamazaki Mazak Corporation, Japan, <sup>4</sup>Nichia Corporation, Japan*

16:30 SLPC10-3 Student A039

**Laser cladding of pure copper with blue and IR laser**, Kohei Asano<sup>1, 6</sup>, Masahiro Tsukamoto<sup>2</sup>, Yuji Sato<sup>2</sup>, Ritsuko Higashino<sup>2</sup>, Yoshihisa Sechi<sup>3</sup>, Takahiro Hara<sup>4</sup>, Masanori Sengoku<sup>5</sup>, Minoru Yoshida<sup>5</sup>, *<sup>1</sup>Graduate School of Engineering, Osaka University, Japan, <sup>2</sup>Joining and Welding Research Institute, Osaka University, Japan, <sup>3</sup>Production Technology Division, Kagoshima Prefectural Institute of Industrial Technology, Japan, <sup>4</sup>School of Engineering, Osaka University, Japan, <sup>5</sup>Graduate School of Science and Engineering, Kindai University, Japan, <sup>6</sup>Yamazaki Mazak Corp., Japan*

16:45 End

## Room 416+417

### Closing of SLPC2018

16:45 Poster Award Ceremony and Closing remark

17:00 End



# Poster Session

SLPC2018 Poster Session

10:30-12:00, Thursday, April 26 at Exhibition Hall A

Poster presenting authors should be present in front of their posters from 10:30 on April 26. (The hall will be open from 10:00.)

## Additive Manufacturing and Related Technologies

SLPCp8-P1 A050

**Investigate of the laser cladding process by blue diode laser**, Ritsuko Higashino<sup>1</sup>, Masahiro Tsukamoto<sup>1</sup>, Yuji Sato<sup>1</sup>, Nobuyuki Abe<sup>1</sup>, Kohei Asano<sup>1</sup>, Takahisa Shobu<sup>2</sup>, Yoshinori Funada<sup>3</sup>, <sup>1</sup>*Joining and Welding Research Institute, Osaka University, Japan*, <sup>2</sup>*Japan Atomic Energy Agency, Japan*, <sup>3</sup>*Industrial Research Institute of Ishikawa, Japan*

SLPCp8-P2 *Student* A034

**Pure copper layer formation on stainless steel plate with blue diode laser induced coating system**, Takahiro Hara<sup>1</sup>, Masahiro Tsukamoto<sup>2</sup>, Kohei Asano<sup>1</sup>, Yuji Sato<sup>2</sup>, Ritsuko Higashino<sup>2</sup>, Yoshinori Funada<sup>3</sup>, Nobuyuki Abe<sup>2</sup>, <sup>1</sup>*Graduate School of Engineering, Osaka University, Japan*, <sup>2</sup>*Joining and Welding Research Institute, Osaka University, Japan*, <sup>3</sup>*Industrial Research Institute of Ishikawa, Japan*

SLPCp8-P3 A055

**Simple estimation method to calculate absorbed power distribution for selective laser melting**, Tomomasa Ohkubo<sup>1</sup>, Yuji Sato<sup>2</sup>, Toshi-Taka Ikeshoji<sup>3</sup>, Ei-ichi Matsunaga<sup>1</sup>, Masahiro Tsukamoto<sup>2</sup>, <sup>1</sup>*Department of Mechanical Engineering, Tokyo University of Technology, Japan*, <sup>2</sup>*Joining and Welding Research Institute, Osaka University, Japan*, <sup>3</sup>*Fundamental Technology for Next Generation Research Institute, Kindai University, Japan*

SLPCp8-P4 *Student* A064

**Selective laser melting of NdFeB magnetic powers**, Chung-Yo Chen<sup>1</sup>, Chung-Wei Cheng<sup>1</sup>, Mi-Ching Tsai<sup>2</sup>, Tsung-Wei Chang<sup>2</sup>, Wen-Cheng Chang<sup>3</sup>, An-Chen Lee<sup>1</sup>, <sup>1</sup>*Department of Mechanical Engineering, National Chiao Tung University, Taiwan*, <sup>2</sup>*Department of Mechanical Engineering, National Cheng Kung University, Taiwan*, <sup>3</sup>*Department of Physics, National Chung Cheng University, Taiwan*

## Welding

SLPCp8-P5 A033

**Bead-on welding of copper film using 100W blue diode laser**, Kento Morimoto<sup>1</sup>, Masahiro Tsukamoto<sup>2</sup>, Shin-ichiro Masuno<sup>2</sup>, Yuji Sato<sup>2</sup>, Kazuyuki Azumi<sup>1</sup>, Yoshihiko Hayashi<sup>1,2</sup>, Nobuyuki Abe<sup>2</sup>, <sup>1</sup>*Osaka Fuji Corporation, Japan*, <sup>2</sup>*Joining and Welding Research Institute, Osaka University, Japan*

SLPCp8-P6 *Student* A043

**Influence of intensity distribution on surface quality in high speed laser welding of aluminum alloy**, Martin Ruthandi Maina<sup>1</sup>, Yasuhiro Okamoto<sup>1</sup>, Akira Okada<sup>1</sup>, Matti Närhi<sup>2</sup>, Jarno Kangastupa<sup>2</sup>, Jorma Vihinen<sup>3</sup>, <sup>1</sup>*Nontraditional Machining Laboratory, Okayama University, Japan*, <sup>2</sup>*Corelase Oy, Finland*, <sup>3</sup>*Laser Application Laboratory, Tampere University of Technology, Finland*

SLPCp8-P7 A013

**Experimental characterization of the interaction dynamics of cw-laser radiation with metal samples in the 10<sup>5</sup>W/cm<sup>2</sup> regime**, Dominic Heunoske<sup>1</sup>, Sebastian Schäffer<sup>1</sup>, Marcel Goesmann<sup>1</sup>, Jens Osterholz<sup>1</sup>, Mathias Wickert<sup>1</sup>, <sup>1</sup>*Laser technologies, Fraunhofer EMI, Germany*

SLPCp8-P8 A032

**Laser metal bumping with SUS316L molten powder jet by blue diode laser for steel / carbon fiber reinforced thermoplastics joint**, Kiyokazu Yasuda<sup>1</sup>, Yuki Uchida<sup>1</sup>, Rennosuke Tamura<sup>1</sup>, Takahiro Hara<sup>2</sup>, Yuji Sato<sup>2</sup>, Masahiro Tsukamoto<sup>2</sup>, <sup>1</sup>*Division of Materials and Manufacturing Science, Osaka University, Japan*, <sup>2</sup>*Joining and Welding Research Institute, Osaka University, Japan*

## Laser Peening and Functional Surface Manufacturing

SLPCp8-P9 *Student* A010

**Effect of laser peening on aluminum alloy 7075**, Ryotaro Oka<sup>1</sup>, Shin Toyokura<sup>1</sup>, Manabu Heya<sup>2</sup>, Miho Tsuyama<sup>1</sup>, Hitoshi Nakano<sup>1</sup>, <sup>1</sup>*Department of Electrical and Electronic Engineering, Faculty of Science and Technology, Kindai University, Japan*, <sup>2</sup>*Department of Electronic Information and Communication Engineering, Faculty of Engineering, Osaka-Sangyo University, Japan*

SLPCp8-P10 *Student* A011

**Control of plasma confinement layer for improving laser peening effect**, Akihiro Hata<sup>1</sup>, Naoya Ehara<sup>1</sup>, Manabu Heya<sup>2</sup>, Miho Tsuyama<sup>1</sup>, Hitoshi Nakano<sup>1</sup>, <sup>1</sup>*Electrical and Electronic Engineering, Faculty of Science and Technology, Kindai University, Japan*, <sup>2</sup>*Electronic information and Communication Engineering, Faculty of Engineering, Osaka-Sangyo University, Japan*

SLPCp8-P11 A014

**Effect of control of acoustic impedance in plasma confinement layer on laser peening**, Miho Tsuyama<sup>1</sup>, Naoya Ehara<sup>1</sup>, Kazuma Yamashita<sup>1</sup>, Manabu Heya<sup>2</sup>, Hitoshi Nakano<sup>1</sup>, <sup>1</sup>*Faculty of Science and Engineering, Kindai University, Japan*, <sup>2</sup>*Faculty of Engineering, Osaka-sangyo University, Japan*

SLPCp8-P14 *Student* A053

**Formation behavior of laser induced periodic surface structures in various media**, Tomoki Kobayashi<sup>1</sup>, Tomohiro Wakabayashi<sup>2</sup>, Yuichi Takushima<sup>3</sup>, Jiwang Yan<sup>1</sup>, <sup>1</sup>*Mechanical Engineering, Keio University, Japan*, <sup>2</sup>*Yazaki corporation, Japan*, <sup>3</sup>*Optoquest, Japan*

SLPCp8-P15 *Student* A020

**Analytical approach to hydrophobic properties of micro patterns carbonized by 355nm UV laser**, Gyeongju Je<sup>1</sup>, Bosung Shin<sup>1,2</sup>, Hyesu Kim<sup>1</sup>, Junhan Park<sup>1</sup>, <sup>1</sup>*Cogno-Mechatronics Engineering, Pusan National University, Korea of republic*, <sup>2</sup>*Optics & Mechatronics Engineering, Pusan National University, Korea of republic*

## Ultrashort Pulsed Laser Processing

SLPCp8-P16 *Student* A009

**Femtosecond laser coloration with nanoparticles formed on titanium plate**, Shogo Nishino<sup>1,2</sup>, Masaki Hashida<sup>1,2</sup>, Hitoshi Sakagami<sup>3</sup>, Yuki Furukawa<sup>1,2</sup>, Sadaoki Kojima<sup>2</sup>, Shunsuke Inoue<sup>1,2</sup>, Shuji Sakabe<sup>1,2</sup>, <sup>1</sup>*Graduate School of Science, Kyoto University, Japan*, <sup>2</sup>*Advanced Research Center for Beam Science, Institute for Chemical Research, Kyoto University, Japan*, <sup>3</sup>*National Institute for Fusion Science, Japan*

SLPCp8-P17 *Student* A023

**Volumetric graphics of microbubbles in gold nanoparticle-dispersed glycerin using femtosecond laser pulses**, Taisei Chiba<sup>1</sup>, Kota Kumagai<sup>1</sup>, Yoshio Hayasaki<sup>1</sup>, <sup>1</sup>*Center for Optical Research and Education (CORE), Utsunomiya University, Japan*

SLPCp8-P18 A029

**Micro and nano structured membranes for the use in AlGaN/GaN- MEMS and pressure sensors, microfluidic applications and bioengineering**, Johann Karl Zehetner<sup>1</sup>, Stephan Kasemann<sup>1</sup>, Gabriel Vanko<sup>2</sup>, Jaroslav Dzuba<sup>2</sup>, Tibor Lalinsky<sup>2</sup>, Sylvia Nürnberger<sup>3</sup>, <sup>1</sup>*Research Centre for Microtechnology, University of Applied Sciences, Austria*, <sup>2</sup>*Institute of Electrical Engineering, Slovak Academy of Sciences, Slovak Republic*, <sup>3</sup>*Department of Trauma Surgery, Medical University of Vienna, Austria*

SLPCp8-P20 A066

**Three-dimensional Cu-based microfabrication using femtosecond laser induced internal writing**, Mizue Mizoshiri<sup>1</sup>, Yukinari Kondo<sup>1</sup>, Seiichi Hata<sup>1</sup>, <sup>1</sup>*Graduate School of Engineering, Nagoya University, Japan*

SLPCp8-P22 A027

**Ablation by double pulse irradiation by femtosecond laser with different delay time**, Masahito Katto<sup>1</sup>, Kensuke Nakajima<sup>2</sup>, Sho Kuronita<sup>2</sup>, Masahiro Tsukamoto<sup>3</sup>, Masanori Kaku<sup>2</sup>, Atsushi Yokotani<sup>2</sup>, <sup>1</sup>*CRCC, University of Miyazaki, Japan*, <sup>2</sup>*Faculty of Engineering, University of Miyazaki, Japan*, <sup>3</sup>*JWRI, Osaka University, Japan*

SLPCp8-P23 *Student* A052

**Holographic laser processing using femtosecond second harmonic generation**, Ryo Onoda<sup>1</sup>, Satoshi Hasegawa<sup>1</sup>, Yoshio Hayasaki<sup>1</sup>, <sup>1</sup>*Center for Optical Research and Education (CORE), Utsunomiya University, Japan*

SLPCp8-P24 A035

**Holographic complex-amplitude modulation for generating sub-diffraction-limit spot applied to laser material processing**, Satoshi Hasegawa<sup>1</sup>, Cao Hoai Vu<sup>1</sup>, Yusuke Ogura<sup>2</sup>, Jun Tanida<sup>2</sup>, Yoshio Hayasaki<sup>1</sup>, <sup>1</sup>*Center for Optical Research and Education (CORE), Utsunomiya University, Japan*, <sup>2</sup>*Graduate School of Information Science and Technology, Osaka University, Japan*

## Mirco Nano Processing

SLPCp8-P25 *Student* A048

**Direct-writing properties of Cu-Ni-based thermoelectric micropatterns formed by femtosecond laser reductive sintering at low writing speed**, Kenta Nishitani<sup>1</sup>, Seiichi Hata<sup>1</sup>, Junpei Sakurai<sup>1</sup>, Mizue Mizoshiri<sup>1</sup>, <sup>1</sup>*Department of micro-nano mechanical science and engineering, Graduate School of Engineering, Nagoya University, Japan*

SLPCp8-P26 A057

**The study of multi-angle drilling by Nd: YAG nanosecond laser on 27G needle and electrochemical polishing**, Hsin Hao Su<sup>1</sup>, Wei Te Wu<sup>1</sup>, Chien Hsing Chen<sup>2</sup>, Jian Neng Wang<sup>3</sup>, <sup>1</sup>*Department of Biomechatronics Engineering, National Pingtung University of Science and Technology, Taiwan*, <sup>2</sup>*Department of Physics, National Chung Cheng University, Taiwan*, <sup>3</sup>*Department of Civil and Construction Engineering, National Yunlin University of Science and Technology, Taiwan*

SLPCp8-P27 *Student* A056

**Characterization a poly-silicon thin film formed by the laser annealing with a high-power blue laser diode**, Young-Hwan Choi<sup>1</sup>, Hyun Yeol Ryu<sup>1</sup>, Han-Youl Ryu<sup>1</sup>, <sup>1</sup>*Physics, Inha University, Korea*

SLPCp8-P28 *Student* A019

**Piercing of PTFE sheet by short pulse CO<sub>2</sub> laser**, Hayato Goto<sup>1</sup>, Yuta Ishikawa<sup>1</sup>, Kazuyuki Uno<sup>1</sup>, Takahisa Jitsuno<sup>2</sup>, <sup>1</sup>*University of Yamanashi, Japan*, <sup>2</sup>*Institute of Laser Engineering, Osaka University, Japan*

SLPCp8-P29 *Student* A021

**Characterization of two-photon laser exposure patterns in photoresist via photoluminescence quenching**, Edy Yulianto<sup>1</sup>, Subhashri Chatterjee<sup>1</sup>, Vygantas Mizeikis<sup>1</sup>, <sup>1</sup>*Research Institute of Electronics, Shizuoka University, Japan*

SLPCp8-P30 *Student* A022

**Post-fabrication spectral tuning of perfect-absorber metasurface structures fabricated by direct laser write technique**, Subhashri Chatterjee<sup>1</sup>, Edy Yulianto<sup>1</sup>, Ihar Faniayeu<sup>1,2</sup>, Vygantas Mizeikis<sup>1</sup>, <sup>1</sup>*Research Institute of Electronics, Shizuoka University, Japan*, <sup>2</sup>*Department of General Physics, Gomel State University, Belarus*

SLPCp8-P32 A005

**Laser micro incising to wood surface - Perforations enable penetration of chemicals for wood modification -**, Satoshi Fukuta<sup>1</sup>, Masaki Nomura<sup>1</sup>, Koji Wakabayashi<sup>2</sup>, <sup>1</sup>*Industrial Research Center, Aichi Center for Industry and Science Technology, Japan*, <sup>2</sup>*Laser Technical Center, Laserx Co., Ltd., Japan*

SLPCp8-P33 *Student* A028

**Measurement and analysis of material properties using laser induced breakdown spectroscopy**, Sangwoo Yoon<sup>1</sup>, Jihoon Kim<sup>1</sup>, Joochan Kim<sup>1</sup>, <sup>1</sup>*Department of Mechanical Engineering, Seoul National University of Science and Technology, Korea*

# Author Index

- A—
- Abe, N. SLPC10-2  
Abe, Nobuyuki SLPC3-1,  
SLPC3-6, SLPCp8-P1,  
SLPCp8-P2, SLPCp8-P5  
Aliabev, Ilia A SLPC3-5  
André, Stephan SLPC9-1  
Arnold, Thomas SLPC7-2  
Asano, K. SLPC10-2  
Asano, Kohei SLPC10-3,  
SLPCp8-P1, SLPCp8-P2  
Asuka, K. SLPC10-2  
Azumi, Kazuyuki SLPCp8-P5
- B—
- Bazilevicius, Karolis Zilvinas  
SLPC4-4  
Beaudier, Alexandre PLDj-2  
Beck, Tobias SLPC9-1  
Becker, Bastian SLPC2-1  
Beranek, Matthias SLPC9-4  
Boku, Taisuke SLPC5j-1  
Bovatssek, James SLPC4-3
- C—
- Candel-Ruiz, Antonio SLPC2-1  
Chang, Tsung-Wei SLPCp8-P4  
Chang, Wen-Cheng SLPCp8-P4  
Chatterjee, Subhashri  
SLPCp8-P29, SLPCp8-P30  
Chen, Chien Hsing SLPCp8-P26  
Chen, Chung-Yo SLPCp8-P4  
Cheng, Chung-Wei SLPC3-2,  
SLPCp8-P4  
Chiba, Taisei SLPCp8-P17  
Choi, Young-Hwan SLPCp8-P27  
Chui, Herman SLPC4-3
- D—
- Demos, Stavros G. PLDj-1  
Dzuba, Jaroslav SLPCp8-P18
- E—
- Ehara, Naoya SLPCp8-P10,  
SLPCp8-P11
- F—
- Faas, Sebastian SLPC4-6  
Faniayeu, Ihar SLPCp8-P30  
Fetzer, Florian SLPC9-2  
Finuf, Matthew SLPC10-1  
Förster, Daniel Johannes SLPC7-2  
Fritz, Robert SLPC10-1  
Fukuta, Satoshi SLPCp8-P32  
Funada, Yoshinori SLPC3-6,  
SLPCp8-P1, SLPCp8-P2  
Furukawa, Yuki SLPC7-1,  
SLPCp8-P16
- G—
- Goesmann, Marcel SLPCp8-P7  
Goto, Hayato SLPCp8-P28  
Gracewski, Sheryl M. PLDj-1
- Graf, Thomas SLPC4-5, SLPC4-6,  
SLPC7-2, SLPC9-2
- H—
- Hagenlocher, Christian SLPC9-2  
Hara, Takahiro SLPC10-3,  
SLPCp8-P2, SLPCp8-P8  
Hascoet, Jean Yves SLPC3-4  
Hasegawa, Satoshi SLPCp8-P23,  
SLPCp8-P24  
Hashida, Masaki SLPC7-1,  
SLPCp8-P16  
Hata, Akihiro SLPCp8-P10  
Hata, Seiichi SLPCp8-P20,  
SLPCp8-P25  
Hatano, Yuma SLPC4-2  
Hayasaki, Yoshio SLPCp8-P17,  
SLPCp8-P23, SLPCp8-P24  
Hayashi, Yoshihiko SLPCp8-P5  
Hennig, Guido SLPC5j-2  
Heunoske, Dominic SLPCp8-P7  
Heya, Manabu SLPCp8-P10,  
SLPCp8-P11, SLPCp8-P9  
Higashino, Ritsuko SLPC3-1,  
SLPC10-3, SLPCp8-P1,  
SLPCp8-P2  
Hira, Takashi SLPC9-5  
Hirokawa, Yuta SLPC5j-1  
Hiroki, T. SLPC10-2  
Hoffman, Brittany PLDj-1  
Holder, Daniel SLPC4-5, SLPC7-2  
Hotta, Yuji LICj-2
- I—
- Iguchi, Takuto SLPC4-2  
Ikeshoji, Toshi-Taka SLPCp8-P3  
Imai, Hiro SLPC7-3  
Inoue, Shunsuke SLPC7-1,  
SLPCp8-P16  
Ishigaki, N. SLPC10-2  
Ishikawa, Yuta SLPCp8-P28  
Ito, Isao SLPC9-5  
Iyama, Koichi SLPC4-2
- J—
- Jaeggi, Beat SLPC5j-2  
Je, Gyeongju SLPCp8-P15  
Jitsuno, Takahisa SLPCp8-P28
- K—
- Kabeya, Yuki SLPC4-2  
Kafka, Kyle PLDj-1  
Kaku, Masanori SLPCp8-P22  
Kangastupa, Jarno SLPCp8-P6  
Kasemann, Stephan SLPCp8-P18  
Kasischke, Maren SLPC1-1  
Kato, Yoshinori SLPC4-2  
Katto, Masahito SLPCp8-P22  
Kawai, Kazuki SLPC4-2  
Kazakevicius, Aivaras SLPC4-4  
Kessler, Terrance J. PLDj-1  
Khairullina, Evgeniia M SLPC3-5  
Kim, Hyesu SLPCp8-P15  
Kim, Jihoon SLPCp8-P33
- Kim, Joohan SLPCp8-P33  
Kimbaras, Dziugas SLPC4-4  
Kobayashi, Tomoki SLPCp8-P14  
Kobayashi, Wataru SLPC7-3  
Kobayashi, Yohei SLPC2-2,  
SLPC9-5  
Kochemirovsky, Vladimir A  
SLPC3-5  
Koda, Kazuki SLPC7-3  
Kogel-Hollacher, Markus SLPC9-1  
Koglbauer, Andreas SLPC3-3  
Kojima, Sadaoki SLPC7-1,  
SLPCp8-P16  
Kondo, Yukinari SLPCp8-P20  
Kosuge, Atsushi SLPC9-5  
Kozlov, Alexei A. PLDj-1  
Kramer, Reinhard SLPC3-3  
Kumagai, Kota SLPCp8-P17  
Kurata, Masateru SLPC4-2  
Kurita, Takashi SLPC4-2  
Kuronita, Sho SLPCp8-P22  
Kuwata-Gonokami, Makoto  
SLPC9-5
- L—
- Lalinsky, Tibor SLPCp8-P18  
Lambropoulos, John C. PLDj-1  
Lee, An-Chen SLPCp8-P4  
Li, W.J. SLPC7-4  
Lin, Z.Y. SLPC7-4
- M—
- Maina, Martin Ruthandi  
SLPCp8-P6  
Makinoshima, Kazuki SLPC3-6  
Mallaiah, Manjaiah SLPC3-4  
Manz, Stephan SLPC2-1  
Märten, Otto SLPC3-3  
Masuno, S. SLPC10-2  
Masuno, Shin-ichiro SLPCp8-P5  
Matsunaga, Ei-ichi SLPCp8-P3  
Mio, Norikatsu SLPC9-5  
Mizeikis, Vygantas SLPCp8-P29,  
SLPCp8-P30  
Mizoshiri, Mizue SLPCp8-P20,  
SLPCp8-P25  
Mizuta, Yoshio SLPC4-2  
Mizutani, Akira SLPC9-5  
Morimoto, Kento SLPCp8-P5  
Morita, Takaaki SLPC4-2  
Moriyama, Masahiro SLPC9-5  
Moser, Ruediger SLPC9-1  
Muramatsu, Yuki SLPC4-2
- N—
- Naeem, Mohammed SLPC9-3  
Nakajima, Kensuke SLPCp8-P22  
Nakamura, Ryosuke SLPC9-5  
Nakano, Hitoshi SLPC3-1,  
SLPCp8-P10, SLPCp8-P11,  
SLPCp8-P9  
Närhi, Matti SLPCp8-P6  
Natoli, Jean-Yves PLDj-2  
Neuenschwander, Beat SLPC5j-2

- Nishi, Takaya SLPC3-1  
Nishino, Shogo SLPCp8-P16  
Nishitani, Kenta SLPCp8-P25  
Nishitateno, Masashi LICj-2  
Nomura, Masaki SLPCp8-P32  
Nürnberg, Sylvia SLPCp8-P18
- O—  
Ogura, Yusuke SLPCp8-P24  
Ohkubo, Tomomasa SLPCp8-P3  
Oka, Ryotaro SLPCp8-P9  
Okada, Akira SLPCp8-P6  
Okamoto, Yasuhiro SLPCp8-P6  
Oliver, James B. PLDj-1  
Onoda, Ryo SLPCp8-P23  
Ostendorf, Andreas SLPC1-1  
Osterholz, Jens SLPCp8-P7  
Otowa, Ryohei LICj-2
- P—  
Panov, Maxim S SLPC3-5  
Papernov, Semyon PLDj-1  
Park, Junhan SLPCp8-P15  
Patel, Rajesh S SLPC4-3  
Pelaprat, Jean-Michel SLPC10-1
- R—  
Rauch, Matthieu SLPC3-4  
Romoli, Luca SLPC4-6  
Ruetering, Markus A. SLPC4-1  
Ryu, Han-Youl SLPCp8-P27  
Ryu, Hyun Yeol SLPCp8-P27
- S—  
Saikawa, J. SLPC10-2  
Sakabe, Shuji SLPC7-1, SLPCp8-P16  
Sakagami, Hitoshi SLPCp8-P16  
Sakon, Yuu SLPC3-6  
Sakurai, Junpei SLPCp8-P25  
Sakurai, Yasuki LICj-2  
Sato, Shunsuke A. SLPC5j-1  
Sato, Yuji SLPC3-1, SLPC3-6, SLPC10-3, SLPCp8-P1, SLPCp8-P2, SLPCp8-P3, SLPCp8-P5, SLPCp8-P8
- Schäffer, Sebastian SLPCp8-P7  
Schoenleber, Martin SLPC9-1  
Sciancalepore, Corrado SLPC4-6  
Sechi, Yoshihisa SLPC10-3  
Sekine, Takashi SLPC4-2  
Sengoku, Masanori SLPC10-3  
Shimotsuma, Yasuhiko LICj-1  
Shin, Bosung SLPCp8-P15  
Shobu, Takahisa SLPC3-1, SLPCp8-P1  
Stirnemann, Adrian SLPC5j-2  
Strebel, Matthias SLPC9-1  
Su, Hsin Hao SLPCp8-P26
- T—  
Taira, Takunori LICj-2  
Takeuchi, Yasuki SLPC4-2  
Takushima, Yuichi SLPCp8-P14  
Tamaoki, Yoshinori SLPC4-2  
Tamaru, Hiroharu SLPC9-5  
Tamura, Rennosuke SLPCp8-P8  
Tani, Shuntaro SLPC2-2, SLPC9-5  
Tanida, Jun SLPCp8-P24  
Teramoto, Kensuke SLPC7-1  
Tojo, K. SLPC10-2  
Toyokura, Shin SLPCp8-P9  
Tsai, Mi-Ching SLPC3-2, SLPCp8-P4  
Tsukamoto, M. SLPC10-2  
Tsukamoto, Masahiro SLPC1-2, SLPC3-1, SLPC3-6, SLPC7-3, SLPC10-3, SLPCp8-P1, SLPCp8-P2, SLPCp8-P3, SLPCp8-P5, SLPCp8-P22  
Tsuyama, Miho SLPCp8-P10, SLPCp8-P11, SLPCp8-P9  
Tukamoto, Masahiro SLPCp8-P8  
Tumkin, Ilya I SLPC3-5
- U—  
Uchida, Yuki SLPCp8-P8  
Uemoto, Mitsuharu SLPC5j-1  
Ullmann, Christoph SLPC4-1  
Uno, Kazuyuki SLPCp8-P28  
Uno, S. SLPC10-2
- V—  
Vanagas, Egidijus SLPC4-4  
Vanko, Gabriel SLPCp8-P18  
Vihinen, Jorma SLPCp8-P6  
Vu, Cao Hoai SLPCp8-P24
- W—  
Wagner, Dirk SLPC2-1  
Wagner, Frank R. PLDj-2  
Wakabayashi, Koji SLPCp8-P32  
Wakabayashi, N. SLPC10-2  
Wakabayashi, Tomohiro SLPCp8-P14  
Wang, Jian Neng SLPCp8-P26  
Watari, Takeshi SLPC4-2  
Weber, Rudolf SLPC4-5, SLPC4-6, SLPC7-2, SLPC9-2  
Weinbach, Matthias SLPC4-1  
Wickert, Mathias SLPCp8-P7  
Wolf, Stefan SLPC3-3  
Wu, Siang-Yang SLPC3-2  
Wu, Wei Te SLPCp8-P26
- Y—  
Yabana, Kazuhiro SLPC5j-1  
Yamada, M. SLPC10-2  
Yamamoto, Hiroshi LICj-2  
Yamashita, Kazuma SLPCp8-P11  
Yamashita, Yorihiro SLPC3-1, SLPC3-6  
Yan, Jiwang SLPCp8-P14  
Yang, G.W. SLPC7-4  
Yasuda, Kiyokazu SLPCp8-P8  
Yokotani, Atsushi SLPCp8-P22  
Yoon, Sangwoo SLPCp8-P33  
Yoshida, Minoru SLPC10-3  
Yulianto, Edy SLPCp8-P29, SLPCp8-P30  
Yumoto, Junji SLPC9-5
- Z—  
Zediker, Mark SLPC10-1  
Zehetner, Johann Karl SLPCp8-P18  
Zhao, Zhigang SLPC9-5  
Zheng, Lihe LICj-2