
The 2nd Advance Lasers and Photon Sources ALPS '13

Sponsored & Organized by
The Laser Society of Japan, LSJ

CONFERENCE CHAIR

Katsumi Midorikawa (RIKEN, Japan)



Katsumi Midorikawa
Conference Chair
(RIKEN)

STEERING COMMITTEE

Co-Chairs

Shuji Sakabe (Kyoto Univ., Japan)

Members

Noriaki Miyana (ILE. Osaka Univ., Japan)

Fumihiko Kannari (Keio Univ., Japan)

Akira Suda (TUS, Japan)

Norihiko Nishizawa (Nagoya Univ., Japan)

Hiroaki Minamide (RIKEN, Japan)

Hajime Nishioka (UEC, Japan)

Katsuya Oguri (NTT, Japan)

PROGRAM COMMITTEE

Co-Chairs

Fumihiko Kannari (Keio Univ., Japan)

Members

Christopher P. J. Barty (LLNL, USA)

Miya Ishihara (NDMC, Japan)

Katsuya Oguri (NTT, Japan)

Ursula Keller (ETH, Swiss)

Ruxin Li (SIOM, China)

Hiroaki Minamide (RIKEN, Japan)

Noriaki Miyana (ILE. Osaka Univ., Japan)

Tomas Mocek (Czech, Inst. Phys.)

Chang Hee Nam (KAIST, Korea)

Hajime Nishioka (UEC, Japan)

Norihiko Nishizawa (Nagoya Univ., Japan)

Jorge J. Rocca. (Colorado State Univ., USA)

Shuji Sakabe (Kyoto Univ., Japan)

Akira Suda (TUS, Japan)

SECRETARIAT

Yutaka Nagata (RIKEN, Japan)

Tuesday, April 23

9:30-10:45

Opening Remarks of OPIC '13

Room 301, 302

9:30 S. Nakai, Organizing Chair of OPIC '13,
President of the Laser Society of Japan

Introductory talk

9:40 Past, present, and future of lasers
K. Shimoda, Congress Chair of OPIC '13,
Prof. Emeritus at the Univ. of Tokyo, Japan

10:00-11:55

Keynote Lectures of OPIC '13

Room 301, 302

10:00 Laser for Ignition and Future Energy
Generation

R. L. Byer, Congress Chair of OPIC '13,
Prof. of Stanford Univ., USA

10:45 Advanced laser source and applications
to medicine and biology

Presenter I

K. Midorikawa, Conference Chair of
ALPS '13,
Deputy Director, RIKEN Advanced
Science Institute, Japan

Presenter II

M. Kikuchi, Conference Chair of
CLSM2013, Japan Association for the
Advancement of Medical Equipment, Japan

----- Lunch Break (11:55-13:20) -----

13:20-15:20

Joint Plenary Sessions of

OPIC '13

Session A

Room 301, 302

- 13:20 **Sensing technologies for bio-material, food and agriculture**
N. Kondo, Conference Chair of SeTBio '13, Kyoto Univ., Japan
- 13:50 **Laser display**
K. Kuroda, Conference Chair of LDC '13, Utsunomiya Univ., Japan
- 14:20 **LED and its industrial application**
H. Amano, Conference Chair of LEIDA '13, Nagoya Univ., Japan
- 14:50 **Laser Ignition**
T. Taira, Conference Chair of LIC '13, IMS, Japan

Session B

Room 303

- 13:20 **Laser and accelerator neutron sources and applications**
H. Azechi, Conference Chair of LANSa '13, Osaka Univ., Japan
- 13:50 **Laser application to nuclear engineering**
S. Nomura, Conference Advisor of LANE '13, Japan Atomic Energy Agency, Japan
- 14:20 **High-energy density science**
R. Kodama, Conference Chair of HEDS2013, Osaka Univ., Japan
- 14:50 **Laser processing for CFRP and composite materials**
M. Kutsuna, Conference Advisor of LPCC2013, GPI, Japan

----- Break (15:20-15:45) -----

15:45-18:00

Joint Sessions between LIC '13 and LDC '13

Room 301, 302

Participants of ALPS '13 are highly recommended to join these joint sessions where advanced laser sources and applications are highlighted. See the detail in the conference program of LIC '13 or LDC '13.

18:30-20:30

OPIC '13 Conference Reception

Intercontinental Hotel

Participants of ALPS '13 are invited.

Wednesday, April 24

9:00-9:15

Opening

Room 303

Opening Remarks

- 9:00 *K. Midorikawa, Conference Chair of ALPS '13, Deputy Director, RIKEN Advanced Science Institute, Japan*

9:15-10:45

ALPS1 : High Power Lasers (I)

Room 303

Chair: *F. Kannari, Program Committee Chair of ALPS '13, Keio Univ., Japan*

ALPS1-1 Development of cryogenically-cooled Yb:YLF chirped-pulse amplification laser for pumping few-cycle optical-parametric chirped-pulse amplification

- 9:15 *Y. Akahane^{1,2)}, K. Ogawa^{1,2)}, and K. Yamakawa^{1,2)}*

¹⁾ Japan Atomic Energy Agency, Japan,
²⁾ JST-CREST, Japan

ALPS1-2 High small signal gain of monolithic composite ceramic with Yb:YAG thin layers - multi-TRAMs -

- 9:30 *J. Kawanaka¹⁾, H. Furuse¹⁾, S. Hwang¹⁾, and T. Kawashima²⁾*

¹⁾ ILE, Osaka Univ., ²⁾ Hamamatsu Photonics K. K., Japan

ALPS1-3 Thermo-optical calculations of an Yb:YAG cryogenically cooled slab amplifier with pulse energy of 100 J

- 9:45 *O. Slezak, A. Lucianetti, M. Sawicka, M. Divoky, and T. Mocek*

HiLASE project, Institute of Physics ASCR, Czech Republic

ALPS1-5 (Invited) 3.1 μm wavelength, 19 μJ energy, 160 kHz repetition rate OPCPA for strong-field physics

- 10:00 *M. Hemmer¹⁾, A. Thai¹⁾, M. Baudisch¹⁾, H. Ishizuki²⁾, T. Taira²⁾, and J. Biegert^{1,3)}*

¹⁾ ICFO, Spain, ²⁾ IMS, Japan, ³⁾ ICREA, Spain

ALPS1-6 PENELOPE – a diode-pumped, high-energy, chirped-pulse laser amplifier

- 10:30 *M. Siebold¹⁾, M. Loeser^{1,2)}, D. Albach¹⁾, F. Roeser¹⁾, and U. Schramm^{1,2)}*

¹⁾ Helmholtz-Zentrum Dresden-Rossendorf, Germany, ²⁾ Dresden Univ. of Technology, Germany

----- Break (10:45-11:15) -----

11:15 -12:30

ALPS2 : New Laser Sources

Room 303

Chair: *H. Nishioka, Program Committee of ALPS '13, Univ. of*

Electro-Communications, Japan

ALPS2-1 (Invited) Development of Deep-UV LEDs and THz-QCLs and those applications

11:15 H. Hirayama^{1,3)}, S. Fujikawa^{1,3)}, N. Maeda^{1,3)}, W. Terashima¹⁾, T.-T. Lin¹⁾, and N. Kamata²⁾
¹⁾RIKEN, Japan, ²⁾Saitama Univ., Japan, ³⁾JST-CREST, Japan

ALPS2-2 Cr:YAG as a saturable absorber for a Q-switched and mode-locked 639-nm Pr:YLF laser

11:45 R. Abe, J. Kojou, K. Masuda, and F. Kannari
Keio Univ., Japan

ALPS2-3 Milli-joule level 2 μ m fractional vortex generation form an optical parametric master oscillator and amplifier

12:00 Y. Tokizane^{1,2)}, M. Yamada¹⁾, T. Yusufu¹⁾, K. Miyamoto¹⁾, and T. Omatsu^{1,2)}
¹⁾Chiba Univ., Japan, ²⁾JST-CREST, Japan

ALPS2-4 VUV light generation with borate crystals

12:15 C. Qu^{1,2)}, M. Yoshimura^{1,2)}, J. Tsunoda^{1,2)}, Y. Kaneda^{1,2,3)}, M. Imade¹⁾, T. Sasaki^{1,2)}, and Y. Mori^{1,2)}
¹⁾Graduate School of Engineering, Osaka Univ., Japan, ²⁾CREST, Japan, ³⁾College of Optical Sciences, The Univ. of Arizona, USA

----- Lunch Break (12:30-13:30) -----

13:30-15:00

ALPS3 : Fiber Lasers

Room 303

Chair: S. Sakabe, Steering Committee Chair of ALPS '13, Kyoto Univ., Japan

ALPS3-1 (Invited) Photonic bandgap and multicore fiber lasers for next-generation high-power lasers

13:30 A. Shirakawa
Univ. of Electro-Communications, Japan

ALPS3-2 Dynamics of Er-doped soliton-similariton fiber laser and application for ultrahigh resolution optical coherence tomography

14:00 N. Nishizawa and S. Ishida
Nagoya Univ., Japan

ALPS3-3 Coherent superposition of few-cycle laser pulses based on frequency resolved two-wave-mixing

14:15 H. Nishioka, H. Nahara, and T. Morishita
Univ. of Electro-Communications, Japan

ALPS3-4 Mode-locked thulium-doped all-fiber figure-eight laser and amplifier around 2- μ m

14:30 C. W. Rudy, K. E. Urbanek, M. J. F. Digonnet, and R. L. Byer
Stanford Univ., USA

ALPS3-5 Pulsewidth-tunable fiber laser for processing thin-film devices

14:45 K. Nishigori¹⁾, T. Koizumi¹⁾, and S. Wada²⁾
¹⁾Megaopto, Co., Ltd, Japan, ²⁾RIKEN,

Japan

----- Coffee Break (15:00-15:30) -----

15:30-17:15

ALPS4 : THz Sources and its applications

Room 303

Chair: H. Minamide, Program Committee of ALPS '13, RIKEN, Japan

ALPS4-1 (Invited) Photonic terahertz sources and their applications in fundamental and applied research

15:30 D. Molter¹⁾, F. Ellrich²⁾, and R. Beigang^{1,2)}

¹⁾Univ. Kaiserslautern, Germany, ²⁾Fraunhofer Institute for Physical Measurement Techniques IPM, Germany

ALPS4-2 Photoluminescence flash induced by intense single-cycle terahertz pulses in undoped GaAs quantum wells

16:00 K. Shinokita¹⁾, H. Hirori²⁾, K. Tanaka^{1,2)}, T. Mochizuki^{2,3)}, C. Kim^{2,3)}, H. Akiyama^{2,3)}, L. N. Pfeiffer⁴⁾, and K. W. West⁴⁾
¹⁾Kyoto Univ., Japan, ²⁾JST-CREST, Japan, ³⁾Univ. of Tokyo, Japan, ⁴⁾Princeton Univ., USA

ALPS4-3 High Al composition AlGaAs THz QCLs with operation temperature and T₀ improvement

16:15 T. -T. Lin and H. Hirayama
Terahertz Quantum Device Laboratory, RIKEN, Japan

ALPS4-4 Broadband and high power THz wave generation using femtosecond fiber laser in 4-dimethylamino-N-methyl-4-stilbazolium tosylate crystal

16:30 S. R. Tripathi^{1,2)}, T. Sugiyama¹⁾, K. Murate¹⁾, K. Takeya¹⁾ and K. Kawase^{1,2)}
¹⁾Nagoya Univ., Japan, ²⁾RIKEN, Japan

ALPS4-5 Gapless terahertz frequency comb spectroscopy of molecular gas

16:45 Y.-D. Hsieh¹⁾, Y. Iyonaga¹⁾, Y. Sakaguchi¹⁾, S. Yokoyama¹⁾, H. Inaba²⁾, K. Minoshima²⁾, T. Araki¹⁾, F. Hindle³⁾, and T. Yasui^{1,4)}
¹⁾Graduate School of Engineering Science, Osaka Univ., Japan, ²⁾AIST, Japan, ³⁾Université du Littoral Côte d'Opale, France ⁴⁾Univ. of Tokushima, Japan

ALPS4-6 Energy enhancement of THz emission from intense-laser cluster plasmas by optimizing laser pulse duration

17:00 K. Mori¹⁾, M. Hashida¹⁾, T. Nagashima²⁾, S. Tokita¹⁾, M. Hangyo²⁾, and S. Sakabe¹⁾
¹⁾Advanced Research Center for Beam Science, ICR, Kyoto Univ., Japan and Department of Physics, GSS, Kyoto Univ., Japan, ²⁾Institute of Laser Engineering, Osaka Univ., Japan

Thursday, April 25

9:00-12:00

JALPS5: Joint Session with CLSM'13 on Optical Devices and Techniques for Bio and Medical Applications

Room 303

Chair: T. Kushibiki, Steering Committee of CLSM '13, NDMC, Japan

JALPS5-1 (Invited) Optical harmonic generation biopsy of human skin based on a femtosecond Cr:forsterite laser

9:00

Chi-Kuang Sun^{1,2,3)}

¹⁾ Molecular Imaging Center, National Taiwan Univ., Taiwan, ²⁾ Graduate Institute of Photonics and Optoelectronics, Graduate Institute of Biomedical Electronics and Bioinformatics, and Department of Electrical Engineering, National Taiwan Univ., Taiwan, ³⁾ Research Center for Applied Sciences and Institute of Physics, Academia Sinica, Taiwan

JALPS5-2 (Invited) Fourier domain mode-locked lasers and their application to OCT

9:30

T. Klein, W. Wieser, T. Pfeiffer, and R. Huber

Ludwig-Maximilians-Universität München, Germany

JALPS5-3 (Invited) Spatial overlap modulation nonlinear optical microscopy for background-free deep imaging

10:00

K. Isobe¹⁾, H. Kawano²⁾, A. Suda³⁾, A. Kumagai²⁾, H. Mizuno²⁾, A. Miyawaki²⁾, and K. Midorikawa¹⁾

¹⁾ ASI, RIKEN, ²⁾ BSI, RIKEN, ³⁾ Tokyo Univ. of Science, Japan

----- Break (10:30-11:00) -----

Chair: N. Nishizawa, Program Committee of ALPS '13, Nagoya Univ., Japan

JALPS5-4 Highly sensitive ultrahigh resolution OCT using high power supercontinuum at 1.7 μ m wavelength region based on single wall carbon nanotube fiber laser

11:00

H. Kawagoe¹⁾, S. Ishida¹⁾, M. Aramaki¹⁾, Y. Sakakibara^{2,3)}, E. Omoda²⁾, H. Kataura^{2,3)}, and N. Nishizawa¹⁾

¹⁾ Nagoya Univ., Japan, ²⁾ AIST, Japan, ³⁾ JST CREST, Japan

JALPS5-5 Measurement of the photobleaching spectrum based on the excited-state absorption of fluorescence proteins with Fourier-transform nonlinear spectroscopy

11:15

H. Takahashi, K. Toda, and A. Suda
Tokyo Univ. of Science, Japan

JALPS5-6 Dynamic SERS imaging of living cells

11:30

K. Fujita, K. Bando, K.-C. Huang, J. Ando, N. I. Smith, S. Kawata
Graduate School of Engineering, Osaka

Univ., Japan

JALPS5-7 Selective excavation of demineralized dentin using a mid-infrared tunable nanosecond pulsed laser at wavelengths around 6 μ m

11:45

K. Ishii¹⁾, T. Kita¹⁾, K. Yoshikawa²⁾, K. Yasuo²⁾, K. Yamamoto²⁾, and K. Awazu^{1,3,4)}

¹⁾ Graduate School of Engineering, Osaka Univ., Japan, ²⁾ Department of Operative Dentistry, Osaka Dental Univ., Japan, ³⁾ Graduate School of Frontier Biosciences, Osaka Univ., Japan, ⁴⁾ The Center for Advanced Medical Engineering and Informatics, Osaka Univ., Japan

--- Lunch Break & Poster Session (12:00-14:30) ---

12:15-14:15

ALPS6 : Poster Session

Exhibition Hall D

Chair: A. Suda, Program Committee of ALPS '13, Tokyo Univ. of Science, Japan

ALPSp6-1 Optical amplification of vacuum ultraviolet femtosecond pulses at 126 nm in an optical-field-induced ionization Ar₂* amplifier

M. Kaku¹⁾, Y. Ezaki¹⁾, T. Daikyuji¹⁾, K. Fujiyoshi¹⁾, M. Katto¹⁾, S. Kubodera¹⁾, and K. Miyazaki²⁾

¹⁾ Univ. of Miyazaki, Japan, ²⁾ Kyoto Univ., Japan

ALPSp6-2 Development of high averaged power ultra-short pulse laser system

K. Tsubakimoto^{1,4)}, H. Yoshida^{1,4)}, H. Fujita^{1,4)}, N. Miyanaga^{1,4)}, Y. Nagata^{2,4)}, and H. Kinoshita^{3,4)}

¹⁾ ILE, Osaka Univ., Japan, ²⁾ RIKEN, Japan, ³⁾ Univ. of Hyogo, Japan, ⁴⁾ JST-CREST, Japan

ALPSp6-3 Enhancement of output laser power in high-power Nd/Cr:YAG ceramic active mirror amplifiers based on cross-relaxation effect under white light source pumping

N. Matsuoka¹⁾, T. Saiki¹⁾, N. Fujiwara¹⁾, T. Hayashi¹⁾, N. Hirota¹⁾, K. Fujioka²⁾, M. Nakatsuka³⁾, and Y. Iida¹⁾

¹⁾ Kansai Univ., Japan, ²⁾ ILE, Osaka Univ., Japan, ³⁾ Institute for Laser Technology, Japan

ALPSp6-4 Development of Q-switched and mode-locked Nd/Cr:YAG ceramic laser

N. Hirota, T. Saiki, N. Fujiwara, N. Matsuoka, T. Hayashi, and Y. Iida
Kansai Univ., Japan

ALPSp6-5 Air fuel cells using sintered metal pastes for solar energy cycle

T. Karita, T. Saiki, T. Okada, K. Nakamura, Y. Nishikawa, and Y. Iida
Kansai Univ., Japan

ALPSp6-6 Illumination of arbitrary patterns using multi-level free-form three dimensional

micro-fabricated high performance diffractive optical elements

A. Hamano ¹⁾, A. Yamada ¹⁾, T. Takada ²⁾, and Y. Usuki ¹⁾

¹⁾ Material Research Laboratory, R&D Division, Furukawa Co. Ltd., Japan,

²⁾ R&D Planning Department, R&D Division, Furukawa Co. Ltd., Japan

ALPSP6-7 THz intersubband emission from GaN based quantum cascade laser with development of new growth technique on RF-MB

W. Terashima ^{1, 2)} and H. Hirayama ^{1, 2)}

¹⁾ Quantum Optodevice Laboratory, RIKEN, Japan, ²⁾ Terahertz Quantum Device Laboratory, RIKEN, Japan

ALPSP6-8 Measurement and calculation of laser-induced damage threshold at different temperature for optical coating

K. Mikami ^{1,2,3)}, S. Motokoshi ⁴⁾, T. Somekawa ⁴⁾, T. Jitsuno ¹⁾, M. Fujita ⁴⁾, and K. A. Tanaka ²⁾

¹⁾ ILE, Osaka Univ., Japan, ²⁾ Graduate School of Engineering, Osaka Univ., Japan, ³⁾ JSPS Research Fellow, Japan, ⁴⁾ Institute for Laser Technology, Japan

ALPSP6-9 75 nm-wide tunable ytterbium doped fiber ring laser based on bidirectional pumping scheme

Y. Jhang and W.-P. Lin
Chung Gung Univ., Taiwan

ALPSP6-10 Analysis of energy transfer process in Nd/Cr:YAG materials

Y. Honda ¹⁾, S. Motokoshi ²⁾, T. Jitsuno ¹⁾, N. Miyanaga ¹⁾, K. Fujioka ¹⁾, M. Nakatsuka ²⁾, and M. Yoshida ³⁾

¹⁾ ILE, Osaka Univ., Japan, ²⁾ Institute for Laser Technology, Japan, ³⁾ Kinki Univ., Japan

ALPSP6-11 Optimization of depolarization losses and scaling of a high average power diode pumped laser amplifier using Yb³⁺ doped CaF₂

D. Albach ¹⁾, M. Loeser ^{1,2)}, F. Roeser ¹⁾, M. Siebold ¹⁾, and U. Schramm ^{1,2)}

¹⁾ Helmholtz-Center Dresden-Rossendorf, Germany, ²⁾ Dresden Univ. of Technology, Germany

ALPSP6-12 10-mm short fiber laser demonstration with single-mode Nd-doped silica fiber fabricated by Zeolite method

M. Murakami ¹⁾, Y. Fujimoto ¹⁾, H. Shiraga ¹⁾, S. Motokoshi ²⁾, and T. Sato ³⁾

¹⁾ ILE, Osaka Univ., Japan, ²⁾ Institute of Laser Technology, Japan, ³⁾ Shin-Etsu Quartz Products Co., Ltd., Japan

ALPSP6-13 Broadband, diode pumped Yb:SiO₂ multicomponent glass laser

M. Loeser ^{1,2)}, A. Reichelt ^{1,2)}, D. Albach ¹⁾, F. Roeser ¹⁾, M. Siebold ¹⁾, S. Grimm ³⁾, D. Litzkendorf ³⁾, A. Schwuchow ³⁾, J. Kirchhof ³⁾, and U. Schramm ^{1,2)}

¹⁾ Helmholtz-Center

Dresden-Rossendorf, Germany, ²⁾ Dresden Univ. of Technology, Germany,

³⁾ Institute of Photonic Technology, Germany

ALPSP6-14 Intracavity second-harmonic generation at 261nm of an actively Q-switched Pr:LiYF₄ laser

J. Kojou, R. Abe, A. Sakurai, and F. Kannari
Keio Univ., Japan

ALPSP6-15 Investigation of gain spectral filtering for spectral enhancement on fiber oscillator system

S. Hwang ¹⁾, F. Hiroaki ²⁾, C. Lim ³⁾, K. Junji ¹⁾, and M. Noriaki ¹⁾

¹⁾ ILE, Osaka Univ., ²⁾ Institute for Laser Technology, Japan, ³⁾ Korea Atomic Energy Research Institute, Korea

ALPSP6-16 Analysis of fluorescence for Nd:CNGG powder

T. Isshiki ¹⁾, S. Motokoshi ²⁾, K. Fujioka ¹⁾, T. Jitsuno ¹⁾, M. Murakami ¹⁾, and M. Yoshida ³⁾

¹⁾ ILE, Osaka Univ., Japan, ²⁾ Institute for Laser Technology, Japan, ³⁾ Kinki Univ., Japan

ALPSP6-17 Rapidly-tunable Cr:ZnSe laser system for high energy optical-parametric oscillator

M. Yumoto, N. Saito, U. Takagi, T. Tomida, and S. Wada
ASI, RIKEN, Japan

ALPSP6-18 Temperature distribution characteristics in a cryogenic Yb:YAG TRAM laser medium

T. Sakurai ¹⁾, H. Furuse ¹⁾, H. Chosrowjan ¹⁾, J. Kawanaka ²⁾, N. Miyanaga ²⁾, K. Hamamoto ³⁾, T. Yamada ³⁾, M. Fujita ¹⁾ and Y. Izawa ¹⁾

¹⁾ Institute for Laser Technology, Japan, ²⁾ ILE, Osaka Univ., Japan, ³⁾ Mitsubishi Heavy Industries LTD., Japan

ALPSP6-19 Coherent sodium D₂ resonance light source for tromsø sodium lidar

N. Saito ¹⁾, T. Tsukihana ²⁾, T. D. Kawahara ³⁾, S. Nozawa ⁴⁾, T. Kawabata ⁴⁾, T. T. Tsuda ⁴⁾, and S. Wada ¹⁾

¹⁾ ASI, RIKEN, Japan ²⁾ MegaOpt Co., Ltd., Japan, ³⁾ Shinshu Univ., Japan, ⁴⁾ Nagoya Univ., Japan

ALPSP6-20 Solar light pumped laser technology for brightness enhancement as renewable energy utilization

S. Uchida ¹⁾ and W. Bin ²⁾
¹⁾ Laser Institute for Technology, Japan, ²⁾ Nagoya Univ., Japan

ALPSP6-21 An InGaN diode-laser pumped Ti:sapphire laser

S. Sawai, H. Kawauchi, and F. Kannari
Keio Univ., Japan

ALPSP6-22 Relativistic effects in strong-field nonsequential double

ionization: importance of the laser magnetic field and Darwin corrections

*E. Lötstedt and K. Midorikawa
ASI, RIKEN, Japan*

ALPSP6-23 Anti-corrosion properties of DLC films as novel biomaterials

*A. Alanazi¹⁾, T. Sato²⁾, Y. Ohgoe³⁾,
F. Shizuku⁴⁾, and K. Hirakuri²⁾
¹⁾ King Saudi Univ., Saudi Arabia, ²⁾
Tokyo Denki Univ., Japan, ³⁾ Division of
Science of Engineering, Tokyo Denki
Univ., Japan, ⁴⁾ Sankyo Seisakusho Co.,
Japan*

ALPSP6-24 Longitudinally excited N₂ Laser with high beam quality for cell sectioning

*W. Gong¹⁾, K. Uno¹⁾, S. Shitajima¹⁾,
T. Akitsu¹⁾, T. Jitsuno²⁾
¹⁾ Univ. of Yamanashi, Japan, ²⁾ ILE,
Osaka Univ., Japan*

ALPSP6-25 Determination of the thermal expansion coefficient in TGG ceramics between 293 K and 64 K

*R. Yasuhara¹⁾, H. Nozawa²⁾, T.
Yanagitani²⁾, J. Kawanaka³⁾
¹⁾ National Institute for Fusion Science,
Japan,
²⁾ Konoshima Chemical Co. Ltd., Japan,
³⁾ ILE, Osaka Univ., Japan*

ALPSP6-26 High-frequency modulating laser to reduce light power on super-resolution high density optical disc with Sb-Te active film

*K. Nakai¹⁾, M. Ohmaki¹⁾, N. Takeshita¹⁾,
M. Shinoda¹⁾, H. Nakayama¹⁾, T. Shima²⁾,
T. Nakano³⁾, and J. Tominaga³⁾
¹⁾ Advanced Technology R&D Center,
Mitsubishi Electric Corporation, Japan,
²⁾ Electronics and Photonics Research
Institute, National Institute of Advanced
Industrial Science and Technology,
Japan, ³⁾ Nanoelectronics Research
Institute, National Institute of Advanced
Industrial Science and Technology,
Japan*

ALPSP6-27 Optical waveguide using metal nanoparticles

*M. Yada, Y. Iida, and T. Saiki
Kansai Univ., Japan*

ALPSP6-28 Computational model for generation and auto-oscillations of Lyman- α radiation by resonant laser mixing in Kr-Ar gas under discharge

*O. A. Louchev¹⁾, N. Saito¹⁾, S. Wada¹⁾,
K. Miyazaki¹⁾, Y. Ohishi²⁾ and M.
Iwasaki²⁾
¹⁾ ASI, RIKEN, Japan ²⁾ RIKEN Nishina
Center, Japan*

ALPSP6-29 Ultraviolet laser-induced degradation in CsLiB₆O₁₀

*M. Yoshimura^{1,2)}, K. Takachiho^{1,2)}, Y.
Takahashi^{1,2)}, T. Sasaki^{1,2)}, and Y. Mori^{1,2)}*

*¹⁾ Graduate School of Engineering,
Osaka Univ., Japan, ²⁾ CREST, JST,
Japan*

ALPSP6-30 1.1 kW peak-power terahertz-wave generation comparable to THz-FEL by nonlinear parametric conversion

*S. Hayashi¹⁾, K. Nawata¹⁾, K. Kawase^{1,2)},
and H. Minamide¹⁾
¹⁾ ASI, RIKEN, Japan, ²⁾ Nagoya Univ.,
Japan*

ALPSP6-31 Ultra-widely tunable DFG THz-wave source using organic DAST and BNA crystals pumped by a dual-wavelength β -BaB₂O₄ optical parametric oscillator

*T. Notake, K. Nawata, T. Matsukawa, Q.
Feng, H. Kawamata, and H. Minamide
ASI, RIKEN, Japan*

ALPSP6-32 Cherenkov phase-matched terahertz wave generation from ridge-type waveguide

*F. Shuzhen¹⁾, H. Takeuchi¹⁾, K. Kajiki²⁾,
T. Ouchi²⁾, K. Takeya¹⁾, and K. Kawase^{1,3)}
¹⁾ Nagoya Univ., Japan, ²⁾ Canon Inc.,
Japan, ³⁾ RIKEN Sendai, Japan*

14:30-16:15

ALPS7 : High Power Lasers (II)

Room 303

Chair: *K. Oguri, Program Committee of ALPS '13,
NTT, Japan*

ALPS7-1 Development of a high-average-power, thin-disk ring oscillator

14:30 *A. A. Eilanlou¹⁾, Y. Nabekawa¹⁾,
M. Kuwata-Gonokami^{2,3)}, and
K. Midorikawa^{1,2)}
¹⁾ ASI, RIKEN, Japan, ²⁾ Photon Science
Center, The Univ. of Tokyo, Japan, ³⁾
Graduate School of Science, The Univ. of
Tokyo, Japan*

ALPS7-2 Development of a kW class Nd:YAG ceramic thin disc laser for advanced laser machining

14:45 *H. Fujita¹⁾, K. Iyama^{1,3)}, R. Bhushan¹⁾, K.
Tsubakimoto¹⁾, H. Yoshida¹⁾, M. Fujita²⁾,
N. Miyanaga¹⁾, and T. Kawashima³⁾
¹⁾ ILE, Osaka Univ., Japan, ²⁾ Institute for
Laser Technology, Japan, ³⁾ Hamamatsu
Photonics K.K., Japan*

ALPS7-3 (Invited) High average power ultrafast thin disk lasers

15:00 *C. J. Saraceno^{1,2)}, F. Emaury¹⁾, C.
Schriber¹⁾, M. Hoffmann¹⁾, M. Golling¹⁾, T.
Südmeyer^{1,2)}, and U. Keller¹⁾
¹⁾ ETH Zurich, Switzerland, ²⁾ Univ. of
Neuchâtel, Switzerland*

ALPS7-4 (Invited) Temporal pulse cleaning for high-contrast PW laser pulse

15:30 *J. H. Sung^{1,2)}, S. K. Lee^{1,2)}, T. J. Yu^{1,2)}, I. J.
Kim^{1,2)}, T. M. Jeong^{1,2)}, and C. H. Nam^{1,3)}
¹⁾ Institute for Basic Science, Republic of
Korea, ²⁾ Advanced Photonics Research
Institute, GIST, Republic of Korea, ³⁾*

*Department of Physics and Photon Science,
GIST, Republic of Korea*

ALPS7-5 DPSSL pumped 20-TW Ti:sapphire laser system for high-intensity laser applications

16:00 *T. Sekine, Y. Hatano, Y. Takeuchi, and
T. Kawashima
Hamamatsu Photonics K. K, Japan*

----- Break (16:15-16:30) -----

16:30-18:00

ALPS8 : High Energy Light Sources and its Applications

Room 303

Chair: *N. Miyanaga, Program Committee of
ALPS '13, ILE, Osaka Univ., Japan*

ALPS8-1 (Invited) Laser plasma accelerators for future colliders and light sources

16:30 *W. Leemans
Lawrence Berkeley National Laboratory,
USA*

ALPS8-2 Laser plasma sources of extreme ultraviolet (EUV) for application in science and technology

17:00 *H. Fiedorowicz, A. Bartnik, T. Fok,
R. Jarocki, B. Korczyk, J. Kostecki,
A. Szczurek, M. Szczurek, I. U. Ahad,
P. Wachulak, and Ł. Węgrzyński
Military Univ. of Technology, Poland*

ALPS8-3 A proposal of transverse-flow CO₂ laser amplifiers for an EUV light source

17:15 *Y. Tanino, J. Nishimae, T. Tamida, and
S. Fujikawa
Advanced Technology R&D Center,
Mitsubishi Electric Corporation, Japan*

ALPS8-4 Relativistic soft x-ray harmonics beam characterizing by high performance imaging using sub-micron resolution LiF detectors

17:30 *T. Pikuz^{1,2)}, A. Faenov^{1,2)}, A. S. Pirozhkov¹⁾,
M. Nishikino¹⁾, N. Hasegawa¹⁾,
T. Esirkepov¹⁾, H. Kotaki¹⁾, Y. Hayashi¹⁾, K.
Ogura¹⁾, J. Koga¹⁾, T. Nakamura¹⁾,
S. Bulanov¹⁾, Y. Fukuda¹⁾, S. Magnitskiy³⁾,
N. Nagorskiy³⁾, M. Epitshev²⁾, S. Pikuz, Jr.
²⁾, Y. Kato⁴⁾, T. Kawachi¹⁾, P. Bolton¹⁾,
K. Kondo¹⁾, and M. Kando¹⁾
¹⁾ JAEA, Japan, ²⁾ Russian Academy of
Sciences, Russia, ³⁾ International Laser
Center of M.V. Lomonosov Moscow State
Univ., Russia, ⁴⁾ The Graduate School for
the Creation of New Photonics Industries,
Japan*

ALPS8-5 Recently completed petawatt-class SCARLET laser facility at The Ohio State University

17:45 *F. Aymond, E. Chowdhury, C. Willis,
P. Pool, K. George, S. Feister, S. Jiang,
R. Daskalova, J. Marketon, M. Storm,
S. Jiang, J. Retz, D. Austin, J. Snyder,*

*K. Kafka, D. Kelly, J. Krygier,
D. Andereck, D. Schumacher, and
R. R. Freeman
Physics Department, The Ohio State Univ.,
USA*

18:00-18:15

Closing

Room 303

Closing Remarks: *S. Sakabe, Steering Committee
Chair of ALPS '13, Kyoto Univ., Japan*

Conference on Laser Surgery and Medicine 2013
(CLSM 2013)

Sponsored by

Japan Society for Laser Surgery and Medicine (JLSM)

Organized by

Japan Science and Technology Agency (JST),

Japanese Society for Medical and Biological Engineering (JSMBE),

Investigation Committee on Biomedical Optics, The Institute of Electrical Engineers of Japan

April 23 — April 25, 2013

Pacifico Yokohama

Japan

Conference Program

Tuesday, April 23

9:30-10:00

Room 301,302

Opening Remarks of OPIC'13

Sadao Nakai

President of the Laser Society of Japan

Introductory Talk: Past, Present and Future of the Lasers

Kohichi Shimoda

Congress Chair

Professor Emeritus at the University of Tokyo, Japan

10:00-11:55

Room 301,302

Keynote Lectures of OPIC'13

10:00 Laser for Ignition and Future Energy Generation

Robert L. Byer

Congress Chair

Stanford University, USA

10:45 Advanced Laser Source and Applications to Medicine and Biology

Katsumi Midorikawa

RIKEN, Japan

Makoto Kikuchi

Japan Association for the Advancement of Medical Equipment, Japan

----- Lunch Break (11:55-13:20) -----

13:20-15:20

Room 301,302,303

Joint Plenary Sessions of OPIC'13

Session A (Room301, 302)

Sensing Technologies for Bio-material, Food and Agriculture (SeTBio'13)

Laser Display (LDC'13)

LED and its Industrial Application (LEDIA'13)

Laser Ignition (LIC'13)

Session B (Room303)

Laser and Accelerator Neutron Sources and Applications (LANSA'13)

Laser Application to Nuclear Engineering (LANE'13)

High-Energy Density Science (HEDS2013)

Laser Processing for CFRP and Composite Materials (LPCC2013)

----- Break (15:20-15:45) -----

15:45-18:00

All CLSM 2013 members can attend all the other professional conferences without the additional registration.

Please join the all interdisciplinary conferences in OPIC 2013.

18:30-20:30

Room 501,502

Conference Reception

Wednesday, April 24

9:00-12:00

Room 418

Joint-workshop on R&D and Manufacturing of the Laser Equipments for Surgery and Medicine between JLSM and the Saitama City (Japanese language only)

See attached program

----- Lunch Break (12:00-13:00) -----

13:00-13:15

Room 418

Opening Remarks of CLSM 2013

Makoto Kikuchi

Conference Chair of CLSM 2013

President, Japan Society for Laser Surgery and Medicine

President, Japan Association for the Advancement of Medical Equipment

13:15-15:00

Room 418

CLSM1: Therapeutic Applications of Lasers

Chair: Katsunori Ishii, Osaka University, Japan

- 13:15 **CLSM1-1**
(Educational Lecture) A Feasibility of Laser Endovascular Intervention for Peripheral Arterial Diseases1
Masayoshi Okada¹, Masato Yoshida², Yoshihiko Tsuji³
¹International Institute for Advanced General Medicine, Japan, ²Himeji Cardiovascular Center, Japan, ³Shinsuma Hospital, Japan
- 13:45 **CLSM1-2**
First Clinical Result of Ultra-High Peak Power More Than Thousand Watts for Endovenous Pulsed Laser Ablation2
Naoki Sakakibara¹, Tomoyuki Fujita¹, Hironobu Yamaoka¹, Takashi Shimabukuro¹, Rei Kansaku¹, Michiaki Sueishi², Atsushi Amano³, Shizuyuki Dohi³
¹Department of Cardiovascular Surgery, Edogawa Hospital, Japan, ²Shinagawa Heart Medical Clinic, Japan, ³Department of Cardiovascular Surgery, Juntendo University School of Medicine, Japan
- 14:00 **CLSM1-3**
Selective Ablation of WHHLMI Rabbit Atherosclerotic Aorta by a Quantum Cascade Laser in the 5.7 μm Wavelength Range4
Keisuke Hashimura¹, Katsunori Ishii¹, Naota Akikusa², Tadataka Edamura², Harumasa Yoshida², Kunio Awazu^{1,3,4}
¹Graduate School of Engineering, Osaka University, Japan, ²Hamamatsu Photonics K.K., Japan, ³Graduate School of Frontier Biosciences, Osaka University, Japan, ⁴The Center for Advanced Medical Engineering and Informatics, Osaka University, Japan
- 14:15 **CLSM1-4**
Selective Removal of Human Carious Dentin Using a Nanosecond Pulsed Laser with 5.8 μm Wavelength Range6
Tetsuya Kita¹, Katsunori Ishii¹, Kazushi Yoshikawa², Kenzo Yasuo², Kazuyo Yamamoto², Kunio Awazu^{1,3,4}
¹Graduate School of Engineering, Osaka University, Japan, ²Department of Operative Dentistry, Osaka Dental University, Japan, ³Graduate School of Frontier Biosciences, Osaka University, Japan, ⁴The Center for Advanced Medical Engineering and Informatics, Osaka University, Japan
- 14:30 **CLSM1-5**
Quantitative Evaluation of Safety and Effectiveness of Laser Treatment for Benign Prostatic Hyperplasia Using a High-Power Laser Diode at the Wavelength of 980 nm8
Junya Takada¹, Saki Nozoe¹, Norihiro Honda^{1,2}, Hisanao Hazama¹, Kunio Awazu^{1,3,4}

¹Graduate School of Engineering, Osaka University, Japan, ²Research Fellow of the Japan Society for the Promotion of Science, Japan, ³Graduate School of Frontier Biosciences, Osaka University, Japan, ⁴The Center for Advanced Medical Engineering and Informatics, Osaka University, Japan

14:45

CLSM1-6

Pivotal Anti-tumor Effects by Photodynamic Therapy in an In Vitro Model of Human Esophageal Squamous Cell Carcinoma..... 11

Shinya Ohashi¹, Mihoko Tsurumaki², Osamu Kikuchi², Daisuke Kuriyama², Yusuke Amanuma², Yukie Nakai², Takeshi Setoyama², Shinichi Miyamoto², Tsutomu Chiba², Manabu Muto³

¹Translational Research Center, Esophageal Cancer PDT Project, Kyoto University Hospital, Japan,

²Department of Gastroenterology and Hepatology, Graduate School of Medicine, Kyoto University, Japan, ³Department of Therapeutic Oncology, Graduate School of Medicine, Kyoto University, Japan

----- Break (15:00-15:30) -----

15:30-16:30

Room 418

CLSM2: SHORT PRESENTATION of Poster Presentation

Chair: Hisanao Hazama, Osaka University, Japan

CLSMp2-1

Ultraviolet Gas-Spectroscopy System Using Hollow Optical Fiber as Micro-Volume Gas Cell.... 12

Yuki Dessen¹, Takashi Katagiri¹, Yuji Matsuura²

¹Graduate School of Engineering, Tohoku University, Japan, ²Graduate School of Biomedical Engineering, Tohoku University, Japan

CLSMp2-2

Fabrication of Hollow Fiber Based Probe for SERS Detection of Biomolecules 15

Masahiro Nagaoka¹, Takashi Katagiri², Yuji Matsuura^{1,2}

¹Graduate School of Biomedical Engineering, Tohoku University, Japan, ²Graduate School of Engineering, Tohoku University, Japan

CLSMp2-3

Dynamic Analysis of the Small Artery of a Human Finger by Optical Coherence Tomography .. 17

Masato Ohmi, Mitsuo Kuwabara, Gakuji Tamaki, Masamitsu Haruna

Division of Health Sciences, Osaka University Graduate School of Medicine, Japan

CLSMp2-4

Noncontact Plethysmographic Imaging Using a Digital Red-Green-Blue Camera 19

Izumi Nishidate¹, Ryohei Matsuda¹, Noriyuki Tanaka¹, Takaaki Maeda², Tomonori Yuasa³, Tetsuya Yuasa⁴, Kyuichi Niizeki⁴, Yoshihisa Aizu³

¹Graduate School of Bio-applications & Science Engineering, Tokyo University of Agriculture & Technology, Japan, ²Department of Mechanical Engineering, Kushiro National College of Technology, Japan, ³College of Design and Manufacturing Technology, Muroran Institute of Technology, Japan, ⁴Graduate School of Bio-system Engineering, Yamagata University, Japan

CLSMp2-5

High-resolution Fluorescence Imaging of Cells in 3D Culture by Saturated Excitation (SAX) Microscopy 21

Masahito Yamanaka¹, Kumiko Uegaki¹, Nicholas I. Smith², Satoshi Kawata^{1,3}, Katsumasa Fujita¹

¹Department of Applied Physics, Osaka University, Japan, ²Immunology Frontier Research Center, Osaka University, Japan, ³RIKEN, Japan

CLSMp2-6

Evaluation of Articular Cartilage Degeneration in Mice Based on Second Harmonic Generation Microscopy 22

Hiroshi Kiyomatsu^{1,2}, Yusuke Oshima^{2,3}, Atsuhiko Hikita², Hiromasa Miura¹, Takeshi Imamura²

¹Department of Orthopaedic Surgery, Ehime University Graduate School of Medicine, Japan, ²Department of Molecular Medicine for Pathogenesis, Ehime University Graduate School of Medicine, Japan, ³Translational Research Center, Ehime University Hospital, Japan

CLSMp2-7

Simultaneous Recording of Local Field Potential and Optical Properties of In Vivo Rat Brain During Cortical Spreading Depression 24

Chiharu Mizushima¹, Izumi Nishidate¹, Satoko Kawauchi², Shunichi Sato², Manabu Sato³

¹Graduate School of Bio-Applications & Systems Engineering, Tokyo University of Agriculture and Technology, Japan, ²Division of Biomedical Information Sciences, National Defense Medical College, Japan, ³Graduate School of Science and Engineering, Yamagata University, Japan

CLSMp2-8	
Longitudinally Excited CO₂ Laser for Hard Tissue Drilling	27
Hiroyuki Hayashi ¹ , Kazuyuki Uno ¹ , Tetsuya Akitsu ¹ , Takahisa Jitsuno ²	
¹ Interdisciplinary Graduate School of Medicine and Engineering, University of Yamanashi, Japan,	
² Institution of Laser Engineering, Osaka University, Japan	
CLSMp2-9	
Nd:YAG Laser Treatment of Keloids and Hypertrophic Scars	30
Atsuko Sugimoto, Yuki Nagashima, Sachiko Koike, Satoshi Akaishi, Hiko Hyakusoku, Rei Ogawa	
Nippon Medical School Hospital, Japan	
CLSMp2-10	
Non-Contact Mode Nd:YAG Laser (Genesis®) Treatment for Keloids and Hypertrophic Scars	31
Atsuko Sugimoto, Satoshi Akaishi, Sachiko Koike, Hiko Hyakusoku Rei Ogawa	
Nippon Medical School Hospital, Japan	
CLSMp2-11	
Improvement of Scattering Coefficient Estimation in Inverse Monte Carlo Calculation by Considering Wavelength Dependence of Refractive Index and Sample Thickness	32
Takuro Horibe ¹ , Katsunori Ishii ¹ , Norihiro Honda ^{1,2} , Kunio Awazu ^{1,3,4}	
¹ Graduate School of Engineering, Osaka University, Japan, ² Research Fellowship for Young Scientists, Japan Society for the Promotion of Science, Japan, ³ Graduate School of Frontier Biosciences, Osaka University, Japan, ⁴ The Center for Advanced Medical Engineering and Informatics, Osaka University, Japan	
CLSMp2-12	
Comparison of Regularization Methods for Photoacoustic Image Reconstruction	34
Shinpei Okawa, Takeshi Hirasawa, Toshihiro Kushibiki, Miya Ishihara	
Department of Medical Engineering, National Defense Medical College, Japan	

Thursday, April 25

9:00-12:00

Room 303

CLSM3: Joint Session with Advance Lasers and Photon Sources (ALPS) on Optical Devices and Techniques for Bio and Medical Applications

Chair: Toshihiro Kushibiki, National Defense Medical College, Japan
Norihiko Nishizawa, Nagoya University, Japan

- 9:00 CLSM3-1/JALPS5-1**
Optical Harmonic Generation Biopsy of Human Skin Based on a Femtosecond Cr:forsterite Laser 36
Chi-Kuang Sun^{1,2,3}
¹Molecular Imaging Center, National Taiwan University, Taiwan, ²Graduate Institute of Photonics and Optoelectronics, Graduate Institute of Biomedical Electronics and Bioinformatics, and Department of Electrical Engineering, National Taiwan University, Taiwan, ³Research Center for Applied Sciences and Institute of Physics, Academia Sinica, Taipei, Taiwan
- 9:30 CLSM3-2/JALPS5-2**
Fourier Domain Mode-locked Lasers and Their Application to OCT 39
Thomas Klein, Wolfgang Wieser, Tom Pfeiffer, Robert Huber
Lehrstuhl für BioMolekulare Optik, Fakultät für Physik, Ludwig Maximilians Universität München, Germany
- 10:00 CLSM3-3/JALPS5-3**
Spatial Overlap Modulation Nonlinear Optical Microscopy for Background-Free Deep Imaging 43
Keisuke Isobe¹, Hiroyuki Kawano², Akira Suda³, Akiko Kumagai², Hideaki Mizuno², Atsushi Miyawaki², Katsumi Midorikawa¹
¹RIKEN Advanced Science Institute, Japan, ²RIKEN Brain Science Institute, Japan, ³Department of Physics, Graduate School of Science and Technology, Tokyo University of Science, Japan
- **Break (10:30-11:00)** -----
- 11:00 CLSM3-4/JALPS5-4**
Highly Sensitive Ultrahigh Resolution OCT Using High Power Supercontinuum at 1.7 μ m Wavelength Region Based on Single Wall Carbon Nanotube Fiber Laser 46
H. Kawagoe¹, S. Ishida¹, M. Aramaki¹, Y. Sakakibara^{2,3}, E. Omoda², H. Kataura^{2,3}, N. Nishizawa¹
¹Nagoya University, Japan, ²AIST, Japan, ³JST CREST, Japan
- 11:15 CLSM3-5/JALPS5-5**
Measurement of the Photobleaching Spectrum Based on the Excited-state Absorption of Fluorescence Proteins with Fourier-transform Nonlinear Spectroscopy 50
Hiroshi Takahashi, Keisuke Toda, Akira Suda
Tokyo University of Science, Japan
- 11:30 CLSM3-6/JALPS5-6**
Dynamic Surface Enhanced Raman Scattering (SERS) Imaging of Living Cells 54
Katsumasa Fujita¹, Kazuki Bando¹, Kai-Chih Huang², Jun Ando¹, Nicholas I. Smith³, Satoshi Kawata^{1,4}
¹Department of Applied Physics, Osaka University, Japan, ²Department of Electrical Engineering, National Taiwan University, Taiwan, ³Immunology Frontier Research Center, Osaka University, Japan, ⁴RIKEN, Japan
- 11:45 CLSM3-7/JALPS5-7**
Selective Excavation of Demineralized Dentin Using a Mid-infrared Tunable Nanosecond Pulsed Laser at Wavelengths around 6 μ m 55
Katsunori Ishii¹, Tetsuya Kita¹, Kazushi Yoshikawa², Kenzo Yasuo², Kazuyo Yamamoto², Kunio Awazu^{1,3,4}
¹Graduate School of Engineering, Osaka University, Japan, ²Department of Operative Dentistry, Osaka Dental University, Japan, ³Graduate School of Frontier Biosciences, Osaka University, Japan, ⁴The Center for Advanced Medical Engineering and Informatics, Osaka University, Japan

----- **Lunch Break (12:00-12:30)** -----

12:30-13:45

Exhibition Hall D

CLSM2: Poster Presentation

13:45-15:00

Room 418

CLSM4: Development of Systems and Technology for Advanced Measurement and Analysis

Chair: Takashi Katagiri, Tohoku University, Japan

- 13:45 **CLSM4-1**
(Invited) Saturable Scattering of Plasmonic Particles and Its Application to Superresolution Imaging 58
Shi-Wei Chu^{1,2}, Tung-Yu Su¹, YasuoYonemaru³, Masahito Yamanaka³, Guan-Yu Zhuo¹, Ming-Ying Lee¹, Ryosuke Oketani³, Satoshi Kawata³, Katsumasa Fujita³
¹Department of Physics, National Taiwan University, Taiwan R.O.C., ²Molecular Imaging Center, National Taiwan University, Taiwan R.O.C., ³Department of Applied Physics, Osaka University, Japan
- 14:15 **CLSM4-2**
High-frame Rate Shack Hartmann Wavefront Sensor Based on Flexible Read-out Technique for C-MOS Image Sensors 60
Jiro Suzuki, Toshiyuki Ando, Takao Endo
Information Technology R & D Center, Mitsubishi Electric Corporation, Japan
- 14:30 **CLSM4-3**
Calculation based Spherical Aberration Correction Method Using Spatial Light Modulator under Deep-Part Fluorescence Observation 63
Yu Takiguchi¹, Hisayoshi Takamoto¹, Masamitsu Kanada², Koyo Watanabe¹, Naoya Matsumoto¹, Takashi Inoue¹, Susumu Terakawa²
¹Hamamatsu Photonics K.K, Japan, ²Hamamatsu University School of Medicine, Japan
- 14:45 **CLSM4-4**
Measurement of Biological Tissue Thickness by Laser-Induced Sound 65
Shu Sano¹, Shun Kobayashi², Yuichi Hashishin^{1,2}
¹Faculty of Science and Engineering, Kinki University, Japan, ²The Interdisciplinary Graduate School of Science and Engineering, Kinki University, Japan

----- Break (15:00-15:15) -----

15:15-16:45

Room 418

CLSM5: Imaging and Diagnosis

Chair: Masato Ohmi, Osaka University, Japan
Shinpei Okawa, National Defense Medical College, Japan

- 15:15 **CLSM5-1**
(Invited) In Vivo Rapid Cancer Detection by Topically Spraying a Novel γ -Glutamyl transpeptidase-activated Fluorescence Probe 67
Yasuteru Urano^{1,2}
¹Graduate School of Medicine, The University of Tokyo, Japan, ²Basic Research Program, Japan Science and Technology Agency, Japan
- 15:45 **CLSM5-2**
In Vivo Imaging and Tissue Ablation for Spinal Cord Injury Model Mice Using Multiphoton Microscopy System with 1045 nm Femtosecond Fiber Laser 68
Yusuke Oshima^{1,2}, Hideki Horiuchi³, Tadanori Ogata³, Atsuhiko Hikita², Hiromasa Miura³, Takeshi Imamura²
¹Translational Research Center, Ehime University Hospital, Japan, ²Department of Molecular Medicine for Pathogenesis, Ehime University Graduate School of Medicine, Japan, ³Department of Orthopaedic Surgery, Ehime University Graduate School of Medicine, Japan
- 16:00 **CLSM5-3**
Investigation of Optimal Wavelengths in Near-infrared Multi-spectral Imaging for

	Atherosclerotic Plaque Observation	71
	Ryo Nagao ¹ , Katsunori Ishii ¹ , Akiko Kitayabu ¹ , Kunio Awazu ^{1,2,3}	
	¹ Graduate School of Engineering, Osaka University, Japan, ² Graduate School of Frontier Bioscience, Osaka University, Japan, ³ The Center for Advanced Medical Engineering and Informatics, Osaka University, Japan	
16:15	CLSM5-4	
	Investigation of Optical Detection Method of Blood Vessels in Endoscopic Submucosal Dissection Using Carbon Dioxide Laser	74
	Rinna Kawaguchi ¹ , Hisanao Hazama ¹ , Kunio Awazu ^{1,2,3}	
	¹ Graduate School of Engineering, Osaka University, Japan, ² Graduate School of Frontier Biosciences, Osaka University, Japan, ³ The Center for Advanced Medical Engineering and Informatics, Osaka University, Japan	
16:30	CLSM5-5	
	Visualization of Skin Chromophores Using Spectral Reflectance Images Reconstructed from RGB Values by Wiener Estimation	77
	Izumi Nishidate ¹ , Yoshiyuki Tomiyama ¹ , Aditya Wiswadarma ¹ , Noriyuki Tanaka ¹ , Takaaki Maeda ² , Kyuichi Niizeki ³ , Yoshihisa Aizu ⁴	
	¹ Graduate School of Bio-applications & Science Engineering, Tokyo University of Agriculture & Technology, Japan, ² Department of Mechanical Engineering, Kushiro National College of Technology, Japan, ³ Graduate School of Bio-system Engineering, Yamagata University, Japan, ⁴ College of Design and Manufacturing Technology, Muroran Institute of Technology, Japan	

16:45-17:00

Room 418

Closing Remarks of CLSM 2013

Miya Ishihara
 Chair, Steering Committee of CLSM 2013
 Professor, National Defense Medical College, Japan



日本レーザー医学会・さいたま医療ものづくり都市構想参画企業合同ワークショップ
「臨床医が真に求める国産医用レーザー機器の開発・供給を目指して」
**Joint-workshop on R&D and Manufacturing of the Laser Equipments for Surgery and
Medicine between JLSM and the Saitama city**
at *Conference on Laser Surgery and Medicine (CLSM) 2013*

期間：4月24日（水）9時から12時（CLSM 2013 会期中）

場所：パシフィコ横浜 会議センター4階 418 会議室

主催：日本レーザー医学会・さいたま市・（公財）さいたま市産業創造財団

第一部 基調講演

9:00-9:20 「ワークショップの狙いと今後の医工産連携活動」

日本レーザー医学会理事長・医療機器センター理事長 菊地 眞

9:20-9:40 「さいたま医療ものづくり都市構想と医工連携の実現に向けて」

さいたま市長 清水勇人

9:40-9:55 総合討論

司会 菊地 眞

9:55-10:00 休憩

第二部 事例発表（日本レーザー医学会から）

10:00-10:15 「日本レーザー医学会・医用レーザー機器開発推進委員会の活動」

医用レーザー機器開発推進委員会委員長・大阪大学大学院工学研究科教授 栗津邦男

10:15-10:30 「臨床各科のニーズ紹介と機器に求められる仕様（1）」

日本レーザー医学会理事・東海大学医学部教授 宮坂宗男

10:30-10:45 「臨床各科のニーズ紹介と機器に求められる仕様（2）」

日本レーザー医学会評議員・大城クリニック副院長 大城貴史

10:45-11:00 「医用レーザー機器に関する薬事承認のポイント」

医薬品医療機器総合機構審査専門員 富岡 穰

11:00-11:05 休憩

第三部 事例発表（ものづくりの現場から）

「さいたま市関連企業の技術紹介」

11:05-11:20（1） シグマ光機株式会社生産本部光学システム部バイオグループリーダー 大宮弘道

11:20-11:35（2） 後藤精工株式会社 代表取締役 後藤秀隆

11:35-11:50（3） 株式会社メガオプト 代表取締役 和田智之

第四部 総括及び今後の活動に向けて

11:50-12:00 日本レーザー医学会理事長・医療機器センター理事長 菊地 眞

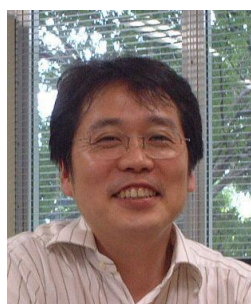
International Conference on High Energy Density Sciences 2013 HEDS2013

Sponsored by
Japan Society for the Promotion of Science

Organized by
The Laser Society of Japan

CONFERENCE CHAIR

Ryosuke Kodama (Osaka Univ., Japan)



Rysuke Kodama
Conference Chair
(Osaka University)

Kazuto Arakawa (Shimane Univ., Japan)
Yoshinori Tange (Ehime Univ., Japan)
Tomoko Sato (Hiroshima Univ., Japan)
Yuichi Inubushi (RIKEN, SACLA)

PROGRAM COMMITTEE

Justin Wark (Univ. Oxford, UK)
Michel Koenig (Ecole Polytechnique, France)
Stephane Mazevet (Paris Observatory, France)
Thomas Cowan (Dresden Tech., Germany)
Roger Falcone (LBNL, US)
Kazuo Tanaka (Osaka Univ., Japan)
Katsuya Shimizu (Osaka Univ., Japan)
Taku Tsuchiya (Ehime Univ., Japan)
Osami Sakata (NIMS, Japan)
Noboru Yugami (Utsunomiya Univ., Japan)

SECRETARIAT

Yukio Ogura (Optronics Co., Ltd.)
Naoki Ueno (Optronics Co., Ltd.)

STEERING COMMITTEE

Norimasa Ozaki (Osaka Univ., Japan)
Tomonao Hosokai (Osaka Univ., Japan)
Tomokazu Sano (Osaka Univ., Japan)
Takeshi Matsuoka (Osaka Univ., Japan)

Tuesday, April 23

9:30-10:00

Opening Remarks of OPIC'13

Room 301,302

10:00-11:55

Keynote Lectures of OPIC'13

Room 301,302

(SeeALPS'13)

----- Lunch Break (11:55-13:20) -----

13:20-15:20

Joint Plenary Sessions of OPIC'13

Room 301,302,303

(See ALPS'13)

18:30- 20:30

Conference Reception

Room 501,502

Wednesday, April 24

9:30- 9:40

Opening

Room 313,314

Opening Remarks

9:30 R. Kodama, Conference Chair of HEDS2013
Osaka University, Japan

9:40-10:10

HEDS1: Japanese XFEL 1

Room 313,314

Chair: R. Kodama, Osaka Univ., Japan

HEDS1-1 Overview of SACLA

9:40 Tetsuya Ishikawa, RIKEN, Japan

----- Break (10:30-10:45) -----

10:10-11:40

HEDS2: Planetary Science

Room 313,314

Chair: M. Koenig, Ecole Polytechnique, France

HEDS2-1 (Invited) Exotic Behaviors of Forsterite along
Extreme Hugoniot State

10:10 Toshimori Sekine, Hiroshima University, Japan

HEDS2-2 (Plenary) Giant Planets: Laboratories for
Warm Dense Matter

10:50 Ronald Redmer, University of Rostock, Germany

HEDS2-3 (Invited) Ultra-High Pressure Phase
Transformations in Planetary Mantle
Materials using Laser-Driven Shock
Compression

11:15 Ryan Stewart McWilliams, Universidad de Los
Andes, Colombia

----- Lunch Break (11:40-13:00) -----

13:00-15:00

HEDS3: Poster Session

Exhibition Hall D

Chair: N. Ozaki, Osaka Univ., Japan

HEDSp3-1 Energy-resolved Electron-Microscopic
Diagnostics of Laser-Produced Plasma
Electron Sources

Daiki Ikeda, Kyoto University, Japan

HEDSp3-2 Multiple-Fluid Model of The Magnetic
Deformation of the Collision-Less Shock Wave
Over Blunt Body

Koichi Mori, Nagoya University, Japan

HEDSp3-3 Development and Installation of a
Plasma-Mirror Pulse Cleaner for
High-Intensity Laser System of ICR, Kyoto
University

Kazuya Maeda, Kyoto University, Japan

HEDSp3-4 Effects of Electron Self-Injection on The Stable
Laser Wake-field Acceleration

Alexey Zhidkov, Osaka University, Japan

HEDSp3-5 High-quality Electron Beam Generation
Driven by Staged LWFA with Chirped
Electron Bunch Transport

Tomonao Hosokai, Osaka University, Japan

HEDSp3-6 Ultrashort Electron Bunch Generation by

Laser Ponderomotive Acceleration in Vacuum
Shinichi Masuda, Osaka University, Japan

HEDSp3-7 Detection of Point Defect Dynamics in
Tungsten Using High-voltage Electron
Microscopy

Kazuto Arakawa, Shimane University, Japan

HEDSp3-8 Hugoniot Measurement of MgO up to 1 Tpa:
an Experimental Evidence for B1-B2
Transition and Melting

Yoshinori Tange, Ehime University, Japan

HEDSp3-9 Platform Design for Matter under Dynamical
Compression Driven by 45 TW Laser Pulses in
XFEL

Takeshi Matsuoka, Osaka University, Japan

HEDSp3-10 THz wave Frequency Upshift by Rapidly
Plasma Creation in Semiconductor

Noboru Yugami, Utsunomiya University, Japan

HEDSp3-11 Formation of High Density Lattice Defects in
Pure Iron Using Femtosecond Laser-Driven
Shock Wave

Tomoki Matsuda, Osaka University, Japan

HEDSp3-12 Exploring High-energy Density Material with
High-power Laser

Norimasa Ozaki, Osaka University, Japan

HEDSp3-13 Development of x-ray spectroscopy for high
energy density science using XFEL

Yuichi Inubushi, RIKEN, Japan

HEDSp3-14 Investigation of Damage Dynamics of Matter
Irradiated with Intense Energetic Particles

Toshinori Yabuuchi, Osaka University, Japan

HEDSp3-15 Splash Plasma Channels Produced by
Picosecond Laser Pulses for Wave Guided
Laser Wakefield Acceleration

Yoshio Mizuta, Osaka University, Japan

HEDSp3-16 Terahertz Radiation Enhancement Correlated
with Asymmetric Plasma Filament Generated
by Femtosecond Laser Pulses

Junghun Shin, Osaka University, Japan

HEDSp3-17 Focus-ability of Ellipsoidal Plasma Mirror for
Ultrahigh Intensity Laser

Kon Akira, Osaka University, Japan

HEDSp3-18 Ultrafast XFEL Diffraction Measurements of
Femtosecond Laser-Driven Shock-Compressed
Iron

Tomokazu Sano, Osaka University, Japan

HEDSp3-19 Direct Observation of Laser-Shock
Compressed Iron Near Melting

Yoshihiko Kondo, Osaka University, Japan

HEDSp3-20 Direct Observation of Shock-Compressed
Silicon by Using Near-Infrared Diagnostics

Tsung-Han Yang, Osaka University, Japan

HEDSp3-21 Shock Compression of Water and
Alcohol-Water Mixture in Phase Transition
Region from Ionic Fluid to Electronic Fluid

Mika Kita, Osaka University, Japan

HEDSp3-22 Properties of Hydrocarbon under
Laser-Driven Low-Entropy Compression
Using Static and Dynamic Coupling
Compression Technique

Tsuyoshi Ogawa, Osaka University, Japan

HEDSp3-23 Observation of Laser Driven Multiple Shock
Wave Structure with Line-imaging VISAR and
X-ray Diffraction

Yuya Sato, Osaka University, Japan

HEDSp3-24 In-situ Angular and Energy Resolved X-ray Diffraction/Scattering Diagnostics for Dynamically Compressed Matter

Syotaro Iketani, Osaka University, Japan

HEDSp3-25 Measurements of Optical Property of MgO Under Laser-shock Compression

Kohei Miyanishi, Osaka University, Japan

HEDSp3-26 Electroluminescence Induced by Intense THz Pulse

Jin Zhan, Osaka University, Japan

HEDSp3-27 Laboratory Synthesis of Extrasolar Earth-size Planet

Takuo Okuchi, Okayama University, Japan

Spectroscopies

10:00 *Roger Falcone, Lawrence Berkeley National Laboratory, United States*

HEDS6-2 (Invited) Nonlinear Optical Phenomena with Intense X-ray Laser Filed above I=1019 W/cm²

10:40 *Hitoki Yoneda, University of Electro-Communications, Japan*

HEDS6-3 Time-resolved Measurements of Electromagnetic Fields Produced by Intense Femtosecond Laser Irradiation on Metal and Polyethylene Foil Targets

11:05 *Shunsuke Inoue, Kyoto University, Japan*

----- Lunch Break (11:25-13:30) -----

15:00-16:45

HEDS4: Material Science & Technology

Room 313,314

Chair: H. Yoneda, Utsunomiya Univ., Japan

HEDS4-1 (Plenary) Physics of Material Transformations under Extreme Pressure and Temperature Generated by the Ultra-fast Laser-induced Micro-explosion (Theory and Experiments)

15:00 *E. G. Gamaly, Australian National University, Australia*

HEDS4-2 (Invited) Enhancement of Structural Integrity of Metallic Components by Laser Peening: Mechanism and In-situ Experiments at SACLA

15:40 *Yuji Sano, Toshiba, Japan*

HEDS4-3 Ultashort Electron Source via Laser Wakefield Acceleration and its Transport System for Applications

16:05 *Nobuhiko Nakanii, Osaka University, Japan*

HEDS4-4 Metal Surfaces Nanomodifications Induced by the Single and Multiple Pulse Soft X-ray Laser Beam Irradiations

16:25 *Anatoly Faenov, Russian Academy of Science, Russia*

Thursday, April 25

9:30-10:00

HEDS5: Japanese XFEL 2

Room 313,314

Chair: K. A. Tanaka, Osaka Univ., Japan

HEDS5-1 (Special Talk) Current Status and Future Challenges of X-ray Free Electron Laser

9:30 *Makina Yabashi, RIKEN, Japan*

10:00-11:25

HEDS6: WDM

Room 313,314

Chair: T. Cowan, Technische Universität Dresden, Germany

HEDS6-1 (Plenary) Understanding Warm and Dense Matter Using Absorption and Scattering

13:30-14:50

HEDS7: Extreme Matter State

Room 313,314

Chair: T. Sekine, Hiroshima Univ., Japan

HEDS7-1 (Plenary) Creating and Probing Solid Density Plasmas with X-ray Free Electron Lasers

13:30 *Justine Wark, Oxford University, United Kingdom*

HEDS7-2 High-Power Laser Generated Dense Matter and Its Applications

14:10 *Michel Koenig, Ecole Polytechnique, France*

----- Break (14:50-15:05) -----

15:05-16:50

HEDS8: Plasma and Quantum Beams

Room 313,314

Chair: N. Yugami, Utsunomiya Univ., Japan

HEDS8-1 (Plenary) Coupling High-power Laser and XFEL in European XFEL Facility

15:05 *Tomas E. Cowan, Institute of Radiation Physics, Technische Universität Dresden, Germany*

HEDS8-2 TBD

15:45 *TBD*

HEDS8-3 Off-axis High-order Harmonics from Relativistic Laser-gas Jet Interaction

16:10 *A. Pirozhkov, JAEA, Japan*

HEDS8-4 Selective TNSA Deuteron Beam Production for Applications

16:30 *Danielle Kelly, Ohio State University, United States*

16:50-17:00

Closing

Room 313,314

Closing Remarks

16:45 *R. Kodama, Conference Chair of HEDS2013 Osaka University, Japan*

International Conference on Laser Applications in Nuclear Engineering LANE'13

Sponsored & Organized by
The Laser Society of Japan
The Atomic Energy Society of Japan
Japan Laser Processing Society

CONFERENCE CHAIR

Hiroshi Horiike (Osaka Univ., Japan)



Hiroshi Horiike
Conference Chair
(Osaka Univ.)

Co-Chairs

Byung Heon Cha (KAERI, Korea)
Paul Hilton (TWI Inc., UK)
Eisuke Minehara (The Wakasa Wan Energy
Research Center, Japan)

STEERING AND PROGRAMM COMMITTEE

Chair

Hiroyuki Daido (Japan Atomic Energy Agency)

Co-Vice Chairs

Takashi Fujii (Central Research Institute of Electric
Power Industry)
Yasukazu Izawa (Institute for Laser Technology)

Members

Koichi Amaya (Matsuura Machinery Corp.)
Yoshihiro Deguchi (Tokushima Univ.)
Masayuki Fujita (Institute for Laser Technology)
Yasuyuki Fujiya (Mitsubishi Heavy Industries, Ltd.)
Kakeshi Fukuda (Osaka Univ.)
Manabu Heya (Osaka Sangyo Univ.)
Tadashi Kanabe (Fukui Univ.)
Junji Kawanaka (Osaka Univ.)
Toshiyuki Kawashima (Hamamatsu Photonics)
Hitoshi Nakano (Kinki Univ.)
Akihiko Nishimura (Japan Atomic Energy Agency)
Hiroaki Nishimura (Osaka Univ.)
Hideaki Sakai (Sugino Machine, Ltd.)
Katsunori Shiihara (Toshiba Corp.)
Akihiko Tsuboi (Laserx Co., Ltd.)
Mitsuru Uesaka (Univ. of Tokyo)
Ikuo Wakaida (Japan Atomic Energy Agency)

SECRETARIAT

Sachiko Suzuki (Osaka Univ.)
Hiroaki Furuse (Institute for Laser Technology)

Tuesday, April 23

9:30-10:00

Opening Remarks of OPIC'13

Room 301,302

10:00-11:55

Keynote Lectures of OPIC'13

Room 301,302

(See ALPS'13)

----- Lunch Break (11:55-13:20) -----

13:20-15:20

Joint Plenary Sessions of OPIC'13

Room 301,302,303

(See ALPS'13)

----- Break (15:20-15:45) -----

15:45-15:55

Opening

Room 416, 417

Opening Remarks

15:45 *H. Horiike, Conference Chair of LANE'13
Osaka University, Japan*

15:55-17:55

LANE1 : Decommissioning and Pressing

Room 416, 417

Chair: *H. Daido, Japan Atomic Energy Agency, Japan*

LANE1-1 (Invited) **The Potential of Laser Cutting in Aspects of Nuclear Decommissioning**

15:55 *P. Hilton and A. Khan
TWI Ltd., United Kingdom*

LANE1-2 (Invited) **Thermohydraulic Characteristics of Laser Cutting Processes for Decommissioning**

16:25 *T. Yamada
Japan Atomic Energy Agency, Japan*

LANE1-3 (Invited) **LaserSnake – Snake-arm robots for laser cutting in confined spaces**

16:55 *R. Backingham¹⁾, P. Hilton²⁾, and A. Khan²⁾
¹⁾ OC Robotics, United Kingdom, ²⁾ TWI Ltd., United Kingdom*

LANE1-4 (Invited) **Evolving Laser Processing Field for Nuclear Engineering in JAEA**

17:25 *A. Nishimura, H. Daido, and A. Sugiyama
Japan Atomic Energy Agency, Japan*

18:30- 20:30

Conference Reception

Room 501,502

Wednesday, April 24

9:00-10:30

LANE2 : Laser Spectroscopy (LIBS) 1

Room 416, 417

Chair: *T. Iguchi, Nagoya University, Japan*

LANE2-1 (Invited) **The Analysis and Spectral Assignments of Mixed Actinide Oxide Samples Using Laser-Induced Breakdown Spectroscopy (LIBS)**

9:00 *J.E. Barefield II, E.J. Judge, J.M. Berg, S.P. Willson, L.A. Le, and L.N. Lopez
Los Alamos National Laboratory, USA*

LANE2-2 (Invited) **Quantitative analysis and chemical speciation of uranium using laser spectroscopic methods**

9:30 *E.C. Jung, H.-R. Cho, and W. Cha
Korea Atomic Energy Research Institute, Korea*

LANE2-3 **High sensitive detection of elements in liquid samples by laser-induced breakdown spectroscopy with a liquid jet - Laser remote analysis for next generation nuclear fuel -**

10:00 *H. Ohba¹⁾, M. Toshimitsu¹⁾, M. Saeaki¹⁾, I. Wakaida¹⁾, R. Tanabe²⁾, and Y. Ito²⁾
¹⁾ Japan Atomic Energy Agency, Japan,
²⁾ Nagaoka University of Technology, Japan*

LANE2-4 **Development of In-vessel Inspection Technology Using Remote Imaging and Spectroscopy**

10:15 *C. Ito, H. Naito, K. Chatani, A. Nishimura, A. Sugiyama, H. Ohba, and I. Wakaida
Japan Atomic Energy Agency, Japan*

----- Break (10:30-10:45) -----

10:45-12:15

LANE3 : Laser Processing

Room 416, 417

Chair: *P. Hilton, TWI Ltd., United Kingdom*

LANE3-1 (Invited) **Recent activities on laser peening and applications in nuclear industry**

10:45 *Y. Sano
Toshiba Corporation, Japan*

LANE3-2 (Invited) **Visualization and understanding of melt ejection dynamics during laser fusion cutting**

11:15 *K. Hirano¹⁾ and R. Fabbro²⁾
¹⁾ Nippon Steel & Sumitomo Metal Corporation, Japan, ²⁾ CNRS-Arts et Metiers ParisTech., France*

LANE3-3 (Invited) **Developmental Works of Laser Cleaners for Nuclear Facility Decontamination -Applicability of Robot-Assisted Laser Decontamination Devices at the 1st Power Reactor of the TEPCO Fukushima 1st Nuclear Power Plant-**

11:45 *E.J. Minehara, K. Tamura, R. Yamagishi, and M. Murakami
The Wakasa Wan Energy Research Center, Japan*

LANE3-4 **Cut processing using short pulsed lasers for decommissioning**

12:00 *S. Yoshihashi, N. Miyata, T. Kumakura, E. Hoashi and H. Horiike
Osaka University, Japan*

----- Lunch Break (12:15-13:30) -----

13:30-15:00

LANE4 : Laser Isotope Separation and RIMS 1

Room 416, 417

Chair: *C. Lim, Korea Atomic Energy Research Institute, Korea*

LANE4-1 (Invited) **Nuclear Proliferation Risk of Laser Technologies - Laser Isotope Separation for Uranium Enrichment-**

13:30 *M. Suzuki and I. Wakaida
Japan Atomic Energy Agency, Japan*

LANE4-2 (Invited) **Laser isotope separation for nuclear engineering and neutrino physics**

14:00 *H. Niki
University of Fukui, Japan*

LANE4-3 **Molecular laser isotope separation without tunable lasers - Isotope-selective ionization utilizing molecular alignment and angular**

dependent ionization -
14:30 H. Akagi ¹⁾, T. Kakajima ¹⁾, T. Kumada ¹⁾, R. Itakura ¹⁾, A. Yokoyama ¹⁾, H. Hasegawa ²⁾, and Y. Ohshima ³⁾
¹⁾ Japan Atomic Energy Agency, Japan, ²⁾ The University of Tokyo, Japan, ³⁾ Institute for Molecular Science, Japan

LANE4-4 Transition Probability of the 4s5p¹P₁-4s²1S₀ transition of the calcium atom
14:45 K.-H. Ko, T.S. Kim, L. Lee, H. Park, G. Lim, J. Han, Y.-H. Kim, and D.-Y. Jeong
Korea Atomic Energy Research Institute, Korea

----- Break (15:00-15:15) -----

15:15-17:00

LANE5 : Lasers and γ rays

Room 416, 417

Chair: T. Fukuda, Osaka Univ., Japan

LANE5-1 (Invited) Advanced high power lasers of KAERI for nuclear engineering

15:15 C. Lim ¹⁾, S.-K. Hong ¹⁾, S.-M. Nam ¹⁾, S.-Y. Oh ¹⁾, J.-M. Han ¹⁾, H.-J. Kim ¹⁾, Y.-H. Cha ¹⁾, H.-M. Park ¹⁾, D.-Y. Jeong ¹⁾, B.-H. Cha ¹⁾, M. Nakatsuka ²⁾, H. Yoshida ²⁾, H. Fujita ²⁾, and N. Miyanaga ²⁾
¹⁾ Korea Atomic Energy Research Institute, Korea, ²⁾ Osaka Univ., Japan

LANE5-2 (Invited) Application of laser Compton scattered gamma-rays to nondestructive measurement of nuclear material

15:45 R. Hajima
Japan Atomic Energy Agency, Japan

LANE5-3 (Invited) Laser Compton Scattering Gamma-ray Source and Nuclear Applications - Photo Nuclear Reaction and Transmutation -

16:15 S. Miyamoto
University of Hyogo, Japan

LANE5-4 Laser-driven dielectric accelerator for radiobiology - Optimization of electron source and dimensions -

16:45 K. Koyama ¹⁾, Y. Matsumura ¹⁾, M. Uesaka ¹⁾, A. Aimidula ²⁾, C.P. Welsch ²⁾, M. Yoshida ³⁾, and T. Natsui ³⁾
¹⁾ The University of Tokyo, Japan, ²⁾ Cockcroft Institute and the University of Liverpool, UK, ³⁾ High Energy Accelerator Organization, Japan

Thursday, April 25

9:00-10:30

LANE6 : Laser Spectroscopy (LIBS) 2

Room 416, 417

Chair: E.C. Jung, Korea Atomic Energy Research Institute, Korea

LANE6-1 (Invited) Development of laser based remote analysis for next generation nuclear fuel - Background and summary of recent results

9:00 I. Wakaida, K. Akaoka, M. Miyabe, M. Tampo, H. Ohoba, M. Oba, Y. Maruyama, H. Otake, and M. Kato
Japan Atomic Energy Agency, Japan

LANE6-2 (Invited) The path of LIBS instrumentation: past, present and future

9:30 M. Sabsabi, F. Doucet, P. Bouchard, A. Moreau, L.-C. Ozcan, and A. Harhira
National Research Council Canada, Canada

LANE6-3 Standoff detection of cesium aerosol by LIBS using a ns-pulsed laser

10:00 J. Izawa ¹⁾, T. Kurata ¹⁾, T. Yokozawa ²⁾, S. Eto ³⁾, and T. Fujii ³⁾
¹⁾ IHI Corporation, Japan, ²⁾ INC Engineering Co., Ltd., Japan, ³⁾ Central Research Institute of Electric Power Industry, Japan

LANE6-4 Application of remote LIBS deployment for safeguards of nuclear materials within a hot cell environment

10:15 B.-Y. Han ¹⁾, H.-S. Shin ¹⁾, H.-D. Kim ¹⁾, Y.-S. Kim ¹⁾, Y. Lee ²⁾, and A.I. Whitehouse ³⁾
¹⁾ Korea Atomic Energy Research Institute, Korea, ²⁾ Mokpo National University, Korea, ³⁾ Applied Photonics Ltd., UK

----- Break (10:30-10:45) -----

10:45-12:15

LANE7 : Laser Isotope Separation and RIMS 2

Room 416, 417

Chair: Y. Deguchi, The University of Tokushima, Japan

LANE7-1 (Invited) Ultra trace determination of actinides and other radioactive isotopes by Resonance Ionization Mass Spectrometry

10:45 K. Wendt, G. Passler, and N. Trautmann
Johannes Gutenberg-University Mainz, Germany

LANE7-2 (Invited) Trace Analysis of Nb-93m by Resonance Ionization Mass Spectrometry in Gas Jet toward Neutron Dosimetry

11:15 T. Iguchi
Nagoya University, Japan

LANE7-3 Negative Iodine Ion Source by Laser Ablation for ¹²⁹I Accelerator Mass Spectrometry

11:45 H. Tomita ¹⁾, M. Nakayama ¹⁾, T. Takahashi ¹⁾, T. Iguchi ¹⁾, and K. Wendt ²⁾
¹⁾ Nagoya University, Japan, ²⁾ Johannes Gutenberg University Mainz, Germany

LANE7-4 Development of Novel Apparatus for Isotope Analysis with Ion Trap and Laser Cooling Spectrometry

12:00 S. Hasegawa, M. Kitaoka, K. Jung, and Y. Yamamoto
The University of Tokyo, Japan

----- Lunch Break & Poster Session (12:15-15:15) -----

13:00-15:00

LANE8 : Poster Session

Exhibition Hall D

- LANEp8-1 The Study on Application of Laser Technology for the Reactor Core Dismantling**
H. Iwai, Y. Nakamura, and K. Sano
Japan Atomic Energy Agency, Japan
- LANEp8-2 Development of laser cladding device in limited space for wall thinning**
T. Terada and A. Nishimura
Japan Atomic Energy Agency, Japan
- LANEp8-3 Effects of laser peening parameters on plastic deformation of carbon steels which controlled crystal grain**
M. Tsuyama ¹⁾, K. Mizuta ¹⁾, Y. Miyamoto ¹⁾, H. Nakano ¹⁾, T. Shibayanagi ²⁾, and M. Tsukamoto ³⁾
¹⁾ Kinki University, Japan, ²⁾ Toyama University, Japan, ³⁾ Osaka University, Japan
- LANEp8-4 Measurement of chlorine concentration in salt attached on stainless-steel by laser-induced breakdown spectroscopy in collinear geometry**
S. Eto, T. Fujii, and K. Shirai
Central Research Institute of Electric Power Industry, Japan
- LANEp8-5 Development of remote laser-induced breakdown spectroscopy for samples submerged in water**
M. Toshimitsu ¹⁾, M. Saeki ¹⁾, H. Ohba ¹⁾, B. Thornton ²⁾, and T. Sakka ³⁾
¹⁾ Japan Atomic Energy Agency, Japan, ²⁾ The University of Tokyo, Japan, ³⁾ Kyoto University, Japan
- LANEp8-6 Measurement of isotopic samples using laser breakdown time-of-flight mass spectrometry**
Z.Z. Wang ¹⁾, Y. Deguchi ¹⁾, J.J. Yan ²⁾, and J.P. Liu ²⁾
¹⁾ The University of Tokushima, Japan, ²⁾ Xian Jiaotong University, China
- LANEp8-7 Determination of calibration curve for the neodymium contained as impurities in uranium by laser induced breakdown spectroscopy - Laser remote analysis for next generation nuclear fuel -**
K. Akaoka, Y. Maruyama, M. Oba, M. Miyabe, H. Otake, and I. Wakaida
Japan Atomic Energy Agency, Japan
- LANEp8-8 Intensity Enhancement of Microwave Assisted Laser Break Down Spectroscopy – Laser remote analysis for next generation nuclear fuel –**
M. Tampo, K. Akaoka, H. Ohba, M. Oba, Y. Maruyama, M. Miyabe, and I. Wakaida
Japan Atomic Energy Agency, Japan
- LANEp8-9 Plume dynamics by absorption and fluorescence spectroscopy for laser remote isotope analysis - Laser remote analysis for next generation nuclear fuel -**
M. Miyabe, M. Oba, H. Iimura, K. Akaoka, Y. Maruyama, H. Ohba, M. Tampo and I. Wakaida
Japan Atomic Energy Agency, Japan
- LANEp8-10 Studies on accurate and precise identification of the failed fuel assembly using resonance ionization mass spectrometry**
Y. Iwata ¹⁾, C. Ito ¹⁾, and H. Harano ²⁾
¹⁾ Japan Atomic Energy Agency, Japan, ²⁾ National Institute of Advanced Industrial Science and Technology, Japan
- LANEp8-11 Study on Environmental Particle Analysis Containing Nuclear Materials by Resonance Ionization Mass Spectrometry**
T. Noto ¹⁾, H. Tomita ¹⁾, J. Kawarabayashi ¹⁾, T. Iguchi ¹⁾, T. Shimoyama ¹⁾, and K. Wendt ²⁾
¹⁾ Nagoya University, Japan, ²⁾ Johannes Gutenberg University Mainz, Germany
- LANEp8-12 Development of an inspection probing system for the case of reactor melt down accident**
F. Ito, A. Nishimura, K. Tomiyoshi, C. Ito, and A. Sugiyama
Japan Atomic Energy Agency, Japan
- LANEp8-13 Heat resistant fiber Bragg grating sensor by femtosecond laser processing – Fine processing in optical fiber and fabric reinforcement -**
Y. Shimada ¹⁾, A. Nishimura ¹⁾, and H. Suzuki ²⁾
¹⁾ Japan Atomic Energy Agency, Japan, ²⁾ KUMAGAI-GUMI Co., Ltd, Japan
- LANEp8-14 Installation of a heat resistant fiber Bragg grating sensor - Investigation of adhesive rigid strength by tensile strength machine -**
H. Suzuki ¹⁾, A. Nishimura ²⁾, and Y. Shimada ²⁾
¹⁾ KUMAGAI-GUMI, Japan, ²⁾ Japan Atomic Energy Agency, Japan
- LANEp8-15 Observation of Resonance Photoionized Calcium Ions in RF Ion Trap**
Y. Yamamoto, M. Kitaoka, K. Jung, and S. Hasegawa
The University of Tokyo, Japan
- LANEp8-16 Digital Fringe Offset Control System to Laser Isotope Analysis of Calcium Ions**
K. Jung, M. Kitaoka, Y. Yamamoto, and S. Hasegawa
The University of Tokyo, Japan
- LANEp8-17 New diagnostic methods for enhanced thermal transport flows mixed with nanometer particles under the aim of nuclear power plant safety inspection**
K. Kasuya ¹⁾, S. Taniguchi ¹⁾, Y. Izawa ²⁾, and T. Norimatsu ²⁾
¹⁾ Institute for Laser Technology, Japan, ²⁾ Osaka University, Japan
- LANEp8-18 Study on Separation of Platinum-group Metals by Using Laser-induced Particle Formation**
M. Saeki, M. Toshimitsu, and H. Ohba
Japan Atomic Energy Agency, Japan
- LANEp8-19 Development of cesium isotope separation based on the laser photochemical reaction with a self-injection-seeded Ti:sapphire laser**
K. Tamura ¹⁾, E. Minehara ¹⁾, and K. Yokoyama ²⁾
¹⁾ The Wakasa Wan Energy Research Center, Japan, ²⁾ Japan Atomic Energy Agency, Japan
- LANEp8-20 High-power pulsed fiber lasers for calcium isotope separation**
Y.-H. Cha, Y. Kim, G. Lim, K.-H. Lee, H. Park, K.-H. Ko, T.S. Kim, L. Lee, and D.-Y. Jeong
Korea Atomic Energy Research Institute, Korea
- LANEp8-21 Development of Injection Locked Ti:Sapphire Laser System for Trace Isotope Analysis**
Y. Adachi ¹⁾, Y. Furuta ¹⁾, H. Tomita ¹⁾,

T. Takatsuka ¹⁾, C. Sakamoto ¹⁾, T. Noto ¹⁾,
T. Iguch ¹⁾, and K. Wendt ²⁾

¹⁾ Nagoya University, Japan, ²⁾ Johannes
Gutenberg University Mainz, Germany

**LANEp8-22 Dispose of nuclear waste with Laser-Compton
scattering gamma ray**

D. Li ¹⁾, K. Imasaki ¹⁾, Y. Izawa ¹⁾, S. Miyamoto ²⁾,
K. Horikawa ²⁾, and T. Mochizuki ²⁾

¹⁾ Institute for Laser Technology, Japan,

²⁾ University of Hyogo, Japan

**LANEp8-23 Development of advanced radiation sources at
KAERI-WCI center**

K. Lee ¹⁾, Y.U. Jeong ¹⁾, S.H. Park ¹⁾, K.-H. Jang
¹⁾, S.V. Miginsky ^{1,2)}, B.A. Gudkov ^{1,2)}, Y.H. Cha
¹⁾, J. Mun ^{1,3)}, K.N. Kim ^{1,4)}, H.-N. Kim ¹⁾,
P.K. Pandey ¹⁾, S.-Y. Noh ^{1,5)}, S.J. Park ^{1,5)}, S.
Bae ¹⁾, H. Kim ¹⁾, B.-H. Han ^{1,6)}, G.I. Shim ¹⁾, L.
Gupta ¹⁾, N.A. Vinokurov ^{1,2)}, and J. Kim ⁷⁾

¹⁾ Korea Atomic Energy Research Institute, Korea,

²⁾ Budker Institute of Nuclear Physics, Russia, ³⁾

Chugnam National University, Korea, ⁴⁾ Kongju

National University, Korea, ⁵⁾ Kyungpook

National University, Korea, ⁶⁾ Hannam

University, Korea, ⁷⁾ Korea Electrotechnology
Research Institute, Korea

**LANEp8-24 Effect of Laser Cladding Parameters on Clad
Bead Morphology and Dilution on SUS 304
and Carbon Steel with 309L Wire**

J. S. Kim¹, C.-M. Chung¹, J. W. Choi¹, and H. S.
Cho²

¹⁾ Korea Atomic Energy Research Institute, Korea,

²⁾ KEPCO Plant Service & Engineering Co., Ltd.,
Korea

15:15-16:45

LANE9 : Laser Sensing

Room 416, 417

Chair: I. Wakaida, Japan Atomic Energy Agency, Japan

**LANE9-1 (Invited) Laser based instrumentation for
IAEA safeguards verifications**

15:15 A. Lebrun

International Atomic Energy Agency, Austria

**LANE9-2 Laser-based sensor for detection of coolant
leakage in a nuclear power plant**

15:45 H. Park, L. Lee, T.S. Kim, K.-H. Ko, D.-Y. Jeong

Korea Atomic Energy Research Institute, Korea

**LANE9-3 Transmission property of Sodium in the
Vacuum Ultra-violet range and its applications**

16:00 H. Daido ¹⁾, Y. Suzuki ¹⁾, T. Kawachi
¹⁾, T. Fukuda ²⁾, T. Nakagiri ¹⁾, M. Kaku ³⁾, and
S. Kubodera ³⁾

¹⁾ Japan Atomic Energy Agency, Japan, ²⁾ Osaka

University, Japan, ³⁾ Miyazaki University, Japan

**LANE9-4 Application of laser diagnostics to
sodium-water chemical reaction field**

16:15 Y. Deguchi ¹⁾, K. Kusano ¹⁾, K. Tamura ¹⁾,
R. Muranaka ¹⁾, S. Kikuchi ²⁾, and A. Kurihara ²⁾

¹⁾ The University of Tokushima, Japan, ²⁾ Japan

Atomic Energy Agency, Japan

**LANE9-5 Development of Plasma Source Sustained by
Semiconductor Microwaves**

16:30 Y. Ikeda and A. Moon

16:45-16:55

Closing

Room 416, 417

Closing Remarks

16:45 E. Minehara, Conference Co-Chair of LANE' 13
The Wakasa Wan Energy Research Center, Japan

Conference on Laser and Accelerator Neutron Sources and Applications LANSA'13

Tuesday, April 23

Organized by

- The Institute of Laser Engineering, Osaka University

Co-organized by

- The IFE Forum (IFE: Inertial Fusion Energy)
- The Laser Society of Japan
- The Atomic Energy Society of Japan

In cooperation with

- The Japan Society of Plasma Science and Nuclear Fusion Research



Hiroshi Azechi
Conference Chair,
Institute of Laser Engineering, Osaka Univ.

Tuesday, April 23

9:30-10:00

Opening Remarks of OPIC'13

Room 301,302

10:00-11:55

Keynote Lectures of OPIC'13

Room 301,302

---- Lunch Break (11:55-13:20) ----

13:20-15:20

Joint Plenary Sessions of OPIC'13

Room 301,302,303

---- Break (15:20-15:40) ----

15:40-15:45

Opening LANSA'13

Room 413

Opening Remarks

- 15:40 H. Azechi, Institute of Laser Engineering, Osaka University, Osaka, Japan

15:45-18:00

LANSA1 : LANSA Plenary

Room 413

Chair: H. Nishimura, Institute of Laser Engineering, Osaka University, Osaka, Japan

LANSA1-1 (Plenary) Progress towards ignition on the US National Ignition Facility

15:45 M. Dunne

National Ignition facility, Lawrence Livermore National Laboratory, California, U.S.A.

LANSA1-2 (Plenary) RANS present status and future planning for industrial use and transportable compact neutron source

16:30 Y. Otake, A. Taketani, RIKEN, Wako, Japan

LANSA1-3 (Plenary) Basic experiments on accelerator driven subcritical system for transmutation of minor actinide and for innovative neutron source

17:15 M. Misawa, C. Pyeon, T. Yagi, Kyoto university, Kyoto, Japan

----Conference Reception (18:30-20:30)-----

Wednesday, April 24

9:00-12:30

LANSA2: Neutron sources

Room 413

Chair: M. Roth, Institut für Kernphysik Technische Universität, Darmstadt, Germany

LANSA2-1 (Invited) Low energy neutron measurements for ignition and capture cross section studies at the National Ignition Facility

9:00 L.A. Bernstein¹⁾, D.L. Bleuel¹⁾, J.A. Caggiano¹⁾, C. Cerjan¹⁾, R. J. Fortner¹⁾, C. Hagmann¹⁾, R. Hatarik¹⁾, D. Sayre¹⁾, D.H.G.Schneider¹⁾, W. Stoeffl¹⁾, D. Shaughnessy¹⁾, K.J. Moody¹⁾, J. Gostic¹⁾, P.M. Grant¹⁾, C.B. Yeaman¹⁾, N.P. Zaitseva¹⁾, J.A. Brown²⁾, N.M. Brickner²⁾, B.H. Daub²⁾, P.F. Davis²⁾, B.L. Goldblum¹⁾, K.A. Van Bibber²⁾, J. Vujic²⁾, R.B. Firestone³⁾, A.M. Hurst³⁾, A.M. Rogers³⁾

¹⁾Lawrence Livermore National Laboratory, California, U. S. A

²⁾University of California, Berkeley Dept. of Nuclear Engineering, U. S. A.

³⁾Lawrence Berkeley National Laboratory, U. S. A

LANSA2-2 Fast ignition scheme fusion using high-repetition-rate laser

9:45 Y. Kitagawa¹⁾, Y. Mori¹⁾, O. Komeda¹⁾, R. Hanayama¹⁾, K. Ishii¹⁾, S.Nakayama¹⁾, T. Sekine²⁾, N. Sato²⁾, T.Kurita²⁾, T. Kawashima²⁾, H. Kan²⁾, N. Nakamura³⁾, T. Kondo³⁾, M. Fujine³⁾, H. Azuma⁴⁾, T. Motohiro⁴⁾, T. Hioki⁴⁾, M. Kakeno⁴⁾, Y. Nishimura⁵⁾, A. Sunahara⁶⁾, Y. Sentoku⁷⁾, E. Miura⁸⁾, Y. Arikawa⁹⁾, T. Nagai⁹⁾, Y. Abe⁹⁾

¹⁾The Graduate School for the Creation of New Photonics Industries,

²⁾Development Bureau, Hamamatsu Photonics

K.K.

³⁾Advanced Material Engineering Div.,

TOYOTA Motor Corporation,

⁴⁾TOYOTA Central Research and Development Laboratories, Inc.,

⁵⁾Toyota Technical Development Corp.,

⁶⁾Institute for Laser Technology,

⁷⁾Department of Physics, University of Nevada,

⁸⁾National Institute of Advanced Industrial Science and Technology,

⁹⁾Institute of laser Engineering, Osaka University,

LANSa2-3 The advanced neutron diagnostics in the fast ignition experiment by using GEKKO XII and LFEX

10:15

Y. Arikawa¹⁾, T. Nagai¹⁾, Y. Abe¹⁾, S. Kojima¹⁾, S. Sakata¹⁾, H. Inoue¹⁾, T. Murata²⁾, N. Sarukura¹⁾, M. Nakai¹⁾, H. Shiraga¹⁾, H. Azechi¹⁾

¹⁾Institute of Laser Engineering, Osaka University,

²⁾Kumamoto Univ. Japan

----- Break (10:45-11:00) -----

Chair: L.A. Bernstein, Lawrence Livermore National Laboratory, U. S. A.

LANSa2-4 (Invited) A bright neutron source driven by short pulse lasers

11:00

M. Roth,
Institut für Kernphysik Technische Universität
Darmstadt, Germany,

LANSa2-5 High-Energy Neutron Source Generation Using the Omega EP Laser

11:45

D.P. Higginson^{1,2)}, J.M. McNaney²⁾,
V. Yu Glebov³⁾, G.M. Petrov⁴⁾, B. Qiao¹⁾,
C. Stoeckl³⁾, D.C. Swift²⁾, D.L. Bleuel²⁾,
J. Cobble⁵⁾, J. Davis⁴⁾, J.A. Frenje⁶⁾,
P.K. Patel²⁾, G. Tynan¹⁾, and F.N. Beg¹⁾

¹⁾University of California-San Diego, U. S. A.

²⁾Lawrence Livermore National Laboratory,
U. S. A.

³⁾Laboratory for Laser Energetics, University
of Rochester, Rochester, U. S. A

⁴⁾Naval Research Laboratory, Washington,

⁵⁾Los Alamos National Laboratory,

⁶⁾Massachusetts Institute of Technology,

----- Lunch Break (12:30-13:30) -----

13:30-15:00

LANSa3: Poster Session

Exhibition Hall D

LANSa3-1 The development of the neutron detector for the fast ignition experiment by using LFEX and GEKKO XII facility

T. Nagai, M. Nakai, Y. Arikawa, Y. Abe,
S. Kojima, S. Sakata, H. Inoue, S. Fujioka,
H. Shiraga, N. Sarukura, T. Norimatsu, and
H. Azechi,

Institute of Laser Engineering, Osaka
University, Osaka, Japan

LANSa3-2 Development of multichannel TOF neutron spectrometer for the fast ignition experiment

Y. Abe, H. Hosoda, Y. Arikawa, T. Nagai,

S. Kojima, S. Sakata, H. Inoue, Y. Iwasa,

K. Iwano, M. Nakai, T. Norimatsu, and

H. Azechi

Institute of Laser Engineering, Osaka
University, Osaka, Japan

LANSa3-3 The neutron imaging diagnostics and unfolding technique for fast ignition experiment

H. Inoue¹⁾, Y. Arikawa¹⁾, S. Nozaki²⁾, S. Fujioka¹⁾,
T. Nagai¹⁾, S. Kojima¹⁾, Y. Abe¹⁾, S. Sakata¹⁾,

M. Nakai¹⁾, H. Shiraga¹⁾, and H. Azechi¹⁾,

¹⁾Institute of Laser Engineering, Osaka

²⁾Okinawa National College of Technology

LANSa3-4 Generation of directed energetic neutron beams using short pulse lasers

G. M. Petrov¹⁾, D. P. Higginson²⁾, J. Davis¹⁾,
Tz. B. Petrova¹⁾, C. McGuffey²⁾, B. Qiao²⁾,

and F. N. Beg²⁾

¹⁾Naval Research Laboratory, Plasma Physics
Division, U.S.A.

²⁾Mechanical and Aerospace Engineering,

University of California-San Diego, U.S.A.

LANSa3-5 Simplified neutron detector for angular distribution measurement of p-Li neutron source

M. Sakai, S. Tamaki, I. Murata

Graduate School of Engineering,

Osaka University, Osaka, Japan

LANSa3-6 Development of Compton X-ray spectrometer for the fast ignition experiment

S. Kojima¹⁾, Y. Arikawa¹⁾, T. Nagai¹⁾, Y. Abe¹⁾,
S. Sakata¹⁾, H. Inoue¹⁾, T. Namimoto¹⁾,

M. Nakai¹⁾, H. Shiraga¹⁾, H. Azechi¹⁾,

M. Asakawa²⁾, T. Ozaki³⁾, R. Kato⁴⁾

¹⁾Institute of Laser Engineering, Osaka

University, Osaka, Japan

²⁾Kansai University, Osaka, Japan

³⁾National Institute for Fusion Science, Japan

⁴⁾The Institute of Science and Industrial

Research, Osaka University, Osaka, Japan

LANSa3-7 Development of the high energy bremsstrahlung X-ray spectrometer by using (γ, n) reaction

S. Sakata¹⁾, Y. Arikawa¹⁾, S. Kojima¹⁾, Y. Abe¹⁾,
T. Nagai¹⁾, H. Inoue¹⁾, R. Kato²⁾, M. Nakai¹⁾,

H. Shiraga¹⁾, H. Azechi¹⁾

¹⁾Institute of Laser Engineering, Osaka

University, Osaka, Japan

²⁾Institute of Science and Industrial Research,

Osaka University, Osaka, Japan

LANSa3-8 Study on nuclear transmutation of nuclear waste by 14MeV neutrons

T. Kitada, A. Umemura, K. Takahashi

Osaka University, Graduate School of

Engineering, Division of Sustainable Energy

and Environmental Engineering, Osaka, Japan

LANSa3-9 Method of beam steering with FWM in ICF

-Compensation of PC beam direction and
generation with scattered beam from a foam
target-

N. Kameyama, H. Yoshida,

Gifu University, Gifu, Japan

LANSa3-10 Generation of monoenergetic deuterons by tailored intense laser pulses for high fluence energetic neutron production

S. M. Weng¹⁾, M. Murakami¹⁾, J. W. Wang^{1,4)},

M. Chen²⁾, Z. M. Sheng²⁾, N. Tasoko¹⁾,
P. Mulser³⁾, W. Yu⁴⁾

¹⁾Institute of Laser Engineering, Osaka
University, Osaka, Japan

²⁾Key Laboratory for Laser Plasmas and
Department of Physics, Shanghai
Jiaotong University, China

³⁾Theoretical Quantum Electronics (TQE),
Technische Universität Darmstadt, German,

⁴⁾Shanghai Institute of Optics and Fine
Mechanics, Chinese Academy of Sciences,
China

LANSAp3-11 The ESS-BILBAO Project

F. Sordo, The ESS-BILBAO Team
Edificio Cosimet Paseo Landabbarri n° 2,
1ª Planta. Leioa, Spain

----- Break (15:00-15:15) -----

15:15-17:00

LANSA4: Applications

Room 413

Chair: M. Murakami, Institute of Laser Engineering,
Osaka University

**LANSA4-1 (Invited) Studies on accelerator-driven
system in JAEA**

15:15 Toshinobu Sasa and Hiroyuki Oigawa
J-PARC Center, Japan Atomic Energy Agency,
Japan

**LANSA4-2 Nuclear reaction analysis of the Li-ion
battery electrodes by proton and neutron
beams**

16:00 K.Mima¹⁾, Raquel Gonzalez Arrabal²⁾, K.Fujita¹⁾,
Miguel Panizo Lai²⁾, Y.Orikasa³⁾, Y.Uchimoto³⁾,
A.Yamazaki⁴⁾, T.Kamiya⁴⁾, H.Sawada⁵⁾,
C.Okuda⁵⁾, Y.Ukyo⁵⁾, S.Nakai¹⁾, S.Sakabe⁶⁾,
H.Nishimura⁷⁾, T.Saito⁸⁾, T.Yanagawa⁹⁾,
H.Sakagami⁹⁾, J. Manuel Perlado²⁾ and Y.Kato¹⁾
¹⁾The Graduate School for the Creation of New
Photonics Industries

²⁾Institute of Fusion Nuclear, UPM

³⁾Graduate School of Human and
Environmental Studies, Kyoto University

⁴⁾Takasaki Advanced Radiation Research
Institute, Japan Atomic Energy Agency

⁵⁾Toyota Central R&D Labs.,

⁶⁾Institute for Chemistry, Kyoto University

⁷⁾Institute of Laser Engineering, Osaka
University

⁸⁾Battery Research Div., Toyota Motor

⁹⁾National Institute of Fusion Science, Japan

**LANSA4-3 Development of high-average-power
short-pulse laser system for the
isotope-specific nondestructive assay using
laser-Compton γ -rays**

16:15 M. Mori, A. Kosuge, H. Okada, H. Kiriya,
Y. Ochi, M. Tanaka, and K. Nagashima,
Advanced laser development group,
Quantum Beam Science Directorate, Japan
Atomic Energy Agency, Kizu, Japan

Thursday, April 25

9:00-12:15

LANSA5: Neutron sources

Room 413

Chair: I. Murata, Osaka University, Osaka, Japan,
**LANSA5-1 (Invited) A planning effort for severe fusion
neutron source generation in Korea and
fusion-fission hybrid transmutation reactor
R&D**

9:00 Jung-Hoon Han¹⁾, G.S. Lee²⁾, Y.S. Hwang¹⁾,
B.G. Hong³⁾, Yong-Su Na¹⁾, Han-Gyu Joo¹⁾,
Hyung-Jin Shim¹⁾, and K-DEMO team

¹⁾CARFRE, Seoul National University, 599

Gwanak-ro, Gwanak-gu, Seoul, Korea, tel.

²⁾National Fusion Research Institute, Korea,

³⁾Jeon-Buk National University, Korea,

**LANSA5-2 Transformation of the beam intensity
distribution and formation of a uniform
ion beam by means of nonlinear focusing**

9:45 Y. Yuri, T. Yuyama, T. Ishizaka, I. Ishibori, and
S. Okumura,

Takasaki Advanced Radiation Research

Institute, Japan Atomic Energy Agency

**LANSA5-3 Generation of high-quality proton beams
with nanotube accelerator**

10:15 M. Murakami¹⁾ M. Tanaka²⁾

¹⁾Institute of Laser Engineering, Osaka

University, Osaka, Japan

²⁾Department of Engineering, Chubu University,

Japan

----- Break (10:15-10:30) -----

Chair: M. Nakai, Institute of Laser Engineering, Osaka
University, Osaka, Japan,

**LANSA5-4 (Invited) Compact accelerator driven
neutron sources and their applications**

10:30 M. Furusaka and H. Sato

Faculty of Engineering, Hokkaido University,

Hokkaido, Japan

**LANSA5-5 Development of X-band 30 MeV Linac
neutron source at decommissioned
experimental reactor "Yayoi" for
Fukushima nuclear accident analysis**

11:15 M. Uesaka¹⁾, K. Dobashi¹⁾, T. Fujiwara¹⁾, K.
Tagi¹⁾, H. Harada²⁾

¹⁾Nuclear Professional School, University of

Tokyo, Tokyo, Japan

²⁾Japan Atomic Energy Agency, Japan

----- Lunch Break (11:45-13:30) -----

13:30-15:45

LANSA 6: Neutron diagnostics

Room 413

Chair: D.P. Higginson, University of
California-San Diego, U.S.A

**LANSA6-1 (Invited) Low-energy neutron spectrometer
for boron neutron capture therapy**

13:30 I. Murata and T. Obata,

Division of Electrical, Electronic and

Information Engineering, Graduate School of

- Engineering, Osaka University, Osaka, Japan,*
- LANSA6-2 A new neutron time-of-flight detector to measure the MeV neutron spectrum at the National Ignition Facility**
- 14:15** *R. Hatarik¹, J. A. Caggiano¹, V. Glebov², J. McNaney¹, C. Stoeckl², and D. H. G. Schneider¹*
- ¹*Lawrence Livermore National Laboratory, California, U. S. A.*
²*Laboratory for Laser Energetics, University of Rochester, U. S. A.*

- LANSA6-3 High-performance neutron imaging with microns scale resolution using LiF crystal detector**
- 14:45** *A. Faenov^{1,2}, M. Matsubayashi³, T. Pikuz^{1,2}, Y. Fukuda¹, M. Kando¹, R. Yasuda³, H. Iikura³, T. Nojima³, T. Sakai³, M. Shiozawa⁴, Y. Kato⁵*
- ¹*Quantum Beam Science Directorate, Japan Atomic Energy Agency, Japan*
²*High Temperatures, Russian Academy of Sciences, Russia,*
³*Quantum Beam Science Directorate, Japan Atomic Energy Agency, Kizu, Japan*
⁴*Nippon SOKEN, Japan*
⁵*The Graduate School for the Creation of New Photonics Industries, Hamamatsu, Japan*

- LANSA6-4 Nuclear emulsion technique for fast neutron measurement using automatic track analysis system**
- 15:15** *H. Tomita¹, H. Minato¹, Y. Sakai¹, K. Morishima², K. Ishihara¹, M. Isobe³, J. Kawarabayashi¹, T. Naka², T. Asada², T. Nakano², M. Nakamura², T. Iguchi¹, K. Ogawa³, K. Ochiai⁴*
- ¹*Graduate School of Engineering, Nagoya University*
²*Graduate School of Science, Nagoya University,*
³*National Institute for Fusion Science,*
⁴*Fusion Research and Development Directorate, Japan Atomic Energy Agency*

----- Break (15:45-16:00) -----

16:00-17:15

LANSA 7: Neutron sources

Room 413

- Chair:** *K. Mima, The Graduate School for the Creation of New Photonics Industries, Hamamatsu, Japan*
- LANSA7-1 Efficient and stable neutron generation by Coulomb explosion of solid nanoparticles using DPSSL-pumped high-repetition-rate 20-TW laser**
- 16:00** *N. Satoh, T. Watari, K. Matsukado, T. Sekine, Y. Takeuchi, Y. Hatano, R. Yoshimura, K. Nishihara, M. Takagi, and T. Kawashima, Hamamatsu Photonics, K. K*
- LANSA7-2 High yield neutron production via laser accelerated deuteron ion beam**
- 16:30** *F. Aymond, D. Kelley, J.T. Morrison, M. Storm, M. McMahon, K.U. Akli, E. Chowdhury, R.L. Daskalova, D. Schumacher, R. R. Freeman, The Ohio State University, SCARLET,*

Laser Facility, U. S. A.

- LANSA7-3 Monte-Carlo simulations for neutron production of laser driven D(d,n) and ⁷Li(d,xn) reactions using MCUNED**
- 17:00** *J. Alvarez¹, P. Sauvan², J. Perlado¹, J. Sanz²*
- ¹*Instituto de Fusión Nuclear, Universidad Politécnica de Madrid, José Gutierrez Abascal, Madrid, Spain*
²*Departamento de Ingeniería Energética, Universidad de Educación a Distancia, Madrid, Spain*

17:30-17:40

Closing Remarks

- 17:30** *K. Mima, The Graduate School for the Creation of New Photonics Industries, Hamamatsu, Japan*

Laser Display Conference'13

LDC'13

Sponsored by

The Japan Society of Applied Physics (JSAP)

Organized by

Laser Display Technology Group (LDT), Optical Society of Japan (OSJ), The Japan Society of Applied Physics (JSAP)

CONFERENCE CHAIR

Kazuo Kuroda (Utsunomiya Univ.)



Kazuo Kuroda
Conference Chair
(Utsunomiya Univ.)

STEERING COMMITTEE

Co-Chairs

Akira Okada (Corning Holding Japan G.K.)

Kazuhisa Yamamoto (Osaka Univ.)

Members

Jun Akedo (National Institute of Advanced Industrial Science and Technology)

Kazuo Fujiura (NTT Advanced Technology Corp.)

Tatsuo Fukui (Oxide Corp.)

Takaaki Ishigure (Keio Univ.)

Shunji Kamijima (Seiko Epson Corp.)

Hideyuki Kanayama (Panasonic Corp.)

Muneharu Kuwata (Mitsubishi Electric Corp.)

Osamu Matoba (Kobe Univ.)

Tomoyuki Miyamoto (Tokyo Inst. Tech.)

Ryuji Morita (Hokkaido Univ.)

Kenji Nagashima (Funai Electric Co., Ltd.)

Takao Nakamura (Sumitomo Electric Industries, Ltd.)

Norihiro Ohse (Sony Corp.)

Satoshi Ouchi (Hitachi Ltd.)

Shin-ichi Shikii (Panasonic Corp.)

Tsutomu Shimura (Univ. of Tokyo)

Shigeru Shinzawa (MicroVision, Inc.)

Tsuyoshi Suzudo (Ricoh Co., Ltd.)

Akihiro Tagaya (Keio Univ.)

Takunori Taira (National Institutes of Natural Sciences)

Chikara Tanioka (Toshiba Corp.)

Masashi Wada (Yamaju Ceramics Co., Ltd.)

PROGRAM COMMITTEE

Co-Chairs

Takashige Omatsu (Chiba Univ.)

Brian Schowengerdt (Univ. of Washington)

Co-Vice Chairs

Tatsuo Ito (Panasonic Corp.)

Sunao Kurimura (National Institute for Materials Science)

Members

Adrian Avramescu (Osram AG)

Vikram Bhatia (Corning Inc.)

Corin Gawith (Covesion Ltd.)

Masafumi Ide (Citizen Holdings Co., Ltd.)

Jae Kwon (LG Electronics)

Hiroshi Murata (Osaka Univ.)

Shing-Chung Wang (National Chiao Tung Univ.)

Mitsuyoshi Watanabe (Brother Industries, Ltd.)

Tetsuya Yagi (Mitsubishi Electric Corp.)

Advisory Members

Yasuhiro Koike (Keio Univ.)

Shigeo Kubota (Oxide Corp.)

Hiroaki Sugiura (Mitsubishi Electric Corp.)

Toshiaki Suhara (Osaka Univ.)

SECRETARIAT

Yuko Tsutsumi (Univ. of Tokyo)

Tuesday, April 23

Room 301,302

9:30-10:00

Opening Remarks of OPIC'13

10:00-11:55

Keynote Lectures of OPIC'13

Room 301,302

(See ALPS'13)

----- Lunch Break (11:55-13:20) -----

13:20-15:20

Joint Plenary Sessions of OPIC'13

Room 301,302,303

(See ALPS'13)

----- Break (15:20-15:45) -----

15:45-18:00

LDC-LIC Joint Session (Laser Display and Laser Ignition)

Room 301,302

Co-Chairs: T. Omatsu, Program Committee Co-Chair of LDC'13, Chiba Univ., Japan,

T. Taira, General Chair of LIC'13, Institute for Molecular Science, Japan

Joint Session Opening Remarks

15:45 T. Omatsu
Chiba Univ., Japan

LDC/LIC1-1 (Plenary) Nonlinear Optics for Displays and Combustion Measurements (Tentative)

15:50 M. Fejer
Stanford Univ., USA

LDC/LIC1-2 (Invited) Ultrafast Thin Disk Lasers and Their Potential for High Power RGB Frequency Generation

16:30 T. Sudmeyer
Univ. de Neuchâtel, Switzerland

LDC/LIC1-3 (Invited) High Repetition Rate MW Peak Power Green Microchip Laser

17:00 R. Bhandari, T. Taira
Institute for Molecular Science, Japan

LDC/LIC1-4 (Invited) Optical MEMS Scanners and Color Filters for Image Display Applications

17:30 H. Toshiyoshi
Univ. Tokyo, Japan

18:30- 20:30

Conference Reception

Room 501,502

Wednesday, April 24

9:00-9:10

Opening Remarks of LDC'13

Room 301

9:00 K. Kuroda, Conference Chair of LDC'13
Utsunomiya Univ., Japan

9:10-10:30

LDC2: Plenary Session

Room 301

Chair: S. C. Wang, Program Committee Member, National Chiao Tung Univ., China

LDC2-1 (Plenary) The Status of High-Brightness Laser Projectors

9:10 P. Janssens
Barco Entertainment Division, Belgium

LDC2-2 (Plenary) Watt-Class AlInGaN Blue and Green Laser Diodes

9:50 S. Nagahama, S. Masui, T. Miyoshi, D. Kasahara,
E. Okahisa, T. Hirao, T. Yanamoto
Nichia Corp., Japan

----- Break (10:30-10:45) -----

10:45-12:15

LDC3: Scanning Display Technology

Room 301

Chair: K. Kuroda, Conference Chair of LDC'13, Utsunomiya Univ., Japan

LDC3-1 (Invited) The World's First-Vehicle Head-up Laser Display

10:45 A. Kurosawa, O. Utsuboya, T. Shimizu
Pioneer Corp., Japan

LDC3-2 (Invited) Scanning Laser Display Based on Biaxial Polysilicon MEMS Mirrors

11:15 U. Hofmann, J. Janes, V. Stenchly, F. Senger, C. Mallas, T. v. Wantoch, W. Benecke
Fraunhofer Institute for Silicon Technology ISIT, Germany

LDC3-3 RGB Laser Pico-Projection System Using a Fiber Bundle Combiner

11:45 S. Fukaya, T. Nozaki, M. Ide
Citizen Holdings Co., Ltd, Japan

LDC3-4 Beam-steering in Hollow ZrO₂/SiO₂ DBR Waveguides for 1D RGB Imaging

12:00 X. Gu, M. Nakahama, F. Koyama
Tokyo Institute of Technology, Japan

----- Lunch Break (12:15-13:30) -----

13:30-15:30

LDC4: Poster Session

Exhibition Hall D

LDCp4-1 Fiber Pigtailed Multi-Color Laser Module for Laser Display Applications Using Si-Platform Technology

M. Ide, K. Yoda, S. Fukaya, T. Komiyama, T. Nozaki

Citizen Holdings Co., Ltd., Japan

LDCp4-2 Low Threshold GaN-based Blue High Contrast Grating Surface-emitting Lasers

T. -T. Wu, S. -H. Wu, T. -C. Lu, S. -C. Wang
National Chiao Tung Univ., Taiwan

LDCp4-3 Light Extraction from Plastic Optical Fibers for Laser Backlight Units

K. Yasu, S. Kojima, I. Fujieda
Ritsumeikan Univ., Japan

LDCp4-4 Effect of Number of Pixels of Rectangular

Shaped 1D SLM for Lensless Electronic Holography

A. Ueno¹, K. Nitta¹, O. Matoba¹, K. Fukue², M. Sasada², K. Ueta²

¹Kobe Univ., Japan, ²Dainippon Screen Mfg. Co., Ltd., Japan

LDCp4-5 Efficient Reduction of Speckle Contrast Ratio in Scanning Laser Projectors

P. -C. Yeh¹, J. -H. Hong¹, Y. -T. Wang¹, Y. -M. Lin¹, J. -H. Lee¹, H. -Y. Lin¹, L. -H. Peng¹, C. -M. Lai², C. -C. Tu³, C. -H. Lin³

¹National Taiwan Univ., Taiwan, ²Ming Chuan Univ., Taiwan, ³Touch Micro-System Technology, Taiwan

LDCp4-6 Verification of Speckle Contrast Measurement Interrelation with Observation Distance

K. Suzuki, T. Fukui, S. Kubota, Y. Furukawa
Oxide Corp., Japan

LDCp4-7 Modification of Multiple Phase Modulations for Electronic Holography

A. Nakagawa, T. Wakizaka, K. Nitta, O. Matoba
Kobe Univ., Japan

LDCp4-8 A Study of Optical Design of Extreme High Contrast Laser Projector with Liquid Crystal Elements

W. -T. Li, Y. -C. Fang
National Kaohsiung First Univ. of Science and Technology, Taiwan

LDCp4-9 Laser-LCOS Projector: Design and Verification

B. Na, L. Bao, W. Wang
East China Normal Univ., China

LDCp4-10 Interactive Projection System that Follows User's View Using Laser Pico-Projector and RGB-D Cameras

J. Imai, S. Takihara
Chiba Institute of Technology, Japan

LDCp4-11 Research on Measuring Luminosity & Chromaticity Performance for Laser Display

W. Wang¹, H. Liu^{1,2}
¹East China Normal Univ., China, ²Shanghai Dianji Univ., China

15:30-17:00

LDC5: High Power Visible Lasers

Room 301

Chair: S. Kurimura, Program Committee Co-Vice Chair of LDC'13, National Institute for Materials Science, Japan

LDC5-1 (Invited) Development of Multi-Watt CW Lasers with Switchable Output Across Green, Yellow and Red Wavelengths

15:30 A. Lee
Macquarie Univ., Australia

LDC5-2 (Invited) Compact Low-Cost Green Lasers for Laser Display Applications

16:00 C. -Q. Xu, J. Sun, Y. Gan
McMaster Univ., Canada

LDC5-3 Continuous-wave Frequency-doubled Planar Waveguide Nd:YVO₄ Laser Operated at 543 nm

16:30 Y. Akino, F. Shoda, H. Fukahori, K. Kuramoto, T.

Yanagisawa, Y. Hirano
Mitsubishi Electric Corp., Japan

LDC5-4 Study on Thermal Lensing Effect for High Power Green SHG Laser

16:45 H. H. Lim¹, S. Kurimura¹, K. Noguchi^{1,2}, W. Nagashima^{1,2}, I. Shoji²

¹National Institute for Materials Science, Japan, ²Chuo Univ., Japan

----- Break (17:00-17:15) -----

17:15-18:45

LDC6: Special Session (Standard for Laser Displays)

Room 301

Chair: P. Janssens, Barco Entertainment Division, Belgium

LDC6-1 (Invited) Wide-Gamut UHDTV System Colorimetry

17:15 K. Masaoka
NHK Science & Technology Research Lab., Japan

LDC6-2 (Invited) Laser Display and Standardization in IEC

17:45 Y. Hisatake
Japan Electronics & Information Technology Industries Association (JEITA), Japan

LDC6-3 (Invited) Safety Aspects of Modern Laser-based Displays

18:15 E. Buckley
Pixtronix Inc., USA

Thursday, April 25

9:00-10:15

LDC7: Speckle Management I

Room 301

Chair: C. -Q. Xu, McMaster Univ., Canada

LDC7-1 (Invited) Standardized Speckle Measurement Method Matched to Human Speckle Perception in Laser Projection Systems

9:00 S. Roelandt¹, Y. Meuret¹, G. Verschaffelt¹, P. Janssens², H. Thienpont¹
¹Vrije Universiteit Brussel, Belgium, ²Barco - Entertainment Division, Belgium

LDC7-2 Speckle Reduction with Multiple Laser Pulses

9:30 F. Shevlin
DYOPTYKA, Ireland

LDC7-3 An Investigation of Speckle Reduction Effect of a Moving Diffuser Sheet in a Laser Backlight System

9:45 K. Sakuma¹, T. Arai², A. Tagaya¹, Y. Koike¹
¹Keio Univ., Japan, ²Enplas Corp., Japan

LDC7-4 Speckle Contrast Measurement of Spectrum-Broaden Laser Beam from Semiconductor Laser with Direct Modulation at Microwave Frequency

10:00 H. Murata, K. Shibasaki, K. Yamamoto, Y.

Okamura
Osaka Univ., Japan

Shimada, K. Kadoiwa, T. Yagi
Mitsubishi Electric Corp., Japan

----- Break (10:15-10:30) -----

----- Break (14:30-14:45) -----

10:30-11:45

LDC8: Speckle Management 2

Room 301

Chair: H. Murata, Program Committee Member of LDC'13,
Osaka Univ., Japan

LDC8-1 (Invited) Evaluation of Speckle Contrast with Holographic Illumination System

10:30 M. Kurashige, K. Ishida, O. Iwata, K. Nakatsugawa, Y. Ohyagi, M. Watanabe
Dai Nippon Printing Co., Ltd., Japan

LDC8-2 Nonuniform intensity Distribution of the Scattered Light by the Moving Diffuser Across the Projection Lens Pupil and its Influence in Speckle Reduction

11:00 Y. Tomita, K. Suzuki, T. Fukui, H. Tokita, S. Kubota
Oxide Corp., Japan

LDC8-3 8-Level Computer Generated Hologram as a Light Diffuser for Laser Display

11:15 O. Iwata, M. Kurashige, T. Takanokura, Y. Taniguchi, Y. Ohyagi, M. Watanabe
Dai Nippon Printing Co., Ltd., Japan

LDC8-4 Color Speckle

11:30 K. Kuroda¹, T. Ishikawa¹, M. Ayama¹, S. Kubota²
¹Utsunomiya Univ., Japan, ²Oxide Corp., Japan

----- Lunch Break (11:45-13:15) -----

13:15-14:30

LDC9: Visible Laser Diodes

Room 301

Chair: T. Yagi, Program Committee Member of LDC'13,
Mitsubishi Electric Corp., Japan

LDC9-1 (Invited) High Power InGaN Based Green Laser Diodes on Semipolar GaN Substrates

13:15 M. Ueno¹, S. Takagi¹, Y. Enya¹, T. Kyono¹, M. Adachi¹, Y. Yoshizumi¹, T. Sumitomo¹, Y. Yamanaka¹, T. Kumano¹, S. Tokuyama¹, K. Sumiyoshi¹, N. Saga¹, K. Katayama¹, T. Ikegami¹, T. Nakamura¹, K. Yanashima², H. Nakajima², K. Tasai², K. Naganuma², N. Fuutagawa², Y. Takiguchi², T. Hamaguchi², M. Ikeda²

¹Sumitomo Electric Industries, Ltd., Japan,
²Sony Corp., Japan

LDC9-2 (Invited) Miniaturized Highly Brilliant Diode Laser Modules for Future Display Applications

13:45 K. Paschke, Chr. Fiebig, G. Blume, A. Sahn, D. Jedrzejczyk, D. Feise, G. Erbert
Ferdinand-Braun-Institut, Germany

LDC9-3 Reliability Study on High Power 638 nm Broad Stripe LD

14:15 H. Mitsuyama, T. Motoda, T. Nishida, N.

14:45-15:45

LDC10: Advanced Technology for Laser Displays

Room 301

Chair: T. Omatsu, Program Committee Co-Chair of LDC'13,
Chiba Univ., Japan

LDC10-1 (Invited) 45,000 Lumens Super High Brightness Laser Projection System

14:45 G. Zheng¹, Y. Bi¹, B. Yan¹, Y. Wang¹, T. Fang¹, H. Cheng¹, B. Wang¹, Y. Qi¹, Y. Zhang², J. Chen²

¹Chinese Academy of Sciences, China,
²Phoebus Vision Opto-Electronics Technology Ltd., China

LDC10-2 Realistic Reproduction of Surface Highlight by Superposed Laser-scanning Projection Display

15:15 M. Yamaguchi, K. Suzuki, Y. Murakami
Tokyo Institute of Technology, Japan

LDC10-3 Development of the Backlight using the Laser Light Source for LCD

15:30 N. Nakano, E. Niikura, R. Murase, A. Nagase, T. Sasagawa, K. Minami, M. Hanai
Mitsubishi Electric Corp., Japan

----- Break (15:45-16:00) -----

16:00-16:15

LDC11: Post-deadline Session

Room 301

Chair: B. Schowengerdt, Program Committee Co-Chair of
LDC'13, Univ. Washington., USA

LDC11-1 6-Chip Stereoscopic Laser Display System using Six Primary Colours (6P)

16:00 A. Simon, K. Rohwer, H. Jorke
Infitec GmbH, Germany

16:15-16:45

Award Ceremony & Closing Remarks

Room 301

Chair: T. Omatsu, Program Committee Co-Chair of LDC'13,
Chiba Univ., Japan

Award Ceremony

16:15 K. Kuroda
Utsunomiya Univ., Japan

Closing Remarks

16:40 T. Omatsu
Chiba Univ., Japan

Conference on LED and Its Industrial Application '13

LEDIA '13

Sponsored by
Akasaki Research Center (ARC), Nagoya University

In cooperation with
The Illuminating Engineering Institute of Japan (IEIJ)
Japan LED Association (JLEDS)

Optoelectronics Industry and Technology Development Association (OITDA)
The 125th Committee on Mutual Conversion between Light and Electricity, Japan Society for
the Promotion of Science

The 162nd Committee on Wide Bandgap Semiconductor Photonic and Electronic Devices,
Japan Society for the Promotion of Science

CONFERENCE CHAIR

Hiroshi Amano (Nagoya Univ.)



Hiroshi Amano
Conference Chair
(Nagoya Univ.)

STEERING COMMITTEE

Chair

Tohru Honda (Kogakuin Univ.)

Members

Gen-ichi Hatakoshi (Toshiba Corp.)

Yoshinao Kumagai (Tokyo Univ. Agri. & Tech.)

Masahito Yamaguchi (Nagoya Univ.)

PROGRAM COMMITTEE

Chair

Yoshinao Kumagai (Tokyo Univ. Agri. & Tech.)

Members

Gen-ichi Hatakoshi (Toshiba Corp.)

Yoshio Honda (Nagoya Univ.)

Takao Miyajima (Sony Corp.)

Hisashi Murakami (Tokyo Univ. Agri. & Tech.)

Rie Togashi (Tokyo Univ. Agri. & Tech.)

Tomohiro Yamaguchi (Kogakuin Univ.)

LOCAL ARRANGEMENT COMMITTEE

Chair

Hisashi Murakami (Tokyo Univ. Agri. & Tech.)

Members

Yoshio Honda (Nagoya Univ.)

Rie Togashi (Tokyo Univ. Agri. & Tech.)

Tomohiro Yamaguchi (Kogakuin Univ.)

Advisory Members

Isamu Akasaki (Meijo Univ.)

Detlef Hommel (Univ. Bremen / EIT+)

Akihiko Yoshikawa (Chiba Univ.)

SECRETARIAT

Yukio Ogura (OPICON)

Tuesday, April 23

9:30-10:00

Opening Remarks of OPIC'13

Room 301,302

10:00-11:55

Keynote Lectures of OPIC'13

Room 301,302

(See page7)

----- Break (15:20-15:45) -----

15:45-16:00

Opening

Room 411,412

Opening Remarks

15:45 H. Amano, Conference Chair of LEDIA'13
Nagoya Univ., Japan

16:00-17:45

LED1 : InN, InGaN

Room 411&412

Chair: H. Fujioka, The Univ. of Tokyo, Japan

LED1-1 (Invited) Recent Progress on InN and InGaN Growth for Future Optoelectronic Devices

16:00 Y. Nanishi^{1,2)}, T. Yamaguchi³⁾, K. Wang¹⁾, T. Araki¹⁾, and E. Yoon²⁾
¹⁾ Ritsumeikan Univ., Japan, ²⁾ Seoul National Univ., Korea, ³⁾ Kogakuin Univ., Japan

LED1-2 (Invited) Impact of Crystal Orientation on InGaN-Based Efficient Visible Light Emitters

16:30 M. Funato and Y. Kawakami
Kyoto Univ., Japan

Chair: Y. Nanishi, Ritsumeikan Univ., Japan, Seoul National Univ., Korea

LED1-3 Angle-Resolved Analysis of Surface Band Bending in In_xGa_{1-x}N Films by Hard X-ray Photoemission Spectroscopy

17:00 M. Sumiya^{1,2)}, M. Lozac'h¹⁾, L. Sang¹⁾, S. Ueda¹⁾, S. Liu³⁾, H. Yoshikawa¹⁾, B. Shen³⁾, and X. Wang³⁾
¹⁾ NIMS, Japan, ²⁾ ALCA, JST, Japan, ³⁾ Peking Univ., China

LED1-4 Growth of Semi-polar InN Layers on GaAs(311)A and (311)B by MOVPE

17:15 H. Murakami, Y. Kumagai, and A. Koukitu
Tokyo Univ. of Agri. & Tech., Japan

LED1-5 Continuous In-Situ X-ray Reflectance on In_xGa_{1-x}N Single Quantum Well by MOVPE

17:30 G. Ju¹⁾, Y. Honda¹⁾, S. Fuchi¹⁾, M. Tabuchi¹⁾, Y. Takeda²⁾, and H. Amano¹⁾
¹⁾ Nagoya Univ., Japan, ²⁾ Aichi Science and Technology Foundation

18:30- 20:30

Conference Reception

Room 501,502

Wednesday, April 24

9:30-11:30

LED2: InGaN LEDs

Room 411,412

Chair: T. Yamaguchi, Program Committee Member, Kogakuin Univ., Japan

LED2-1 (Invited) InGaN quantum dots – from LEDs to single photon source

9:30 D. Hommel
Univ. of Bremen, Germany, EIT +, Poland

LED2-2 (Invited) MOCVD Technology for Deployment of LEDs to Various Applications

10:00 K. Matsumoto¹⁾, K. Ikenaga²⁾, G. Piao¹⁾, H. Tokunaga²⁾, Y. Yano²⁾, Y. Yamaoka²⁾, H. Shimamura¹⁾, A. Mishima¹⁾, A. Ubukata²⁾, T. Satou²⁾, A. Yamaguchi²⁾, T. Arimura²⁾, T. Tabuchi²⁾, K. Uchiyama¹⁾
¹⁾ TAIYO NIPPON SANSO EMC Ltd., Japan, ²⁾ TAIYO NIPPON SANSO Corp., Japan

Chair: D. Hommel, Univ. of Bremen, Germany, EIT +, Poland

LED2-3 Strategies to Achieve InGaN LED Displays

10:30 H. Fujioka^{1,2)}, H.-R. Kim¹⁾, E. Nakamura¹⁾, K. Ueno¹⁾, S. Inoue¹⁾, J. Ohta¹⁾, and M. Oshima^{1,2)}
¹⁾ The Univ. of Tokyo, Japan, ²⁾ CREST, JST, Japan

LED2-4 Direct Evidence of Electron Overflow by Monitoring Emissions from Second Active Region in Nitride-Based Blue LEDs

10:45 K. Hayashi¹⁾, K. Matsui¹⁾, T. Morita¹⁾, T. Suzuki¹⁾, T. Takeuchi¹⁾, S. Kamiyama¹⁾, M. Iwaya¹⁾, and I. Akasaki^{1,2)}
¹⁾ Meijo Univ., Japan, ²⁾ Akasaki Research Center, Japan

LED2-5 Reduction of Efficiency Droop in Ultraviolet InGaN Light-Emitting Diode Grown on Freestanding GaN Substrates

11:00 C. H. Chiu^{1,2)}, P. M. Tu^{1,2)}, Y. W. Lin¹⁾, S. C. Huang¹⁾, C. P. Hsu¹⁾, P. C. Kuo¹⁾, and C. Y. Chang²⁾
¹⁾ Advanced Optoelectronic Technology Inc., Taiwan, ²⁾ National Chiao Tung Univ., Taiwan

LED2-6 Nitride-Based p-Side Down LEDs on Tunnel Junction
11:15 T. Morita¹⁾, M. Kaga¹⁾, Y. Kuwano¹⁾, K. Matsui¹⁾, M. Watanabe¹⁾, T. Takeuchi¹⁾, S. Kamiyama¹⁾, M. Iwaya¹⁾, and I. Akasaki^{1,2)}
¹⁾ Meijo Univ., Japan, ²⁾ Akasaki Research Center, Japan

----- Break (11:30-11:45) -----

11:45-12:33

LED3 : Short Presentation for Poster Session

Room 411&412

Chair: H. Murakami, Program Committee Member,
Tokyo Univ. of Agri. & Tech., Japan

----- Lunch Break (12:33-14:00) -----

14:00-16:00

LED3 : Poster Session

Exhibition Hall D

LEDp3-1 Study of the Effect of Contact Patterning on the Light Extraction in LEDs

I. Khmyrova¹⁾, S. Tomioka¹⁾, T. Hasegawa¹⁾, A. Konishi¹⁾, Ju. Kholopova²⁾, E. Polushkin²⁾, A. Kovalchuk²⁾, V. Zemlyakov³⁾, and S. Shapoval²⁾

¹⁾ Univ. of Aizu, Japan, ²⁾ IMT RAS, Russia, ³⁾ R&D Corporation "Istok", Russia

LEDp3-2 Nonlinear Plasmonic Property of Ag-Nanoparticles/TiO₂ Composite Thin Films Having High Ag Contents

L. S. Daniel, H. Nagai, N. Yoshida, and M. Sato
Kogakuin Univ., Japan

LEDp3-3 Improved Performance of Vertical Type Chip 365nm Ultraviolet Light Emitting Diodes Using Carbon Nano Tube Technique

Y. W. Lin, C. H. Chiu, P. M. Tu, S. C. Huang, and C. P. Hsu
Advanced Optoelectronic Technology Inc., Taiwan

LEDp3-4 Lift-Off Mechanism in Growing Free-Standing GaN Wafers

S. Okano, T. Sato, T. Goto, and T. Yao
Tohoku Univ., Japan

LEDp3-5 Cathodoluminescence Spectra of β -gallium Oxide Thin Film Fabricated by Molecular Precursor Method

S. Takano¹⁾, H. Nagai¹⁾, H. Hara¹⁾, C. Mochizuki¹⁾, I. Takano¹⁾, T. Onuma²⁾, T. Honda¹⁾, M. Sato¹⁾

¹⁾ Kogakuin Univ., Japan, ²⁾ Tokyo

LEDp3-6 Effect of Growth Temperature on Crystalline of GaN Layers by Vapor Phase Epitaxy Using Ga₂O as a Ga Source

Y. Bu¹⁾, J. Takino¹⁾, T. Sumi¹⁾, A. Kitamoto¹⁾, M. Imade¹⁾, M. Yoshimura¹⁾, M. Isemura²⁾, and Y. Mori¹⁾

¹⁾ Osaka Univ., Japan, ²⁾ Itochu Plastics Inc., Japan

LEDp3-7 Selective-Area Growth of GaN on the Patterned AlN on Si Substrates

T. Mitsunari¹⁾, K. Nawa¹⁾, T. Yamada¹⁾, Y. Honda¹⁾, M. Yamaguchi¹⁾, and H. Amano^{1,2)}

¹⁾ Nagoya Univ., Japan, ²⁾ Akasaki Research Center, Japan

LEDp3-8 Growth of GaN on α -Ga₂O₃/Sapphire Template by RF-MBE

T. Hatakeyama, T. Yamaguchi, D. Tajimi, Y. Sugiura, T. Honda
Kogakuin Univ., Japan

LEDp3-9 Fabrication of Ga-In-O Films by Molecular Precursor Method

T. Yasuno, T. Oda, H. Nagai, H. Hara, Y. Sugiura, T. Yamaguchi, M. Sato, and T. Honda

Kogakuin Univ., Japan

LEDp3-10 Surface Modification of GaN Crystals and Its Effects on Optical Properties

S. Fujioka¹⁾, R. Amiya¹⁾, T. Onuma^{1,2)}, T. Yamaguchi¹⁾, and T. Honda¹⁾

¹⁾ Kogakuin Univ., Japan, ²⁾ Tokyo National College of Technology, Japan

LEDp3-11 Formation of Aluminum Templates Grown on (0001)4H-SiC for the GaN Growth by RF-MBE

S. Osawa, D. Tajimi, T. Yamaguchi, T. Honda

Kogakuin Univ., Japan

LEDp3-12 Observation of GaInN/GaN Superlattice Structures by In Situ X-ray Diffraction Monitoring during Metalorganic Vapor-Phase Epitaxial Growth

T. Yamamoto¹⁾, D. Iida¹⁾, Y. Kondo¹⁾, M. Sowa¹⁾, S. Umeda¹⁾, T. Kato¹⁾, M. Iwaya¹⁾, T. Takeuchi¹⁾, S. Kamiyama¹⁾, and I. Akasaki^{1,2)}

¹⁾ Meijo Univ., Japan, ²⁾ Akasaki Research Center, Japan

LEDp3-13 Surface Treatments of the Seed Substrate for GaN Growth by the Na Flux Method

M. Honjo, T. Fujimori, H. Takazawa, Y. Todoroki, H. Imabayashi, D. Matsuo, K. Murakami, M. Maruyama, M. Imade, M. Yoshimura, Y. Mori

Osaka Univ., Japan

LEDp3-14 Influence of the GaN Layer Thickness on the Crystallinity in the Vapor Phase Epitaxy Growth of GaN Using Ga₂O

T. Sumi¹⁾, M. Juta¹⁾, J. Takino¹⁾, Y. Bu¹⁾, A. Kitamoto¹⁾, M. Imade¹⁾, M. Yoshimura¹⁾, M. Isemura²⁾, M. Hata³⁾, and Y. Mori¹⁾

¹⁾ Osaka Univ., Japan, ²⁾ Itochu Plastics Inc., Japan, ³⁾ Sumitomo Chemical Co. Ltd., Japan

LEDp3-15 High-Speed Growth of In- and N-polarity InN Using a Two-Stage Source Generation Hydride Vapor Phase Epitaxy System

R. Togashi, N. Fujita, R. Imai, H. Murakami, Y. Kumagai, and A. Koukitu
Tokyo Univ. of Agri. & Tech., Japan

LEDp3-16 High-Speed Growth of InN over 10 $\mu\text{m}/\text{h}$ by a Novel HVPE System

N. Fujita, R. Imai, H. Saito, R. Togashi, H. Murakami, Y. Kumagai, and A. Koukitu

Tokyo Univ. of Agri. & Tech., Japan

LEDp3-17 Performance Enhancement of GaN-Based Light-Emitting Diodes by Surface Plasmon Coupling and Scattering Grating

S. Dang^{1,2)}, C. Li^{1,2)}, W. Jia¹⁾, H. Liu¹⁾, Z. Zhang¹⁾, T. Li¹⁾, P. Han¹⁾, and B. Xu¹⁾

¹⁾ Taiyuan Univ. of Technology, China, ²⁾ Yangtze Normal Univ., China

Yamaguchi²⁾, M. Higashiwaki^{3,4)}, K. Sasaki^{3,5)}, T. Masui⁶⁾, and T. Honda²⁾

¹⁾ Tokyo National College of Technology, Japan, ²⁾ Kogakuin Univ., Japan, ³⁾ NICT, Japan, ⁴⁾ PRESTO, JST, Japan, ⁵⁾ Tamura Corporation, Japan, ⁶⁾ Koha Co., Ltd., Japan

LED4-4 Deep-UV Transparent AlN Substrates Prepared by HVPE for UV-C LED Applications

10:15 T. Nukaga¹⁾, R. Sakamaki¹⁾, Y. Kubota²⁾, T. Nagashima²⁾, T. Kinoshita²⁾, B. Moody³⁾, J. Xie³⁾, H. Murakami¹⁾, Y. Kumagai¹⁾, A. Koukitu¹⁾, and Z. Sitar^{3,4)}

¹⁾ Tokyo Univ. of Agri. & Tech., Japan,

²⁾ Tokuyama Corporation, Japan, ³⁾ HexaTech Inc., USA, ⁴⁾ North Carolina State Univ., USA

LED4-5 Threshold Power Density Reduction in AlGaIn/AlN Multi-Quantum Wells DUV (288 nm) Optical Pumped Laser

10:30 T. Yamada¹⁾, Y. Matsubara¹⁾, H. Shinzato¹⁾, K. Takeda¹⁾, M. Iwaya¹⁾, T. Takeuchi¹⁾, S. Kamiyama¹⁾, I. Akasaki^{1,2)}, and H. Amano^{2,3)}

¹⁾ Meijo Univ., Japan, ²⁾ Akasaki Research Center, Japan, ³⁾ Nagoya Univ., Japan

----- Break (10:45-11:00) -----

Chair: T. Honda, Steering Committee Chair, Kogakuin Univ., Japan

LED4-6 (Invited) Transparent Conducting Oxides for GaN-based UV LEDs

11:00 J.-S. Jang

Yeungnam Univ., Korea

LED4-7 (Invited) Fabrication of DUV-LEDs on AlN Substrates

11:30 T. Kinoshita^{1,2)}, T. Obata¹⁾, T. Nagashima^{1,3)}, H. Yanagi¹⁾, J. Xie⁴⁾, R. Collazo⁵⁾, S. Inoue^{2,6)}, Y. Kumagai³⁾, A. Koukitu³⁾, and Z. Sitar^{4,5)}

¹⁾ Tokuyama Corporation, Japan, ²⁾ Kobe Univ., Japan, ³⁾ Tokyo Univ. of Agri. & Tech., Japan, ⁴⁾ HexaTech Inc., USA, ⁵⁾ North Carolina State Univ., USA, ⁶⁾ NICT, Japan

12:00-12:10

Closing

Room 41,412

Closing Remarks

Thursday, April 25

9:30-12:00

LED4: GaN, UV Devices

Room 411,412

Chair: Y. Kumagai, Program Committee Chair, Tokyo Univ. of Agri. & Tech., Japan

LED4-1 Coalescence Growth of GaN Crystals for Fabrication of Large-Diameter GaN Wafers Using the Na Flux Method

9:30 M. Imanishi, K. Murakami, H. Imabayashi, H. Takazawa, Y. Todoroki, D. Matsuo, M. Maruyama, M. Imade, M. Yoshimura, and Y. Mori

Osaka Univ., Japan

LED4-2 Improvement of Surface Morphology in (000-1) GaN/Sapphire Grown by Metalorganic Vapor Phase Epitaxy with Indium Surfactant

9:45 T. Tanikawa^{1,2)}, T. Aisaka¹⁾, T. Kimura^{1,2)}, T. Iwabuchi¹⁾, K. Shojiku¹⁾, T. Hanada^{1,2)}, R. Katayama^{1,2)}, and T. Matsuoka^{1,2)}

¹⁾ Tohoku Univ., Japan, ²⁾ CREST, JST, Japan

LED4-3 Temperature Dependent Cathodo-Luminescence Spectra of $\beta\text{-Ga}_2\text{O}_3$ Crystals

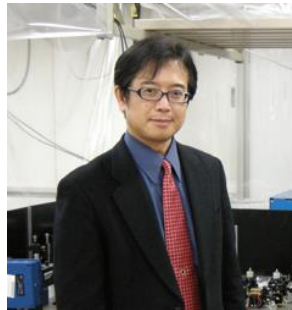
10:00 T. Onuma¹⁻³⁾, S. Fujioka²⁾, T.

The 1st. Laser Ignition Conference '13 LIC'13

Sponsored by
GENESIS RESEARCH INSTITUTE INC.
DENSO CORPORATION
Imagineering, Inc.
SHIMADZU CORPORATION
Yamaha Motor Co., Ltd.

Endorsements by
JSAP, The Japan Society of Applied Physics
OSA, The Optical Society
SPIE, The International Society for Optics and Photonics
EPS, European Physical Society
CSJ, Combustion Society of Japan
JSAE, Society of Automotive Engineers of Japan
OITDA, Optoelectronics Industry and Technology Development Association
LIA, Laser Institute of America
ESD, Engine Systems Division of The Japan Society of Mechanical Engineers

Organized by
LIC Organizing Committee



Takunori Taira
Conference Chair
(Institute for Molecular Science)

Tuesday, April 23

9:30-10:00

Opening Remarks of OPIC'13

(See ALPS'13)

Room 301,302

10:00-11:55

Keynote Lectures of OPIC'13

(See ALPS'13)

Room 301,302

----- Lunch Break (11:55-13:20) -----

13:20-15:20

Joint Plenary Sessions of OPIC'13

(See ALPS'13)

Room 301,302,303

----- Break (15:20-15:45) -----

15:45-18:00

LDC-LIC Joint Session (Laser Display and Laser Ignition) -Light Sources and Scanning-

Room 301,302

Co-Chairs: **T. Omatsu**, Program Committee Co-Chair of LDC'13, Chiba University, Japan, **T. Taira**, General Chair of LIC'13, Institute for Molecular Science, Japan

Joint Session Opening Remarks

15:45

*T. Omatsu
Chiba University, Japan*

LDC/LIC1-1 (Plenary) Nonlinear Optics for Displays and Combustion Measurements (Tentative)

15:50

*M. Fejer
Stanford University, USA*

LDC/LIC1-2 (Invited) Ultrafast thin disk lasers and their potential for high power RGB frequency generation

16:30

*T. Südmeyer
Universität de Neuchâtel, Switzerland*

LDC/LIC1-3 (Invited) High Repetition Rate MW Peak Power Green Microchip Laser

17:00

*R. Bhandari and T. Taira
Institute for Molecular Science, Japan*

LDC/LIC1-4 (Invited) Optical MEMS Scanners and Color Filters for Image Display Applications

17:30

*H. Toshiyoshi,
The University of Tokyo, Japan*

18:30- 20:30

Conference Reception

Room 501,502

Wednesday, April 24

9:00-10:15

LIC2: High brightness lasers for ignition and diagnostics-1

Room 302

Chair: **T. Taira**, General Chair of LIC'13, Institute for Molecular Science, Japan

LIC2-1 (Invited) Implications of Ambient Temperature on a Laser Sparkplug

9:00

*E. Wintner
Vienna University of Technology, Austria*

LIC2-2 Temperature Dependence of the Pump Absorption Efficiency under Hot-band Pumping of Nd:YAG

9:30

*Y. Sato and T. Taira
Institute for Molecular Science, Japan*

LIC2-3 Ignition Lasers Operating for Wide Temperature Range

9:45

*M. Tsunekane and T. Taira
Institute for Molecular Science, Japan*

LIC2-4 Pulse Energy Increase by Emission Cross-section Control in Passively Q-switched Nd:YVO₄/Cr⁴⁺:YAG Laser

10:00

*A. Kausas and T. Taira
Institute for Molecular Science, Japan*

----- Break (10:15-10:30) -----

10:30-12:00

LIC3: High brightness lasers for ignition and diagnostics-2

Room 302

Chair: **E. Wintner**, Program Committee Vice Chair of LIC'13, Vienna University of Technology, Austria

LIC3-1 (Invited) World First Laser Ignited Gasoline Engine Vehicle

10:30

*T. Taira¹⁾, S. Morishima²⁾, K. Kanehara²⁾, N. Taguchi³⁾, A. Sugiura³⁾, and M. Tsunekane¹⁾
¹⁾Institute for Molecular Science, Japan, ²⁾Nippon Soken, Inc., ³⁾DENSO Co. Japan*

LIC3-2 Composite Ceramic Laser Materials

11:00

*K. Muramatsu, T. Yangitani, H. Yagi
Konoshima Chemical Co. Ltd, Japan*

LIC3-3 Application of Laser Ignition to Aero-Turbines

11:15

*A. P. Yalin
Colorado State University, USA*

LIC3-4 Rare Earth Ions Doped PTR Glass DBR and DFB Lasers for Combustion Ignition

11:30

*L. Glebov^{1,2)}, A. Ryasnyanskiy¹⁾, V. Smirnov¹⁾, L. Glebova^{1,2)}, O. Mokhun¹⁾, A. Glebov¹⁾, J. Lumeau²⁾, S. Vasu²⁾, and M. J. Soileau²⁾
¹⁾OptiGrate Co., USA, ²⁾University of Central Florida, USA*

LIC3-5 High-Performance New Generation Laser Bars Emitting at 8xx - 9xx nm

11:45

*A. Pietrzak, R. Hülsewede, M. Zorn, and J. Sebastian
JENOPTIK Diode Lab GmbH, Germany*

----- Lunch break (12:00-13:00) -----

13:00-14:15

LIC4: High brightness lasers for ignition and diagnostics-3

Room 302

Chair: **R. Bhandari**, Program Committee of LIC'13, Institute for Molecular Science, Japan

LIC4-1 (Invited) 4kW Coherent Beam Combination Laser using SBS-PCM for Industrial Applications

13:00

*H. J. Kong¹⁾, S. Park¹⁾, S. Cha¹⁾, and J. S. Kim²⁾
¹⁾Korea Advanced Institute of Science and Technology, Korea, ²⁾Laser Spectronix, Korea*

LIC4-2 Novel Geometry for Compact, Diode-Pumped Solid-State Lasers

13:30

*N. Pavel, T. Dascalu, G. Salamu and O. Grigore
National Institute for Laser, Plasma and Radiation Physics, Romania*

LIC4-3 Nd:YAG/Cr:GSGG Passively Q-switched Compact DPSS Laser with Flexure-frame Structure

13:45

*H. Yoshioka and Y. Oki
Kyushu University, Japan*

LIC4-4 Yb:YAG/Cr:YAG Passively Q-switched MicroLaser for Ignition

14:00 M. Tsunekane and T. Taira
Institute for Molecular Science, Japan

----- Break (14:15-14:30) -----

14:30-17:00

LIC5: High brightness lasers for ignition and diagnostics-4

Room 302

Chair: Y. Oki, Program Committee of LIC'13, Kyushu University, Japan

LIC5-1 (Invited) Fiber Optic Delivered Laser Ignition Systems

14:30 A. P. Yalin, S. Joshi, and N. Wilvert
Colorado State University, USA

LIC5-2 Laser Ignition by the Sub-ns Passively Q-switched Laser

15:00 A. Sone¹⁾ and H. Furutani²⁾
¹⁾Hamamatsu Photonics K.K., Japan, ²⁾National Institute of Advanced Industrial Science and Technology, Japan

LIC5-3 Laser Ignition of a Battleship Cryogenic RCS Thruster using the Miniaturised HiPolas® Laser

15:15 C. Manfretti¹⁾ and G. Kroupa²⁾
¹⁾German Aerospace Center, Germany, ²⁾Carinthian Tech Research AG, Austria,

LIC5-4 A Highly Robust, Miniaturized Nd:YAG Laser for Spark Ignition

15:30 G. Kroupa, M. Baumgart and A. Tortschanoff
Carinthian Tech Research AG, Austria

LIC5-5 (Invited) Laser Ignited Engines: Progress, Challenges and Prospects

15:45 G. Dearden and T. Shenton
University of Liverpool, United Kingdom

16:15 Panel Discussion

Panelist: T. Taira and E. Wintner

Thursday, April 25

9:00-10:15

LIC6: Applications of high brightness laser

Room 302

Chair: F. Akamatsu, Steering Committee Chair of LIC'13, Osaka University, Japan

LIC6-1 Microchip Laser Enabled Efficient THz Generation from Lithium Niobate

9:00 Y.-C. Huang and T.-D. Wang
National Tsinghua University, Taiwan

LIC6-2 Measurement of Equivalence Ratio Using Laser-Induced Breakdown Spectroscopy in Laser Ignited Gas Engine

9:15 E. Takahashi¹⁾, T. Honzawa²⁾, H. Kojima¹⁾, M. Iga³⁾, S. Yamaguchi³⁾, S. Inami⁴⁾, J. Miyata⁵⁾ and H. Furutani¹⁾

¹⁾National Institute of Advanced Industrial Science and Technology, Japan, ²⁾Tokyo Gas Technology Research Institute, Japan, ³⁾University of Tsukuba, Japan

⁴⁾Mitsui Engineering & Shipbuilding Co.,Ltd, Japan, ⁵⁾Mitsui Engineering & Shipbuilding Co.,Ltd, Tamano Technology Center, Japan

LIC6-3 Laser-Induced Plasma in Noble Gases Enhances Temporal and Energetic Profiles of Transversely Excited Atmospheric CO₂ Laser Pulses

9:30 T. Gasmí
Saint Louis University-Madrid Campus, Spain

LIC6-4 Frequency Quadrupled Passively Q-switched Laser for Planetary Exploration by Laser Desorption Mass Spectrometry

9:45 D. Kracht, C. Kolleck, and J. Neumann
Laser Zentrum Hannover e.V., Germany

LIC6-5 Basic Study on Pulse Width Dependence of Laser Ablation Induced Fluorescence

10:00 K. Watanabe¹⁾, A. Yamazaki¹⁾, F. Sakai¹⁾, A. Uritani¹⁾, T. Inoue²⁾, and Y. Ueno²⁾
¹⁾Nagoya University, Japan, ²⁾Genesis Research Institute Inc., Japan

LIC6-5 Diagnostic of Number Density of Droplets in an Aerosol by Laser-Induced Breakdown Method

10:15 H. Yashiro and M. Kakehata
National Institute of Advanced Industrial Science and Technology, Japan

----- Break (10:30-10:45) -----

10:45-12:00

LIC7: Laser ignited engines for power -1

Room 302

Chair: N. Kawahara, Program Committee of LIC'13, Okayama University, Japan

LIC7-1 (Invited) Ignition with Laser

10:45 H. Furutani
National Institute of Advanced Industrial Science and Technology, Japan

LIC7-2 Ignition Behavior of Lean Methane/Air Mixture by Close Dual-Point Laser-Induced Sparks

11:15 K. Horie, S. Sato, S. Nakaya, and M. Tsue
The University of Tokyo, Japan

LIC7-3 Laser Ignition Controlled by the Combination of Nano- and Femto-second Lasers

11:30 H. Kojima, E. Takahashi, and H. Furutani
National Institute of Advanced Industrial Science and Technology, Japan

LIC7-4 Laser-induced Ignition and Plasma Spectroscopy in a Turbulent Liquid Fueled Combustor

11:45 L. Zimmer and T. Agarwal
Laboratoire d'Energétique Moléculaire et Macroscopique, Combustion, France / Ecole Centrale Paris, France

----- Lunch Break (12:00-13:00) -----

13:00-15:00

LIC8: Laser ignited engines for power -2 (Plasma Assisted Combustion)

Room 302

- Chair: Y. Ikeda, Imagineering, Inc., Japan,**
- LIC8-1 (Invited) Application of Plasma-Assisted Combustion to Internal Combustion Engine**
13:00 E. Tomita
 Okayama University, Japan
- LIC8-2 Experimental Study on Characteristics of Laser-Induced Ignition in Ethanol Mist**
13:30 T. Seo, Y. Ishimura, Y. Hisatomi, and M. Mikami
 Yamaguchi University, Japan
- LIC8-3 Interaction between Laser-Induced Plasma and Fuel Spray**
13:45 N. Kawahara and E. Tomita
 Okayama University, Japan
- LIC8-4 Ignition Characteristics of Methane/air Premixed Mixture by Microwave Enhanced Laser-Induced Breakdown Plasma**
14:00 A. Nishiyama ¹⁾, A. Moon ¹⁾, Y. Ikeda ¹⁾, J. Hayashi ²⁾, and F. Akamatsu ²⁾
¹⁾Imagineering, Inc., Japan, ²⁾Osaka University, Japan
- LIC8-5 Characteristics of Laser Ignition in Methane/Air Premixed Gas with Pico-second Pulse Duration Laser**
14:15 J. Hayashi ¹⁾, N. Nakatsuka ¹⁾, K. Furui ¹⁾, T. Okada ¹⁾, T. Taira²⁾, and F. Akamatsu ¹⁾
¹⁾Osaka University, Japan, ²⁾Institute for Molecular Science, Japan
- LIC8-6 Effects of Laser Profiles on Laser Ignition of Methane/Air Premixed Gas**
14:30 J. Hayashi, N. Nakatsuka Y. Sawanaka, T. Okada, K. Furui, and F. Akamatsu
 Osaka University, Japan
- LIC8-7 Effects of Initial Molar Density of Methane/Air Pre-mixture on Ignition Using Laser-Induced Breakdown**
14:45 N. Nakatsuka, J. Hayashi, and F. Akamatsu
 Osaka University, Japan

----- Break (15:00-15:15) -----

15:15-17:00

LIC9: Laser ignited engines for power -3

Room 302

- Chair: H. Furutani, Program Committee Chair of LIC'13, National Institute of Advanced Industrial Science and Technology, Japan**
- LIC9-1 (Invited) Laser Ignition in Natural Gas Engines**
15:15 S. B. Gupta, B. Bihari, M. Biruduganti, and R. Sekar
 Argonne National Laboratory, USA
- LIC9-2 Quantification of Perturbation Effects on a Laser Ignition System for Natural Gas Engine Applications**
15:45 G. S. Yoder
 West Virginia University, USA
- LIC9-3 Extension of a Stable Lean Burn Limit for Gas Engines Using Laser Ignition**
16:00 S. Yamaguchi ¹⁾, E. Takahashi ²⁾, H. Furutani ²⁾, T. Kawano ²⁾, H. Kojima ²⁾, O. Shinozaki ²⁾, S. Inami ³⁾, J. Miyata ⁴⁾, M. Iga ¹⁾, and M. Nishioka ¹⁾
¹⁾University of Tsukuba, Japan, ²⁾National Institute of Advanced Industrial Science and

Technology, Japan, ³⁾Mitsui Engineering & Shipbuilding Co.,Ltd, Japan, ⁴⁾Mitsui Engineering & Shipbuilding Co.,Ltd, Tamano Technology Center, Japan

- LIC9-4 Gasoline Engine Performance with Laser-induced Breakdown Ignition under EGR Condition**
16:15 T. Saito ¹⁾, K. Yanagisawa ¹⁾, and H. Furutani ²⁾
¹⁾Meisei University, Japan, ²⁾National Institute of Advanced Industrial Science and Technology, Japan

16:30-17:00

Closing

Room 302

Closing Remarks

- 16:30** T. Taira, General Chair of LIC'13, Institute for Molecular Science, Japan

Laser Processing for CFRP and Composite Materials 2013

LPCC 2013

Tuesday, April 23

15:45-16:00 Opening Room 414+415
Opening Remarks
15:45 S. Katayama, Steering & Program Committee
Chair of LPCC2013, Osaka Univ., Japan

16:00-18:00 LPCC1 : Room 414+415
Chair: Hiroyuki Niino, Steering & Program Committee
Co-Chair of LPCC2013, AIST, Japan

LPCC1-1 (Invited) Influence of process strategy and composite reinforcements on weld seam characteristics during laser welding of CF-PPS and CF-PA66

16:00 P. Jaeschke, U. Stute, and D. Kracht
Laser Zentrum Hannover e.V., Germany

LPCC1-2 Laser direct joining of CFRP to dissimilar materials

16:45 Kwang-Woon Jung, Y. Kawahito, and S. Katayama
Osaka Univ., Japan

LPCC1-3 In-situ inspection of thermoplastic CFRP welded zones using eddy current thermo-sensing

17:00 K. Mizukami, Y. Mizutani, A. Todoroki, and Y. Suzuki
Tokyo Institute of Technology, Japan

LPCC1-4 (Invited) Investigations on laser remote cutting of tailored fiber reinforced structures

17:15 A. Klotzbach¹, A. Fürst^{1,2}, M. Kempe¹, J. Hauptmann¹, and E. Beyer^{1,2}
¹Fraunhofer IWS Dresden, Germany,
²Technische Universität Dresden, Germany

Wednesday, April 24

10:00-12:00 LPCC2: Room 414+415
Chair: Masayuki Fujita, Steering & Program Committee
Co-Chair of LPCC2013 Institute for Laser Technology, Japan

LPCC2-1 (Invited) Basic Study on Welded Joints and Mechanically Fastened Joints of Carbon Fiber Reinforced Thermoplastic

10:00 K. Uzawa
Tokyo Univ., Japan

LPCC2-2 (Invited) Characteristic analysis of CFRP cutting with nanosecond pulsed laser

10:30 W. Inami
Shizuoka Univ., Japan

LPCC2-3 Effect of tension under curing process on mechanical properties of MWNT spun yarn reinforced epoxy

11:00 K. Oshima, Y. Shimamura, K. Tohgo, T. Fujii, and Y. Inoue, Shizuoka Univ., Japan

LPCC2-4 Evaluation of interfacial fracture toughness for interface of CFRP/adhesives treated by in-mold surface preparation under mode II loading

11:15 Y. Yukimoto¹, R. Matsuzaki¹, and A. Todoroki²

¹Tokyo Univ. of Science, Japan, ²Tokyo Institute of Technology, Japan

LPCC2-5 (Invited) Study on laser application to the pre-treatment of CFRP surface for painting

11:30 H. Hira
Daido Univ., Japan

----- **Lunch Break (12:00-13:30)** -----

13:30-15:00 LPCC3 : Room 414+415

Chair: Hirohito Hira, Daido Univ., Japan

LPCC3-1 (Invited) Experimental investigation of the heat accumulation effect when laser processing CFRP with a picosecond laser system

13:30 C. Freitag^{1,2}, T. Kononenko³, V. Onuseit², R. Weber², and T. Graf²

¹GSaME Graduate School of Excellence advanced Manufacturing Engineering, Germany, ²Institut für Strahlwerkzeuge IFSW, Germany, ³Natural Sciences Center, A.M. Prokhorov General Physics Institute GPI, Germany

LPCC3-2 Micromachining of CFRP with ultra-short laser pulses

14:15 M. Fujita^{1,2}, T. Somekawa¹, and N. Miyanaga²
¹Institute for Laser Technology, Japan, ²Institute of Laser Engineering, Japan

LPCC3-3 Cutting of CFRP plate with nanosecond laser in air and vacuum

14:30 M. Tsukamoto¹, K. Nakai², T. Nariyama³, K. Takahashi¹, S. Masuno¹, H. Nakano³, and N. Abe¹
¹Joining and Welding Research Institute, Osaka Univ., Japan, ²Graduate School of Engineering, Osaka Univ., Japan, ³Department of Electric and Electronic Engineering, Kinki Univ., Japan

LPCC3-4 Improving efficiency of microwave heating by loading CNT in polymer resin

14:45 S. Hatori¹, R. Matsuzaki¹, and A. Todoroki²
¹Tokyo Univ. of Science, Japan, ²Tokyo Institute of Technology, Japan

----- **Coffee Break (15:00-15:30)** -----

15:30-16:30 LPCC4 : Room 414+415

Chair: Yoshihisa Harada, AIST, Japan

LPCC4-1 Laser-ionization Time-of-Flight mass spectrometric studies on laser ablation of carbon fiber reinforced plastics

15:30 A. Narazaki^{1,2}, T. Sato^{1,2}, Y. Kawaguchi^{1,2}, R. Kurosaki¹, and H. Niino^{1,2}

¹National Institute of Advanced Industrial Science and Technology (AIST), Japan, ²Advanced Laser and Process Technology Research Association (ALPROT), Japan

LPCC4-2 Laser ablation plume from graphite and CFRP under irradiation of nanosecond UV laser pulses in the air

15:45 Y. Kawaguchi^{1,2}, T. Sato^{1,2}, A. Narazaki^{1,2}, R. Kurosaki¹, and H. Niino^{1,2}

¹National Institute of Advanced Industrial Science and Technology (AIST), Japan, ²Advanced Laser and Process Technology Research Association (ALPROT), Japan

LPCC4-3 Laser-induced plasma in noble gases enhances temporal and energetic profiles of transversely excited atmospheric CO₂ laser pulses

16:00 T. Gasmi Cherifi

Saint Louis University, Spain

Thursday, April 25

in Industrial Applications (presentation of five topics in Japanese)” will be held in Room 414+415. All the participants in LPCC 2013 can attend the Workshop free. For more information, please refer to <http://opicon.jp/lpcc>.

10:00-11:30 LPCC5: Room 414+415

Chair: Masahiro Tsukamoto, Osaka Univ., Japan

LPCC5-1 (Invited) Single mode fiber laser of its quasi CW operation for cutting of carbon fiber reinforced plastics (CFRP)

10:00 A. Fujisaki¹⁾³⁾, T. Miyato¹⁾³⁾, T. Kayahara¹⁾³⁾, H. Niino²⁾³⁾

¹⁾Furukawa Electric, Japan, ²⁾National institute of Advanced industrial Science and Technology (AIST), Japan, ³⁾Advanced Laser and Process Technology Research Association (ALPROT), Japan

LPCC5-2 Development of high-speed, sweep type remote processing head

10:30 K. Wakabayashi^{1,2)}, T. Nagashima^{1,2)}, Y. Harada^{1,3)}, and H. Niino^{1,3)}

¹⁾Advanced Laser and Process Technology Research Association (ALPROT), Japan, ²⁾Miyachi Corporation, Japan, ³⁾The National Institute of Advanced Industrial Science and Technology (AIST), Japan

LPCC5-3 Development of laser processing head for CFRP cutting

10:45 K. Furukawa^{1,2)}, M. Matsushita^{1,2)}, Y. Harada^{1,3)}, T. Nagashima^{1,4)} and H. Niino^{1,3)}

¹⁾Advanced Laser and Process Technology Research Association (ALPROT), Japan, ²⁾Shin Nippon Koki Co. Ltd., Japan, ³⁾The National Institute of Advanced Industrial Science and Technology (AIST), Japan, ⁴⁾Miyachi Corporation, Japan

LPCC5-4 Laser machining of PAN/PITCH-based carbon fiber reinforced composite materials

11:00 M. Nishino^{1,2)}, Y. Harada^{1,3)}, T. Nagashima^{1,4)}, M. Matsushita^{1,5)}, and H. Niino^{1,3)}

¹⁾Advanced Laser and Process Technology Research Association (ALPROT), Japan, ²⁾Mitsubishi Chemical Corporation, Japan, ³⁾National Institute of Advanced Industrial Science and Technology (AIST), Japan, ⁴⁾Miyachi Corporation, Japan, ⁵⁾Shin Nippon Koki Co. Ltd., Japan

LPCC5-5 Evaluation of defect in CFRP using infrared thermography and its heat conduction simulation

11:15 M. Muramatsu^{1,2)}, Y. Harada^{1,2)}, T. Suzuki^{1,2)}, Hiroyuki Niino^{1,2)}

¹⁾Advanced Laser and Process Technology Research Association (ALPROT), Japan, ²⁾National Institute of Advanced Industrial Science and Technology, (AIST), Japan

----- Lunch Break (11:30-12:30) -----

12:30-16:45 Room 414+415

“Workshop for New Frontier of CFRP in Industrial Applications (presentations in Japanese)”

On the 25th afternoon, “Workshop for New Frontier of CFRP

International Conference on Sensing Technologies for Biomaterial, Food, and Agriculture '13 SeTBio'13

Sponsored by
**The Japanese Society of Agricultural
Machinery (JSAM)**
**The Society of Agricultural Structures,
Japan (SASJ)**

Organized by
Laboratory of Bio-Sensing Engineering, Kyoto University
SPIE

CONFERENCE CHAIR

Naoshi Kondo (Kyoto University, Japan)



Naoshi Kondo
Conference Chair
(Kyoto Univ.)

PROGRAM COMMITTEE

Chair

Yuichi Ogawa (Kyoto University, Japan)

Vice Chair

Seiichi Oshita (University of Tokyo, Japan)

Sakae Shibusawa (Tokyo University of Agriculture
and Technology, Japan)

Hiroshi Shimizu (Kyoto University, Japan)

Michihisa Iida (Kyoto University, Japan)

Kazuhisa Yamamoto (Osaka University, Japan)

Hiroshi Tsuchiya (Hamamatsu photonics K. K.,
Japan)

Members

Hermann Auernhammer (Technical University of
Munich, Germany)

Simon Blackmore (Harper Adams University, UK)

Kuanglin Chao (USDA, USA)

Suming Chen (Taiwan National University, Taiwan)

Jong Hoon Chung (Seoul National University,
Korea)

Han Donghai (China Agriculture University, China)

Reza Ehsani (University of Florida, USA)

István Farkas (Szent István University, Hungary)

Heon Hwang (Sung Kyun Kwan University, Korea)

Shuso Kawamura (Hokkaido University, Japan)

Moon Kim (USDA, USA)

Rika Kudo (Shikoku Research Institute Inc., Japan)

Daniel Lee (University of Florida, USA)

Kangjin Lee (National Academy of Agriculture
Science, Korea)

Peter Ling (Ohio State University, USA)

Renfu Lu (USDA, USA)

Shigeo Maeda (IDEC, Japan)

Ryohei Masuda (Kyoto University, Japan)

Francisco Rovira Más (Polytechnic University
of Valencia, Spain)

Li Minzan (China Agriculture University, China)

Juro Miyasaka (Kyoto University, Japan)

Yoshinari Morio (Mie University, Japan)

Hiroshi Nakashima (Kyoto University, Japan)

Katsuaki Ohdoi (Kyoto University, Japan)

Bosoon Park (USDA, USA)

Yankun Peng (China Agriculture University, China)

Francis Pierce (Washington State University, USA)

Hadi K. Purwadaria (Bogor Agriculture University,
Indonesia)

Nick Sigrimis (Agricultural University of
Athens, Greece)

Masahiko Suguri (Kyoto University, Japan)

John Schueller (University of Florida, USA)

Yang Tao (University of Maryland, USA)

K.C. Ting (University of Illinois, USA)

Masami Ueno (University of the Ryukyus, Japan)

E. J. Van Henten (Wageningen University, The
Netherlands)

Gerrit Van Straten (Wageningen University, The
Netherlands)

Marc Vanacht (AG Business, USA)

Yibin Ying (Zhejiang University, China)
Qin Zhang (Washington State University, USA)
SECRETARIAT

Tetsuhito Suzuki (Kyoto University, Japan)
Diding Suhandy (Kyoto University, Japan)
Tomoo Shiigi (Kyoto University, Japan)

Tuesday, April 23

9:30-10:00

Opening Remarks of OPIC'13

Room 301,302

10:00-11:55

Keynote Lectures of OPIC'13

Room 301,302

(See page7)

13:20-15:20

Joint Plenary Sessions of OPIC'13

Room 301,302,303

(See Page7)

----- Break (15:20-15:40) -----

15:40-15:45

Opening

Room 311,312

Opening Remarks

15:40 N. Kondo, *Conference Chair of SeTBio'13*
Professor, Graduate School of Agriculture, Kyoto
University, Japan

15:45-18:00

SeTB1 : Light and Plant Factory

Room 311,312

Chair: I. Farkas, Program Committee Member, Szent István
University, Hungary (Tentative)

Co-Chair: H. Shimizu, Vice Chair of Program Committee,
Kyoto University, Japan (Tentative)

SeTB1-1 (Invited) Advanced Technologies for Plant
Factory

15:45 Haruhiko Murase
Osaka Prefecture University, Japan

SeTB1-2 Development of a Monitoring System
Technology Suitable for Production Process
Monitoring in Small Scale Protected
Horticulture

16:15 Y. Nakanishi, and R. Kudo
Shikoku Research Institute Inc, Japan

SeTB1-3 Efficient Plant Growth Using Automatic
Position-Feedback Laser Light Irradiation

16:30 Y. Kakinoki, Y. Kato, K. Ogawa, A. Nakao, Z.
Okai, and T. Katsuyama
Graduate School of Engineering, University of
Fukui, Japan

SeTB1-4 Effect of Photoperiod on Flowering of Cypress
Vine (*Ipomea quamoclit* L.)

16:45 Y. Koike
Faculty of Agriculture, Tokyo University of
Agriculture, Japan

SeTB1-5 (Invited) Current State and Research Trend in

Light Environment for Plant Factory

17:00 Hiroshi Shimizu
Kyoto University, Japan

SeTB1-6 Comparison on Machine Vision System for
Sorting Melon Seedling on Grafting Robot

17:30 S.Tian, S. Dong, J. Yang, and T. Li
Key Laboratory of Protected Horticulture,
Shenyang Agricultural University, China

SeTB1-7 Computer Vision Methods for Greenhouse
Irrigation Control

17:45 I. Farkas
Department of Physics and Process Control,
Szent István University, Hungary

18:30- 20:30

Conference Reception

Room 501,502

Wednesday, April 24

9:00-11:45

SeTB2: Light and Precision Agriculture

Room 311,312

Chair: S. Shibusawa, Vice Chair of Program Committee,
Tokyo University of Agriculture and Technology, Japan

SeTB2-1 (Invited) Multi-scale Photonics for Precision
Agriculture

9:00 Josse De Baerdemaeker
Division of Mechatronics, Biostatistics and
Sensors, MeBioS - KU Leuven, Belgium

SeTB2-2 Mapping Wetland Cover Types Using Remote
Sensing and GIS in Can Gio Mangrove
Biosphere Reserve, Vietnam

9:30 P. Tien Dat¹⁾, and K. Yoshino²⁾
^{1)Center for Agricultural Research and}
^{Ecological Studies (CARES), Hanoi University of}
^{Agriculture (HUA), Vietnam, ^{2)Faculty of}}
^{Engineering, Information and Systems, University}
^{of Tsukuba, Ibaraki, Japan}

SeTB2-3 Spectral Imaging Analysis for Silkworm
Gender Classification

9:45 S. Sumriddetchkajorn¹⁾, C. Kamtongdee²⁾, and C.
Sa-NgiamSak²⁾
^{1) Intelligent Devices and Systems Research Unit,}
^{National Electronics and Computer Technology}
^{Center, Thailand, ^{2) Department of Electrical}}
^{Engineering, Khon Kaen University, Thailand}

SeTB2-4 The Potential of Visible-Near Infrared
Spectroscopy for Mapping of Multiple Soil
Properties Using Real-Time Soil Sensor

10:00 B. S. N. Aliah¹⁾, M. Kodaira²⁾, and S. Shibusawa²⁾
^{1) United Graduate School of Agricultural Science,}
^{Tokyo University of Agriculture and Technology,}
^{Japan, ^{2) Institute of Agriculture, Tokyo}}

University of Agriculture and Technology, Japan

----- Break (10:15-10:30) -----

Chair: F. Giametta, University of Molise, Italy

SeTB2-5 Vibration Analysis Using a Contactless Acquisition System

10:30 P. Catalano¹⁾, F. Fucci¹⁾, F. Giametta¹⁾, G. La Fianza¹⁾, and B. Bianchi²⁾

¹⁾ University of Molise, Italy, ²⁾ University of Bari, Italy

SeTB2-6 Proposal of Optical Farming -Development of Several Optical Sensing Instruments for Agricultural Use-

10:45 Y. Saito¹⁾, and K. Kobayashi²⁾

¹⁾ Faculty of Engineering, Shinshu University, Japan, ²⁾ Graduate School of Science and Technology, Shinshu University, Japan

SeTB2-7 Monitoring System for Yield Qualities of Paddy

11:00 M. Jahari¹⁾, K. Yamamoto¹⁾, M. Miyamoto²⁾, N. Kondo¹⁾, and Y. Ogawa¹⁾

¹⁾ Graduate School of Agriculture, Kyoto University, Japan, ²⁾ Yanmar Co., Ltd, Japan

SeTB2-8 Application of Visible-Shortwave Near Infrared Spectrometer to Predict Sugarcane Quality Based on Different Sample Forms

11:15 N. M. Nawi^{1,3)}, G. Chen^{1,2)}, and T. Jensen^{1,2)}

¹⁾ Faculty of Engineering and Surveying, University of Southern Queensland, Australia, ²⁾ National Centre for Engineering in Agriculture (NCEA), University of Southern Queensland, Australia, ³⁾ Department of Biological and Agricultural Engineering, Faculty of Engineering, Universiti Putra Malaysia, Malaysia

SeTB2-9 Fusion of Image and Laser-Scanning Data in a Large-Scale 3D Virtual Environment

11:30 J.S. Shih, T.T. Lin

Dept. of Bio-Industrial Mechatronics Engineering, National Taiwan University, Taiwan

----- Lunch Break (11:45-13:15) -----

13:15-15:00

SeTB2: Light and Precision Agriculture

Room 311,312

Chair: J. De Baerdemaeker, Division of Mechatronics, Biostatistics and Sensors, MeBioS - KU Leuven, Belgium

SeTB2-10 (Invited) Precision Agriculture Thanks Optical Technology

13:15 Sakae Shibusawa

Tokyo University of Agriculture and Technology, Japan

SeTB2-11 Low Altitude Aerial Remote Sensing and Mobile Ground Measurement

13:45 R. Pudielko, J. Kozyra, and M. B. Walker

Department of Agrometeorology and Applied Informatics, Institute of Soil Science and Plant Cultivation, State Research Institute, Poland

SeTB2-12 Daily Cycle of Spectral Reflectance Characteristics of Different Crops-Case Study

of Poland-

14:00 J. Kozyra, R. Pudielko, and M. B. Walker

Department of Agrometeorology and Applied Informatics, Institute of Soil Science and Plant Cultivation, State Research Institute, Poland

SeTB2-13 Effects of Microwave on *Spinacia Oleracea* Growth — Survey of Germination and Long-Term Exposure —

14:15 J. Miyasaka¹⁾, H. Iguchi¹⁾, R. Yamamoto¹⁾, Y. Ogawa¹⁾, H. Shimizu¹⁾, H. Nakashima¹⁾, K. Ohdoi¹⁾, N. Shinohara²⁾, and T. Mitani²⁾

¹⁾ Graduate School of Agriculture, Kyoto University, Japan, ²⁾ Research Institute for Sustainable Humanosphere, Kyoto University, Japan

14:30-15:00

Sponsor Presentation

Room 311,312

SeTB-SP-1 NEC Corporation, Japan

14:30

SeTB-SP-2 Murata Manufacturing Co., Ltd., Japan

14:45

----- Break (15:00-15:15) -----

15:15-17:00

SeTB3: Light and Bio-sensing

Room 311,312

Chair: S. Chen, Program Committee Member, Department of Bio-Industrial Mechatronics Engineering, National Taiwan University, Taiwan

SeTB3-1 (Invited) Foodborne Pathogenic Bacteria Identification with Hyperspectral Microscope Imaging

15:15 Bosoon Park

United States Department of Agriculture (USDA), USA

SeTB3-2 Mobile Device-Based Optical Instruments for Agriculture

15:45 S. Sumriddetchkajorn

Intelligent Devices and Systems Research Unit, National Electronics and Computer Technology Center, Thailand

SeTB3-3 Multiple Leaf Tracking Using Computer Vision Methods with Shape Constraints

16:00 J. De Vylder¹⁾, W. Philips¹⁾, and D. Van Der Straeten²⁾

¹⁾ Department of Telecommunication and Information Processing, Ghent University, Belgium, ²⁾ Department of Physiology, Ghent University, Belgium

SeTB3-4 Early Detection of Basal Stem Rot in Oil Palm Plantations Using Gamma-Ray Computed Tomography

16:15 J. Abdullah¹⁾, S. Mohd¹⁾, H. Hassan¹⁾, M. R. Shari¹⁾, M. Mustapha¹⁾, A. A. Mahmood¹⁾, M. R. Ngah²⁾, and N. H. Hamid²⁾

¹⁾ Centre for Computed Tomography and Industrial Imaging (CCTII), Malaysian Nuclear Agency, Malaysia, ²⁾ FELDA Agriculture Services

Sdn Bhd, Malaysia

- SeTB3-5** **Non-Destructive Prediction of Degreening Rate of Broccoli by Hyperspectral Imaging**
16:30 Y. Makino, Y. Kosaka, A. Hosaka, and S. Oshita
Graduate School of Agricultural and Life Sciences, The University of Tokyo, Japan
- SeTB3-6** **Determination of L-Ascorbic Acid (L-AA) in Terahertz Region Using Back Propagation Artificial Neural Networks (BP-ANN) Method**
16:45 D. Suhandy, M. Yulia, S. Widodo, Y. Ogawa, and N. Kondo
Graduate School of Agriculture, Kyoto University, Japan

Thursday, April 25

9:00-16:00

SeTB3: Light and Bio-sensing

Room 311,312

Chair: T. T. Lin, Dept. of Bio-Industrial Mechatronics Engineering, National Taiwan University

- SeTB3-7** **(Invited) Monitoring of ATP and/or Viable Cells on Meat Surface by Excitation – Emission Matrix Fluorescence Spectroscopy**
9:00 Seiichi Oshita
The University of Tokyo, Japan
- SeTB3-8** **Estimation of the Dielectric Changes of Detaching Adherent Cells by Terahertz Split-Ring Resonator**
9:30 K. Hattori, K. Shiraga, T. Suzuki, Y. Ogawa, and N. Kondo
Graduate School of Agriculture, Kyoto University, Japan
- SeTB3-9** **Determination of Chlorogenic Acid (CGA) in Different Roast Degree Coffee by Near Infrared (NIR) Spectroscopy**
9:45 J. Shan, T. Suzuki, D. Suhandy, Y. Ogawa, and N. Kondo
Graduate School of Agriculture, Kyoto University, Japan
- SeTB3-10** **Evaluation of the Hydration Effect of Monosaccharides in the Terahertz Region**
10:00 K. Shiraga¹⁾, Y. Ogawa¹⁾, N. Kondo¹⁾, A. Irisawa²⁾, and M. Imamura²⁾
¹⁾ Graduate School of Agriculture, Kyoto University, Japan ²⁾ ADVANTEST Corporation, Japan

----- Break (10:15-10:30) -----

Chair: H. Hwang, Program Committee Member, Sungkyunkwan University, Korea

- SeTB3-11** **Inspection of Fecal Contamination on Strawberries Using Fluorescence Imaging**
10:30 Y. K. Chuang¹⁾, S. Chen¹⁾, C. C. Yang²⁾, M. S. Kim²⁾, D. E. Chan²⁾, S. R. Delwiche³⁾, and Y. M. Lo⁴⁾
¹⁾Department of Bio-Industrial Mechatronics Engineering, National Taiwan University, Taiwan, ²⁾USDA-ARS, Beltsville Agricultural Research Center, Environmental Microbial & Food Safety Laboratory, USA, ³⁾USDA-ARS,

Beltsville Agricultural Research Center, Food Quality Laboratory USA, ⁴⁾Department of Nutrition and Food Science, University of Maryland, USA

- SeTB3-12** **Evaluation of Phalaenopsis Flowering Quality Using Near Infrared Spectroscopy**
10:45 S. Chen¹⁾, Y.K Chuang¹⁾, Y.H. Chang¹⁾, C.C Tai¹⁾, Y.C. A. Chang²⁾, J.Y. Hou²⁾, C.Y Tsai³⁾, and I.C. Yang⁴⁾
¹⁾Department of Bio-Industrial Mechatronics Engineering, National Taiwan University, Taiwan, ²⁾Department of Horticulture and Landscape Architecture, National Taiwan University, Taiwan, ³⁾Bioenergy Research Center, National Taiwan University, Taiwan, ⁴⁾Taiwan Agricultural Mechanization Research and Development Center, Taiwan
- SeTB3-13** **Attenuated Total Reflection Terahertz Spectra of Raw Milk for Measuring Somatic Cell Count**
11:00 H. Naito¹⁾, Y. Ogawa¹⁾, N. Kondo¹⁾, and A. Kubota²⁾
¹⁾ Graduate School of Agriculture, Kyoto University, Japan ²⁾ Hokkaido Research Organization Agricultural Research Department, Japan
- SeTB3-14** **An Approach for Identification of Vitamin A Deficient Cattle by Pupillary Light Reflex Analysis in Japanese Black Cattle**
11:15 S. Han¹⁾, N. Kondo¹⁾, T. Fujiura¹⁾, Y. Ogawa¹⁾, S. Tanigawa¹⁾, M. Fukushima²⁾, O. Watanabe²⁾, and N. Kohama²⁾
¹⁾ Graduate School of Agriculture, Kyoto University, Japan ²⁾ Department of Beef Cattle Production, Hyogo Prefectural Hokubu Agricultural Institute, Japan
- SeTB3-15** **Monitoring Chicken Embryo Development by VIS Transmission Spectroscopy**
11:30 Md. H. Islam¹⁾, N. Kondo¹⁾, Y. Ogawa¹⁾, T. Fujiura¹⁾, S. Nakajima¹⁾, S. Fujitani²⁾, and T. Tahara²⁾
¹⁾ Graduate School of Agriculture, Kyoto University, Japan ²⁾ NABEL Co. Ltd., Kyoto, Japan
- Lunch Break (11:45-13:00) -----
- Chair:** S. Oshita, Vice Chair of Program Committee, The University of Tokyo, Japan
- SeTB3-16** **Optical Coherence Tomography Biospeckle Imaging for Fast Monitoring Varying Surface Responses of A Plant Leaf Under Ozone Stress**
13:00 L. K. T. Srimal¹⁾, H. Kadono¹⁾, and U. M. Rajagopalan²⁾
¹⁾ Graduate School of Science and Engineering, Saitama University, Japan, ²⁾ Laboratory for Integrative Neural Systems, RIKEN Brain Science Institute, Japan
- SeTB3-17** **Glass Beads Counting by Using Metallic Mesh Sensor in Terahertz Region for Pollen Counting Application**
13:15 Y. Wang, T. Suzuki, K. Shiraga, K. Hattori, Y. Ogawa, and N. Kondo
Graduate School of Agriculture, Kyoto University,

- Japan*
- SeTB3-18 Hyperspectral Spectroscopy for Monitoring Fungal Contamination in Cereal Grains**
13:30 U. Siripatrawan¹, Y. Makino², and S. Oshita²
¹ Department of Food Technology, Faculty of Science, Chulalongkorn University, Thailand, ² Graduate School of Agricultural and Life Science, The University of Tokyo, Japan
- SeTB3-19 In Situ Nondestructive Imaging of Functional Pigments in Micro-Tom Tomato Fruits by Multi Spectral Imaging Based on Wiener Estimation Method**
13:45 I. Nishidate¹, S. Ooe¹, S. Todoroki¹, and E. Asamizu²
¹Graduate School of Bio-Applications & Systems Engineering (BASE), Tokyo University of Agriculture and Technology, Japan, ²Graduate School of Life and Environmental Sciences, Gene Research Center, University of Tsukuba, Japan
- SeTB3-20 Development of Noncontact Integrated Egg Quality Measurement System**
14:00 D.G. Lee¹, S.H Cho¹, H. Hwang¹, and W.B. Yoon²
¹Department of Biomechatronics, Sungkyunkwan University, Korea, ² Department of Food Science and Biotechnology, Kangwon National University, Korea

----- Break (14:15-14:30) -----

Chair: B. Park, Program Committee member, United States Department of Agriculture (USDA), USA

- SeTB3-21 Multichannel Microfluidic Chip for Rapid and Reliable Trapping and Imaging Plant-Parasitic Nematodes**
14:30 R. Amrit¹, S. Porntheeraphat¹, W. Sripumkhai², W. Jeamsaksiri², N. Tangchitsomkit³, and B. Sutapun⁴
¹Photonics Technology Laboratory, National Electronics and Computer Technology, Thailand, ²Thai Microelectronic Center, National Electronics and Computer Technology, Thailand, ³Plant Protection Research and Development Office, Department of Agriculture, Thailand, ⁴Electronic Engineering Program, School of Telecommunication Engineering, Suranaree University of Technology, Thailand
- SeTB3-22 Measuring the Key Shape Features of Onion Bulbs Using 2-D and 3-D Images**
14:45 W. Wang, and C. Li
 College of Engineering, University of Georgia, USA
- SeTB3-23 Detection of Escherichia Coli Deposited on a Filter Using Metallic Mesh Sensor**
15:00 T. Suzuki¹, Y. Ogawa¹, N. Kondo¹, T. Kondo², and S. Kamba²
¹ Graduate School of Agriculture, Kyoto University, Japan ² Murata Manufacturing Company, Japan
- SeTB3-24 Apple Ripeness Detection Using Hyperspectral Laser Scatter Imaging**
15:15 R. Van Beers, B. Aernouts, J. De Baerdemaeker, and W. Saey
 Division of Mechatronics, Biostatistics and Sensors, MeBioS - KU Leuven, Belgium

- SeTB3-25 Spatially Resolved Spectroscopy for Nondestructive Quality Measurements of Braeburn Apples**
15:30 N. Nguyen Do Trong¹, C. Erkinbaev¹, B. Nicolai¹, W. Saey¹, M. Tsuta^{1,2}, and J. De Baerdemaeker^{1,3}
¹ Division of Mechatronics, Biostatistics and Sensors, MeBioS - KU Leuven, Belgium, ² National Food Research Institute, Tsukuba, Ibaraki, Japan, ³Graduate School of Agriculture, Kyoto University, Japan
- SeTB3-26 Broadband Photon Time of Flight Spectrometer for Characterization of Food and Pharmaceutical Products**
15:45 D. Khoptyar¹, A. A. Subash¹, O. H. A. Nielsen², S. Johansson¹, and S. Andersson-Engels¹
¹ Department of Physics, Lund University, Sweden, ² DTU Informatics, Department of Informatics and Mathematical Modeling, Technical University of Denmark, Denmark

16:00-16:05

Closing

Room 311,312

Closing Remarks

- 16:00** Y. Ogawa, Program Committee Chair of SeTBio'13
 Professor, Graduate School of Agriculture, Kyoto University, Japan