OPTICS & PHOTONICS International Congress

OPIC 2016

17-20 May 2016

PACIFICO YOKOHAMA | Yokohama, Japan

Congress Program

Plenary Session

Joint Sessions

Specialized International Conferences

- ALPS '16 : The 5th Advanced Lasers and Photon Sources
- BISC '16 : Biomedical Imaging and Sensing Conference 2016
- CLES 2016 : Conference on Laser Energy Science
- HEDS 2016 : International Conference on High Energy Density Science 2016
- LEDIA '16 : The 4th International Conference on Light-Emitting Devices and Their Industrial Applications
- LIC '16 : The 4th Laser Ignition Conference 2016
- LSSE 2016 : Laser Solution for Space and the Earth
- OMC '16 : The 3rd Optical Manipulation Conference
- PLD '16 : The 5th Pacific-rim Laser Damage Conference
- SLPC 2016 : The 2nd Smart Laser Processing Conference
- XOPT '16 : International Conference on X-ray Optics, Detectors, Sources, and Their Applications 2016

RAYLASE
focus on laser

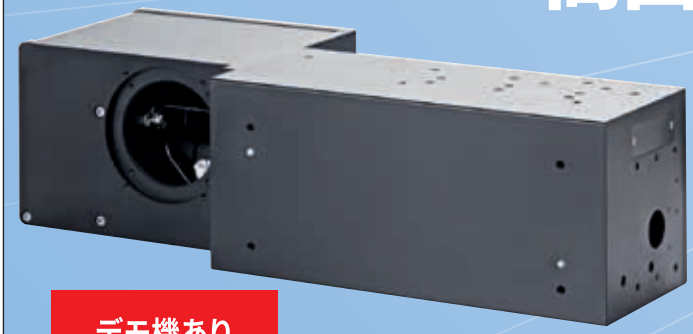
広エリア&小スポット 3Dガルバノスキャナシステム
AXIALSCAN-70

最小スポットを追求した
CO_2レーザ専用3Dスキャナ

- 小スポットによるハイスピード加工
- 最大2000×2000mmフィールドエリア
- 製造ラインでの大型サンプルの高速加工に最適
- 多様な使用方法に対応するソフトウェア

デモ機あり
CO_2 レーザ用

高出力&高速 3Dガルバノスキャナシステム
AXIALSCAN-30



デモ機あり
1um レーザ用

ファイバレーザとの組み合わせ、
3D加工機用途に

- 最大4kW入射可能
- Z軸へガルバノモーターを採用し、高速3D加工を実現
- 多くの販売実績に裏付けされた信頼性とユーザインタフェース

超高速 2Dガルバノスキャナシステム
UHSS ULTRA-HIGH-SPEED SCANNER

かつてないスキャンスピード！
最大200m/secを実現

- 超短パルスレーザに最適
- 高密度微細加工や高速アニーリングに最適
- 低ドリフト：＜150 µrad*

デモ機あり
1um レーザ用

* 30 分ウォームアップ後から 8 時間、環境温度変化 +/-1K 以内のとき

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Table of Contents

OPTICS & PHOTONICS International Congress 2016 ---- 2
Welcome to OPIC 2016 ---- 3
OPIC 2016 Program at a Glance ---- 4
Floor Plan of OPIC 2016 ---- 6
OPIC 2016 Congress Committees ---- 9
OPIC 2016 Sponsorship ---- 11
General Information ---- 13
- Registration
- Reception
- Information Desk
- Business Centers, Internet Service, etc.

OPIC 2016 Plenary Session ---- 16
- Greetings ---- 17
- Plenary Speech ---- 18

OPIC 2016 Specialized International Conferences ---- 27
- Conferences Chairs' Welcome Letters ---- 29
- Conferences Committees
- ALPS '16 ---- 36
- BISC '16 ---- 37
- CLES 2016 ---- 38
- HEDS 2016 ---- 39
- LEDIA '16 ---- 40
- LIC '16 ---- 41
- LSSE 2016 ---- 42
- OMC '16 ---- 43
- PLD '16 ---- 44
- SLPC 2016 ---- 45
- XOPT '16 ---- 46

OPIC 2016 Conferences Program ---- 47
- Oral Sessions
- 17 May ---- 48
- 18 May ---- 56
- 19 May ---- 60
- 20 May ---- 76
- Poster Sessions ---- 92

What's Happening on the Exhibition hall? ---- 106
Restaurant MAP ---- 108
Ads (Sponsors)
- Opto Science, Inc. ---- C2
- Photonics Media ---- C3
- Japan Laser Corp. ---- C4
- Chinese Laser Press ---- 111
- OSA ---- 112
- OPIE ---- 113
- SPIE ---- 114

OPTICS & PHOTONICS International Congress 2016

Date: May 17 (Tue.)~20 (Fri.), 2016

Organized by
OPTICS & PHOTONICS International Council

Specialized International Conference Organized by
The Laser Society of Japan
The Japan Society of Applied Physics
Institute of Laser Engineering, Osaka University
Akasaki Research Center (ARC), Nagoya University
Japan Laser Processing Society
The Micro Solid-Sate Photonics Group of The Laser Society of Japan
The Executive Committee of Laser Solution for Space and the Earth
RIKEN SPring-8 Center / Research Center for Ultra-Precision Science & Technology, Osaka University

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Institute for Laser Technology (ILT)
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KAPID (Korea)
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Welcome to OPIC 2016

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Chair

OPIC 2016 Organizing Committee

President, GPI

President, The Laser Society of Japan

Yasukazu Izawa

Chair

OPIC 2016 Steering Committee

Director, Inst. for Laser Technology

Since 2012, OPIC has been held every year at Yokohama as an international forum to present and discuss the most up-to-date R & D activities in optics and photonics in the world and to exchange the thoughts on the role of optics and photonics in the future of our society. The jointly organized and co-located OPIE will provide the opportunity to show the state-of-art technologies, embodying the future possibility of optics and photonics.

At the plenary session, four distinguished speakers will present very up-dated status of the hot topics; new photonic imaging device, innovation in material science, international observatory project and European extreme light project.

This year, OPIC 2016 is composed of 11 professional conferences, the largest number since its beginning, thanks to joining of Laser Solution for Space and the Earth (LSSE 2016) and International Conference on X-ray optics, detectors, sources, and their applications (XOPT '16). With these new additions, broad range of fields will be covered at OPIC 2016, including light sources, optical manipulation, visible and x-ray optics, biology, space, laser fusion, high density physics, laser processing and industrial applications.

We sincerely appreciate the authorized supports of the Ministry of Education, Culture, Sports, Science and Technology (MEXT), the Ministry of Economics, Trade, and Industry (METI), the Ministry of Agriculture, Forestry and Fishery (MAFF), the Ministry of Health, Labor and Welfare (MHLW), the Ministry of Land, Infrastructure, Transport and Tourism, (MLIT), and Japan Business Federation. We would also like to thank the funding organizations and the companies for strong supports to OPIC 2016.

One of the special features of OPIC is that OPIC is "hand-made", i.e. each conference is planned and operated by the Chair and his consortium of scientists based on their own ideals to strengthen the research and network in their specific field. We hope OPIC 2016 will contribute to all participants for information exchanges and personal contacts among different fields and disciplines.

Program at a Glance

Plenary | Joint | Parallel | Poster

Date	Time \ Room	Room 302 ALPS '16	Room 511+512 ALPS '16	Room 419 BISC '16	Room 418 CLES 2016	Room 311+312 HEDS 2016	Room 411+412 LEDIA '16
Tue 17 May	9:00 -	**Opening** **ALPS1** Frequency comb generation			**Opening** **CLES1** Integrated Experiment (Electron)	**Opening** **HEDS1** Plenary	
	10:00 -	Coffee Break					
	11:00 -	**ALPS2** Applications of optical frequency comb	**ALPS3** Ultrafast technologies		**CLES2** Electron Transport and Generation	**HEDS2** High-Field Physics I	
	12:00 -	Lunch			Lunch	Lunch	
	13:00 -	**ALPS4** Fiber-based novel sources	**ALPS5** Petawatt and high power lasers		**CLES3** Proton Fast Ignition	**HEDS3** High-Field Physics II	
	14:00 -						
	15:00 -	Coffee Break			Coffee Break	Coffee Break	
	16:00 -	**ALPS6** Fiber lasers and laser diodes	**ALPS7** Ultrafast light sources		**CLES4** Ion Acceleration	**HEDS4** Ultra-fast Imaging	
	17:00 -						
	18:00 -						
Wed 18 May	ROOM 501+502 9:00 - 12:10	**Plenary session** 9:00 - 9:15 Greetings: Andreas Ostendorf (Congress Chair), Sadao Nakai (IAB Chair), Reinhart Poprawe (IAB) 9:15 - 9:55 Plenary Retinal Imaging Laser Eyewear : from Low-Vision Aids to Smart Glass Mitsuru Sugawara, President, QD Laser Inc., Japan 9:55 - 10:35 Plenary Cultivation of Electro-Active Functionality in Transparent Oxides Hideo Hosono, Professor, Tokyo Institute of Technology, Japan 10:50 - 11:30 Plenary The Thirty Meter Telescope project Masanori Iye, Professor Emeritus, National Astronomical Observatory of Japan 11:30 - 12:10 Plenary ELI: The CERN of laser research Georg Korn, CSO, Head of Department of Experimental Program, Extreme Light Infrastructure (ELI)					
	12:10 -	Lunch					
	13:00 -						**LED1** Special Session 1 (Industrial Applications)
	14:00 -	**ALPS, XOPT, HEDS Joint Session 1**	**ALPS8** Novel structured lasers/ nonlinear media	**BISC & OMC Joint Session** [Room 414+415]	**CLES5** Magnetic Field Assisted fast Ignition	**ALPS, XOPT, HEDS Joint Session 1** **Joint Session 2** [Room 302]	
	15:00 -				Coffee Break		Coffee Break
	16:00 -	**ALPS, XOPT, HEDS Joint Session 2**	**ALPS9** Metamaterials, Photon handling		**CLES6** High Field Generation with Laser		**LED2** Special Session 2 (Industrial Applications)
	17:00 -						
	18:00 -	18:00 - 20:00 OPIC 2016 Reception (ROOM 501+502)					
Thu 19 May	9:00 -	**ALPS10** High power lasers	**ALPS11** Biomedical imaging and applications	**Opening** **BISC1** OCT, Phase Imaging	**CLES7** Integrated Simulation and Modeling	**HEDS5** Particle Acceleration I	**LED3** Bulk & Epitaxy
	10:00 -			Coffee Break			
	11:00 -	**ALPS12** Photonic lasers and applications	**ALPS13** Biomedical spectroscopy	**BISC2** Microscopy	**CLES8** Novel Scheme of Fast Ignition	**HEDS6** Particle Acceleration II	**LED3** Bulk & Epitaxy
	12:00 -			Lunch			
	13:00 -	**ALPSp14** [Exhibition Hall A] Poster Session		**BISC3** Holography	**CLES9** High Energy Density Physics with High Intensity Lasers	**HEDS7** Commercial Products for HEDS **HEDS8** Radiation Sources I	**LEDp4** Short Presentations for Poster Session
	14:00 -						
	15:00 -	Coffee Break				Coffee Break	
	16:00 -			**Organized Session** **BISC4** Adaptive Optics: Pushing the boundaries of deep imaging in living cells and tissues	Coffee Break **CLES10** Fuel Assembly Production	**HEDS9** Radiation Sources II **HEDS10** Student Session	**LEDp4** [Exhibition Hall A] Poster Session
	17:00 -						
	18:00 -						
Fri 20 May	9:00 -			**BISC5** Multi-modal Imaging, Photo-acoustic Imaging	**CLES11** Integrated experiment and simulation	**HEDS11** Plenanry **HEDS12** Particle Acceleration III	**LED5** LEDs
	10:00 -			**BISCp6** [Exhibition Hall A] Poster Session	Coffee Break		
	11:00 -				**CLES12** Electron Generation	**HEDS13** Particle Acceleration IV	**LED6** Nanostructures
	12:00 -				Lunch		
	13:00 -			**BISC7** Nano, Fluorescence, Spectral Imaging, Biosensor	**CLES13** Super Penetration and NIF Status and Prospects	**HEDSp14** [Exhibition Hall A] Poster Session	**LED7** AlGaN & Devices
	14:00 -				**CLES14** High Intencity Laser development		
	15:00 -			Coffee Break		Coffee Break	
	16:00 -			**BISC8** Brain imaging, spectral imaging, image processing **Closing**	Coffee Break **Summary** **Closing**	**HEDS15** Particle Acceleration V & Radiation Sources III **Closing**	**LED8** Lasers **LED9** Tutorial **Closing**
	17:00 -						
	18:00 -						

Program at a Glance

Room 301 LIC '16	Room 316 LSSE 2016	Room 414+415 OMC '16	Room 413 PLD '16	Room 416+417 SLPC 2016 / ALPS '16	Room 313+314 XOPT '16	Exhibition Hall A, B	Room / Time
				Opening			9:00 -
	Opening			**SLPC1**			10:00 -
	LSSE1			Plenary			11:00 -
	Space Debris Detection Remediation 1			**SLPC2**			12:00 -
				Beam Sources and Components for Smart Laser Processing			13:00 -
	Lunch			Lunch			14:00 -
	LSSE2			**SLPC3**			15:00 -
	Space Debris Detection Remediation 2			Additive Manufacturing			16:00 -
	Coffee Break			Coffee Break			17:00 -
	LSSE3			**SLPC4**			18:00 -
	Space Debris Detection Remediation 3			Micro & Nano Processing			

Plenary session
9:00 - 9:15 Greetings: Andreas Ostendorf (Congress Chair), Sadao Nakai (IAB Chair), Reinhart Poprawe (IAB)
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11:30 - 12:10 Plenary ELI: The CERN of laser research Georg Korn, CSO, Head of Department of Experimental Program, Extreme Light Infrastructure (ELI)

ROOM 501+502 9:00 - 12:10

Lunch 12:10 - 13:00

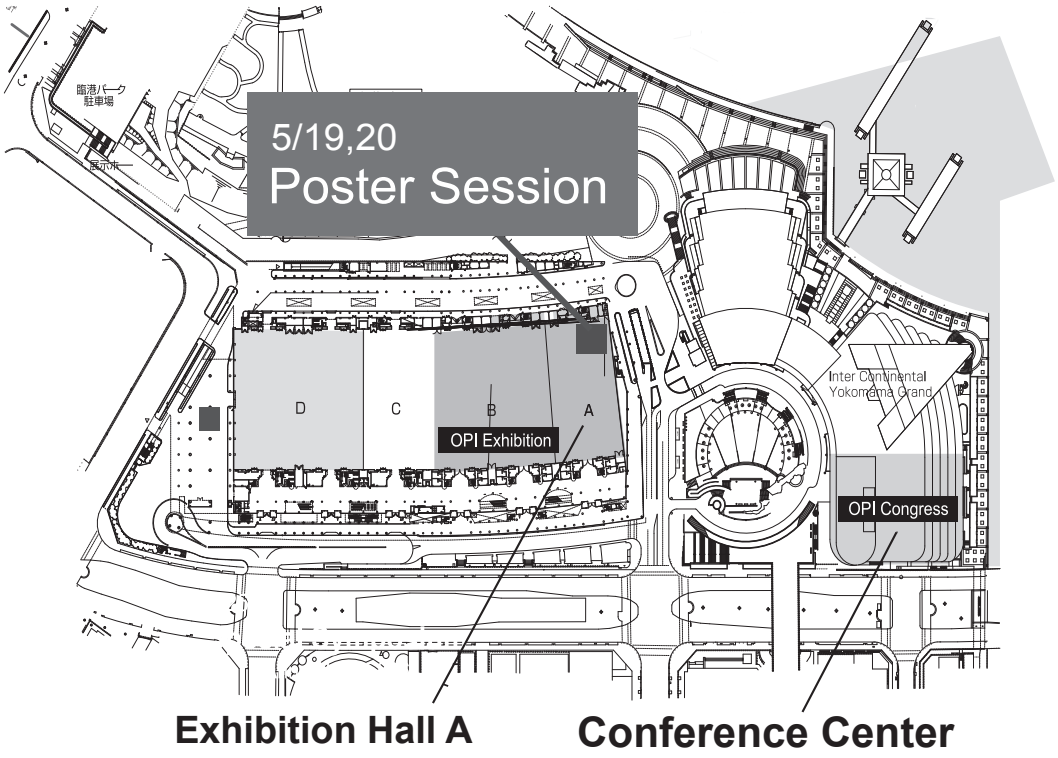
LIC+PLD+SLPC Joint Session 1	**LSSE4** Remote Sensing	**BISC & OMC Joint Session**	**LIC+PLD+SLPC Joint Session 1 (PLD1) Joint Session 2 (PLD2)** [Room 301]	**LIC+PLD+SLPC Joint Session 1 (SLPC5) Joint Session 2 (SLPC6)** [Room 301]	**ALPS, XOPT, HEDS Joint Session 1 Joint Session 2** [Room 302]	**10:00 - 17:00 OPIE '16 Exhibition**	13:00 -
		Coffee Break					14:00 -
Coffee Break		**BISC & OMC Joint Session**					15:00 -
LIC+PLD+SLPC Joint Session 2							16:00 -
							17:00 -
18:00 - 20:00 OPIC 2016 Reception (ROOM 501+502)							18:00 -

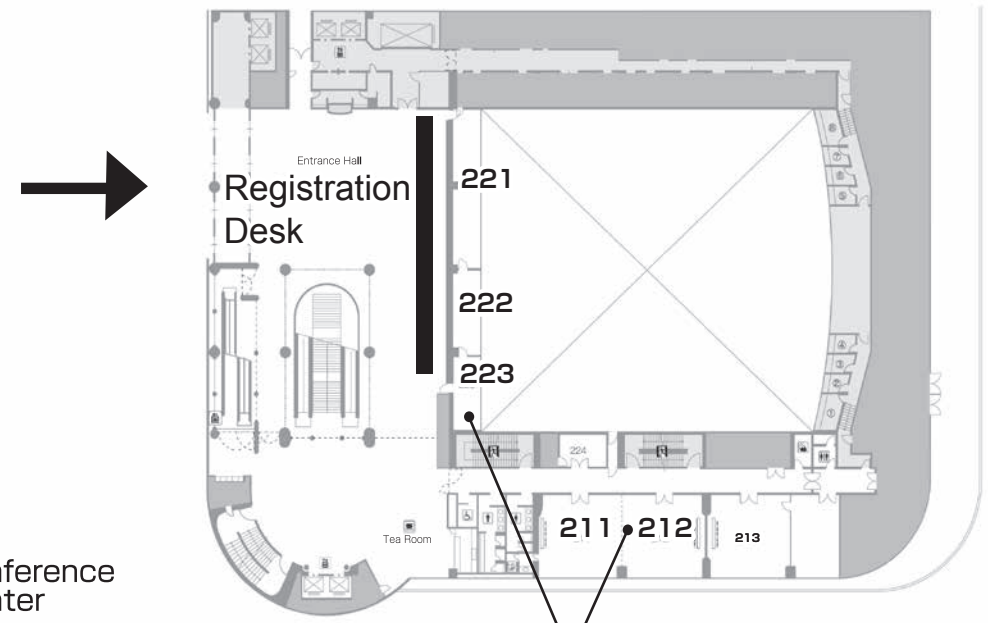
LIC1 LIC plenary session **LIC2**		**OMC1** Optical Manipulation	**PLD3** Plenary and coatings	**SLPC7** Surface Structuring and Modification	**Opening XOPT1** X-ray source		9:00 -
Coffee Break		Coffee Break		Coffee Break	**XOPT2**		10:00 -
LIC2 Fundamental ignition studies	**LSSEp5** [Exhibition Hall A] Poster Session	**OMC2** OptoMechanics	**PLD4** Nonlinear materials	**SLPC8** Cutting and Welding	Coffee Break **XOPT2** X-ray optics for advanced light sources	**10:00 - 17:00 OPIE '16 Exhibition OPIC 2016 Poster session**	11:00 -
	Lunch						12:00 -
LIC3 Giant micro-photonics	**LSSE6** Maintenance of Social Infrastructure 1	**OMC3** OptoMechnics &Plasmonics	**PLD5** Short pulse phenomena	**SLPC9** [Exhibition Hall A] Poster Session	**XOPT3** X-ray microscopy & imaging		13:00 -
LIC4	Coffee Break						14:00 -
Advanced applications of giant-pulse microchip laser systems	**LSSE7** Maintenance of Social Infrastructure 2	**OMC4** Structured Light	**PLD6** High power resistant coatings	**SLPC10** Industrial Applications **Closing**	**XOPT4** X-ray optics (I): refractive optics & applications **XOPT5** X-ray detectors		15:00 -
							16:00 -
							17:00 -
							18:00 -

LIC6 Advanced ignition systems for vehicular applications		**OMC5** Structured Materials Fabrication	**PLD7** [Exhibition Hall A] Poster session	**ALPS15** Terahertz-wave sensing and devices	**XOPT6** X-ray optics (II): reflective optics & applications		9:00 -
	LSSE8			Coffee Break			10:00 -
LICp Poster Session	Maintenance of Social Infrastructure 3	**OMC6** Advanced Optical Manipulation	**PLD8** Material Damage	**ALPS16** Terahertz-wave imaging	**XOPT7** X-ray optics (III): optics for various spectroscopic methods	**10:00 - 17:00 OPIE '16 Exhibition OPIC 2016 Poster session**	11:00 -
	Lunch						12:00 -
LIC7 Nonlinear optics	**LSSE9** Maintenance of Social Infrastructure 4 **Closing**	**OMCp** [Exhibition Hall A] Poster session	**PLD9** Defect, Contamination(1)	**ALPS17** Intense lasers	**XOPT8** [Exhibition Hall A] Poster Session		13:00 -
LIC8 Advanced ignition systems for stationary power generation		**OMC7** Photon Radiation Forces		Coffee Break			14:00 -
LIC8		Coffee Break	**PLD10** Defect, Contamination(2) **Closing**	**ALPS18** New sources **Closing**	**XOPT9, XOPT10** **XOPT11** X-ray diagnostics **Closing**		15:00 -
LIC9 Micro solid state photonics **Closing**		**OMC8** Hydrodynamics & Plasmonics **Closing**					16:00 -
							17:00 -
							18:00 -

Floor Plan

Pacifico Yokohama





Conference Center

2F

5/17～20
Secretariat（**211, 212, 221～223**）

Conference Center

3F

5/19, 20
XOPT (**313+314**)

5/17～20
HEDS (**311+312**)

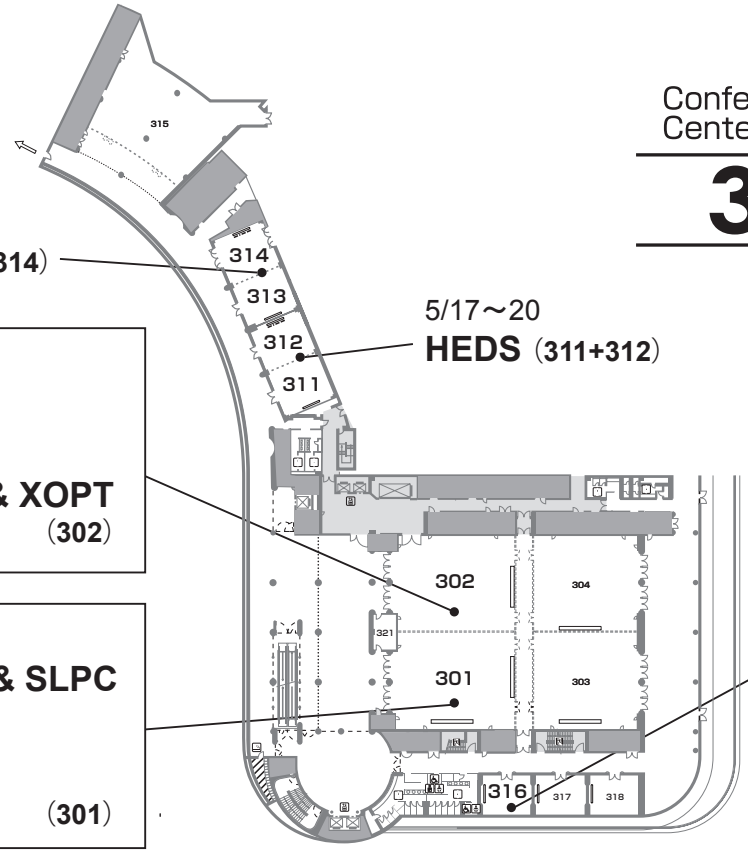
5/17, 19
ALPS

5/18
Joint ALPS & HEDS & XOPT
(**302**)

5/18
Joint LIC & PLD & SLPC

5/19, 20
LIC
(**301**)

5/17～20
LSSE (**316**)



Passageway to Convention Hall

5/17～20
CLES (**418**)

5/19, 20
BISC (**419**)

5/18
Joint BISC & OMC

5/19, 20
OMC (**414+415**)

5/17,19
SLPC

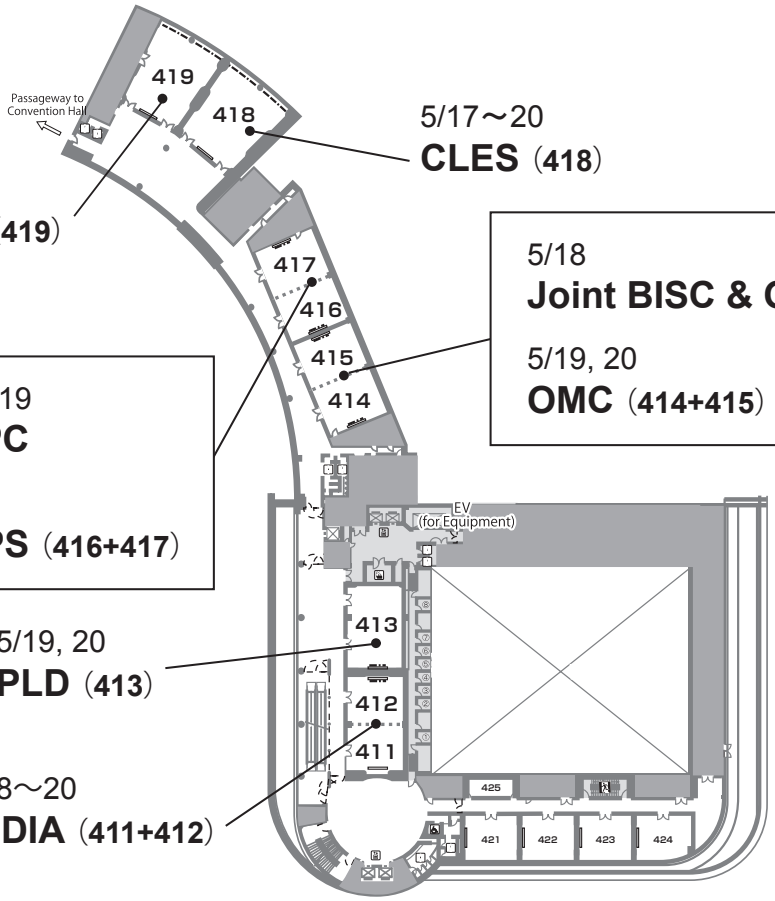
5/20
ALPS (**416+417**)

5/19, 20
PLD (**413**)

5/18～20
LEDIA (**411+412**)

Conference Center

4F



Conference Center

5F

5/18

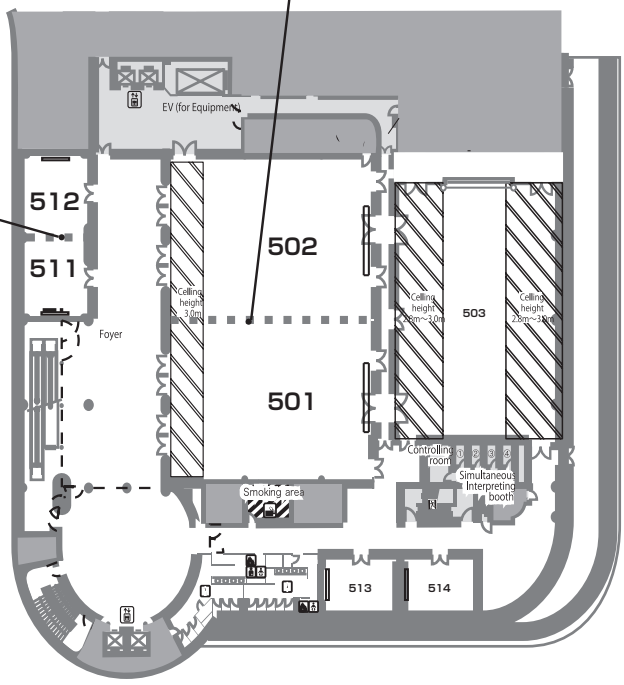
Plenary Session
Reception

（**501+502**）

5/17～19

ALPS
Pararell Session

（**511+512**）



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Tohru Honda Kogakuin University, LEDIA
Kunihiko Washio Paradigm Laser Research, Inc., LIC
Masahiro Tsukamoto Osaka University, SLPC
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Konica Minolta Science and Technology Foundation

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Support Center for Advanced Telecommunications Technology Research, Foundation

SCAT
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Technology Research, Foundation

Research Foundation for the Electrotechnology of Chubu.

公益財団法人 中部電気利用基礎研究振興財団
REFEC : Research Foundation for the Electrotechnology of Chubu.

Nippon Sheet Glass Foundation for Materials Science and Engineering

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Registration Hours

Tuesday, May 17	8:30 - 17:00
Wednesday, May 18	8:30 - 17:00
Thursday, May 19	8:30 - 17:00
Friday, May 20	8:30 - 12:00

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Exhibition Hall A,B

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Exhibition Hours

Wednesday, May 18	10:00 - 17:00
Thursday, May 19	10:00 - 17:00
Friday, May 20	10:00 - 17:00

Congress Reception

Conference Room 501 + 502

Wednesday, May 18	18:00 - 20:00

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OPIC 2016 Plenary Session

Wednesday, May 18, 2016
Pacifico Yokohama Congress Center, Fifth Floor (Room 501+502)

9:00 - 9:15

Greetings by Congress and IAB Chairs

Andreas Ostendorf, Congress Chair, Professor, Ruhr-University Bochum, Germany

Sadao Nakai, IAB Chair, Professor Emeritus, Osaka University

Reinhart Poprawe, IAB, Director, Fraunhofer Inst. for Laser Tech., Germany

Plenary Speech

9:15 - 10:35

< First session >

Chair, Kenichi Iga, Congress Chair, Professor Emeritus, Tokyo Institute of Technology

1) **Retinal Imaging Laser Eyewear: From Low Vision Aids to Smart Glass**

   Mitsuru Sugawara, President of QD Laser Inc.

2) **Cultivation of Electro-Active Functionality in Transparent Oxides**

   Hideo Hosono, Professor, Tokyo Institute of Technology. 2016 Japan Prize Laureates

----- 10:35-10:50 Break -----

10:50 – 12:10

< Second session >

Chair, Chris Barty, Congress Chair, CTO, Lawrence Livermore National Laboratory. USA

1) **The Thirty Meter Telescope project**

   Masanori Iye, Professor Emeritus, National Astronomical Observatory of Japan

   Vice Chair of the TMT International Observatory Governing Board

2) **ELI: The CERN of laser research**

   Georg Korn, CSO, Extreme Light Infrastructure (ELI)

18:00 – 20:00

OPIC 2016 Reception

Pacifico Yokohama Congress Center, Fifth Floor (Room 501+502)

Plenary Session

Opening Remarks of OPIC 2016

9:00 - 9:15

Greetings

Sadao NAKAI
Chair International Advisory Board
Former President of Laser Society Japan

The world activities on the field of the Optics, Photonics, and Lasers are growing rapidly. It is changing the science and technology, industry, our daily life and future society.

The fundamental issues, which are essential for the human society, are ○supply of food, ○medicine and health care, ○manufacturing, ○information technology, ○supply of clean energy and keeping the clean environment. The Optics and Photonics Technologies have the key to open the new era of each field.

The purpose of the OPIC is to advance the science, technology, and industry which are related to the Light and Light—based Technologies, and also to visualize the future society which would be realized by the progress of Optics and Photonics, and Lasers.

The OPIC has been started in 2012 at the same place Yokohama. It has been grown up every year, and the 5th one, OPIC 2016, is successfully organized to have almost 1000 participants from all over the world. Your participations are very much appreciated, and the exchange of friendship and your expertise would open new world of your scientific activity.

Please enjoy the OPIC and the stay in Japan.

Greetings

Prof. Andreas Ostendorf
President, The German Academic Laser Society (WLT) and Professor of Applied Laser Technologies, Ruhr-University Bochum, Germany

OPIC together with OPIE has developed into the leading congress in optics, photonics and lasers in East Asia. The 2016 event represents an umbrella for 11 single conferences with quite different topics ranging from very basic physics to application-oriented research. Just this combination makes OPIC so successful although the bracket is large. Personally, I attend larger conferences because of this interdisciplinary character. Upcoming applications in one field are often initiated by developments in other topical areas. Also with respect to the regional aspects, research and development foci are mostly different which is the case for East Asia, Europe and North America, just to name three areas. Thus, the transfer of knowledge about regional boundaries is another important mission of OPIC 2016. These ideas stimulate cooperative research with an excellent example described by the recent detection of gravitational waves. A large-scale project where all three regions significantly contributed with specific results. By referring to this example I would like to encourage all attendees of OPIC to use this opportunity to think more outside the small boxes of own research. Here's the place!

First Session

Greetings

Reinhart Poprawe
Director, Fraunhofer Institute for Laser Technology
Chair for Laser Technology RWTH Aachen University

As Member of the International Advisory Board of OPIC Congress and Co-Chair of SLPC I would like to welcome you all here in beautiful Yokohama. In eleven individual conferences this event in the meantime is the most important summit on optical Technologies in Japan. Over the very few last years Optical Technologies and Photon Science have been boosted extremely in Japan and many regions are on their way to "Optical Valleys" in the sense of increased alignment of education, research and societal and industrial application. We observe a severe change in recognition of the relevance of this collaboration worldwide and I am very happy to see this on such a professional level here in Japan. Congratulations to all founders and organizers and a warm welcome to all colleagues from all over the world!

Plenary Speech

9:15 – 9:55

Retinal Imaging Laser Eyewear: From Low Vision Aids to Smart Glass

Mitsuru Sugawara
QDLaser, Inc.
sugawara@qdlaser.com

ABSTRACT

Retinal Imaging Laser Eyewear has a miniature laser projector inside the frame which provides the wearer with digital image information through the pupil using the retina as a screen. This compact universal-design eyewear features "focus-free" and "augmented reality" image independent of the wearers' visual acuity and point of focus, providing wide range of applications from low vision aids to smart glass.

Content

"Retinal Imaging Laser Eyewear" is presented as a universal-design compact eyewear, which has a miniature laser projector inside the frame and provides the wearer with digital image information through the pupil using the retina as a screen. First, the principle of retinal laser imaging is described to realize focus-free. Then, the prototype device with the trademark of RETISSA® is introduced. Its impact is discussed regarding a variety of applications from low-vision aid, workplace support, entertainment, to a consumer-oriented smart glass.

1. Principle : Maxwellian View

The Maxwellian view is a method of observation in

which a converging lens forms an image of the light source in the plane of the eye's pupil of the observer, instead of looking at the source directly [1,2]. A method to see the image of the light source in the Maxwellian view is to project the pinhole image at the center of the pupil. Another method to see the image of the light source is to project the laser beam at the center of the pupil. The thin and parallel laser beam passes through the pupil and reaches the retina without using the focusing function of the eye lens, providing a sharp image of the light source. The clarity of the image is independent of the focusing function and the focal position of the eye lens, i.e., focus free is realized.

2. Retinal Imaging Laser Eyewear

We developed Retinal Imaging Laser Eyewear to realize the Maxwellian view with only one non-axisymmetric free-surface reflecting mirror as shown in Fig. 1. The free-surface mirror is designed to collimate the RGB semiconductor laser beam scanned by the MEMS mirror and to converge it in the center of the pupil, projecting an image through the pupil onto the human retina.

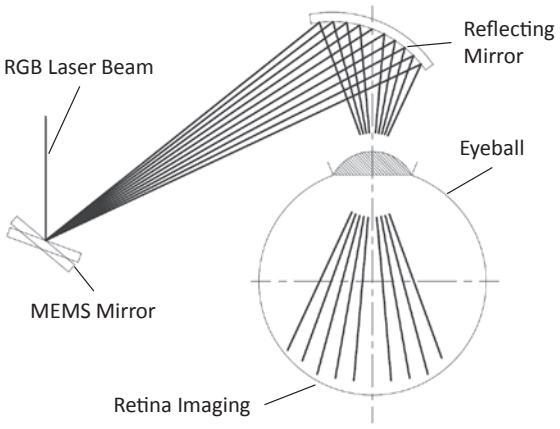

Figure 1 New compact optics of Retinal Imaging Laser Eyewear with only one non-axisymmetric free-surface reflecting mirror

Figure 2 RETISSA® : Eyewear and pocket-size controller.

Figure 2 shows the prototype device with the trademark of RETISSA® [3] The eyewear is connected to the controller with a sealed line 4mm in diameter combining an optical fiber and electric lines. The controller includes an RGB laser combiner module, laser/MEMS controllers, an image processor, and a chargeable battery. The frame includes the projection unit consisting of the MEMS mirror package, the free-surface reflection mirror, and collimating optics. The free-surface reflection mirror and collimating optics form a parallel and narrow RGB laser beam with a diameter of 0.5 mm. The input to the controller is the HDMI signal of 1280×720×60 Hz (HD 720P). The laser beam modulated according to this signal is conveyed from the controller to the synchronized MEMS mirror via the optical fiber to scan the image. The ND filter attenuates each laser power to about 1 to 2 μW at the converging point. This laser power assures that Retissa belongs to class 1 laser product, which is safe under all conditions of normal use. This means the maximum permissible exposure (MPE) cannot be exceeded when viewing a laser with the naked eye or with the aid of typical magnifying optics [4,5].

The wearer can enjoy laser scanned full-color image from a digital camera installed in the center of the frame as well as from a digital device connected to the controller via the HDMI connector. The weight of eyewear is 59 g.

3. Impact

The features of Retissa is summarized as follows:

1. Focus free, i.e., image clarity is independent of individual focusing function and the focal position of the eye lens.
2. Universal design like normal correcting or sunglasses, owing to small optics inside the glasses frame,
3. Augmented reality, i.e., a digital image is augmented in the real-world environment, independent of the focal position of the wearer since the image is always clear on the retina.

To date, no other wearable devices have achieved these three features whether the devices are using VRDs or conventional liquid color displays. These characteristics will enable RETISSA® to be used in a variety of application segments from low-vision aids, workplace support, retinal testing medical equipment,

entertainment to the consumer-oriented smart glass.

A variety of activities and demonstrations will be provided in the symposium presentation, i.e., ongoing clinical study in Japan and Europe as low-vision aids using the focus-free feature [6], navigation surgery demonstration using augmented reality in the sense of not missing image while the surgeon concentrating on the operation field [7], the concept of novel retinal medical testing, and so on.

References

[1] J. C. Maxwell, "On the Theory of Compound Colours, and the Relations of the Colours of the Spectrum", Phil. Trans. R. Soc. Lond. 150, pp57-84 (1860).

[2] G. Westheimer, "The Maxwellian View", Vision Res. 6, pp.669-682 (1966).

[3] Development of Retinal Imaging Laser Eyewear RETISSA® for Low Vision Support, http://qdlaser.com/cms/wp-content/uploads/2015/10/press-release_e_retissa_qdlaser_2.pdf

[4] ICNIRP. Guidelines on limits of exposure to laser radiation of wavelengths between 180 mm and 1000 m, Health Phys. 105(3) pp. 271-295 (2013).

[5] IEC 60825-1:2014 Safety of laser products - Part 1: Equipment classification and requirements

[6] https://www.nrwinvest.com/en/presse/presse-detailansicht/minister-duin-mit-qd-laser-holen-wir-ein-spitzen-unternehmen-der-japanischen-medizintechnik-nach-nr/

[7] https://www.youtube.com/watch?v=-AsZBK_24wo

Short Biography

Dr. Mitsuru Sugawara is the President and CEO of QD Laser, Inc. He received the B.Eng., M. Eng., and Dr. Eng. degree in applied physics from the University of Tokyo, Japan, in 1982, 1984, and 1995, respectively. In 1984, he joined Fujitsu Laboratories, became a senior researcher of the optical semiconductor devices laboratory in 1995, and a manager of the photo novel technology laboratory in 2001. His research interest was quantum nanoelectronics including physics of semiconductor quantum dot optical devices. He also worked as the guest associate professor of the Tokyo Institute of Technology in 1999-2001, and the specially-appointed professor of the University of Tokyo in 2001-2005. In 2005, he became the deputy manager of Nanotechnology Research Center of Fujitsu Laboratories. In April, 2006, he launched QD Laser, Inc., a spin-off venture company from Fujitsu Ltd. He is a Fellow of the Japan Society of Applied Physics.

He received following awards as

Oct. 2006, Technology Innovation Awards Runners-Up, "Quantum-dot lasers for optical communication using nano-size semiconductor particles as light emitters", The Wall Street Journal,

April 2008, JAPAN Minister's Commendation, Science and Technology Award, "Research of quantum-dot lasers for optical communication", Ministry of Education, Culture, Sports, Science and Technology, JAPAN,

June 2008, Industry-University Collaboration Contributor Awards, the JAPAN Prime Minister's Prize, "Development of Photonic Network Technology and Launch of Spin-Off Venture",

June 2009, IEEE Spectrum Special Technology Issue Winner Award,

Sep. 2010, Fellow of Japan Society of Applied Physics,

Oct. 2010, JAPAN Minister of Economy, Trade and Industry Prize, Green IT Award 2010,

April 2012, JAPAN Laser Society Industry Award Excellence Award, "Quantum-Dot Lasers for Optical Communication",

Oct. 2014, IEEE Photonic Society Aron Kressel Award, "For pioneering contributions to the development of temperature-insensitive quantum dot lasers, and their commercialization and mass-production for optical communication systems".

Plenary Speech

9:55 - 10:35

Cultivation of Electro-Active Functionality in Transparent Oxides

Prof. Dr. Hideo Hosono

Materials Research Center of Element Strategy,
Tokyo Institute of Technology, Yokohama, JAPAN
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Abstract

Transparent oxides are abundant materials in our territorial crust. However, electro-active functionality of these materials remained almost uncultivated because they are mainly used as the ingredient of traditional ceramics such as glass and cement. After I had studied photonic oxide glasses for 2 decades, exploration of semiconducting functionality in these materials became our main research subject in 1994. This talk reviews several highlights of our transparent oxide research

Content

We have been continuing exploration of new electro-active functions in transparent oxides since 1994. Fascinating optical transparency of glass is a motivation of my material research. Abundant oxides on the earth are optically transparent but electrically insulating. If electro-active function could be imparted to transparent oxides, one would have been able to expect to have new material frontier. This expectation made me start the explorative research on functional transparent oxides. In this talk I review our research trail to new material frontier (Fig.1), focusing on the 3 subjects, i.e., high performance transparent transistors (TFTs) from glass, conversion of a cement constituent $12CaO{\cdot}7Al_2O_3$ to an electronic conductors and a superconductor, and a novel class high Tc superconductor from iron.

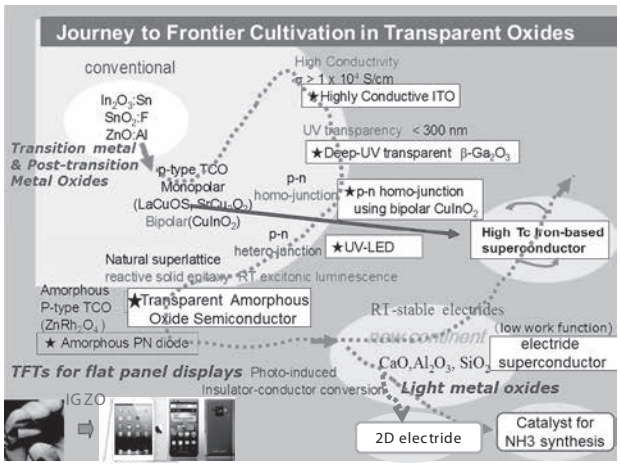

Fig.1 Research Trace of exploration of electro-active function

(1) Transparent amorphous oxide semiconductors and their TFT application: Flat panel displays (FPDs) such as LCDs and OLEDs are leading consumer electronic product and the market size has reached 100 billion US dollars. A thin film transistor (TFT), which works as a switching devise for each pixel, is the heart to drive FPDs. Amorphous hydrogenated silicon (a-Si:H) has been exclusively used as the active semiconductor in TFTs for LCDs. However, a-Si:H TFT is insufficient to meet recent need for high performance FPDs such as retina displays because of its low mobility (~0.5cm^2/Vs). I proposed a high mobility (10-30 cm^2/Vs) amorphous semiconductor for TFTs of FPD called transparent amorphous oxide semiconductors (TAOS) based on our material design concept in 1996. In 2004 our group reported in *Nature* a high performance TFTs fabricated on plastic substrate using amorphous InGaZnOx (IGZO), a TAOS material. IGZO-TFT exhibits an order higher mobility and easier processing than a-Si:H TFT. In 2012, an IGZO-TFTs were adopted to drive a retina display of tablet PCs such as new iPad and 55 inches OLED-TV. Amorphous oxide semiconductor is a new research field and is a hot subject for practical application to next generation FPDs

(2) Iron-based Superconductors: Discovery of novel superconductor which gives a large impact had not been reported in last 2 decades. We reported iron

pnictide superconductors, LaFePO (Tc=6K) and LaFeAsO1-xFx (Tc=26K&43K). This discovery gave a large impact on physics community; Iron was believed to the last constituent to emerge superconductivity because it was a consensus that the formation of Cooper pair competes with magnetic ordering. Thus, this discovery rekindled the vital research on superconductivity worldwide. More than 10,000 papers have been reported to date and iron-based superconductor is the major subject in condensed matter physics. As a consequence, the maximal Tc was raised to 56K, which is the next to the high Tc cuprates, and unique superconducting properties arising from multi-band nature and versatility of parent materials have been clarified.

(3) Electro-Active Function utilizing abundant elements: Creating novel functionality utilizing abundant element is a major challenge in material research. $12CaO{\cdot}7Al_2O_3$(C12A7) with a crystal structure composed of 3D-connected sub-nanometer-sized cages entrapping oxygen ions as the counter anion is an insulator with a band gap of ~7eV. We have attempted to realize novel functionalities by replacing these oxygen ions with unconventional anions such as O^-, H^- and electron. C12A7:O^- and C12A7:H^- exhibit high oxidation power enough to oxidize Pt and light-induced insulator-electronic conductor conversion, respectively. The striking results were obtained for C12A7:e-, a first RT electride; the conductivity at RT is changed from ~10^{-10} to 10^3 Scm^{-1} and metal-superconductor transition occurs at low temperatures. The most unique property is its low work function of 2.4eV, comparable to metal potassium, but chemically stable. This property led to the finding of high performance catalyst for ammonia synthesis when Ru nanoparticles are loaded on the surface of C12A7:e-. A series of finding on electro-active functionality in C12A7 demonstrated the power of nanostructure composed of abundant elements and may be regarded as a pioneering research of "Element Strategy Initiative", a Japan-original science and technology project. We expect the recent discovery of 2D-electride Ca_2N along with material design concept would open a new frontier.

OLEDs are the most promising display in near future, especially for large-sized TVs. Oxide TFTs are regarded as the solution for the backplane for this application. The LTPS-TFTs, which are used to drive the small sized OLEDs, are bipolar, while the oxide TFT works only as n-channel. It is thus required to reverse the OLED stacking sequence from normal (top cathode) to inverted-type (bottom cathode). Inverted OLEDs with high performance is rather difficult due to the missing of appropriate electron injection materials from cathode to organic luminous layers. Recently, we found amorphous C12A7:e thin film deposited by sputtering has a low function (3.0eV) and works well as the electron injection layer to reduce the injection voltage from cathode to luminous organic layers. Inverted type OLEDs structure with device performance comparable to normal type structure has been realized by adoption of this transparent oxide semiconductor.

Dr.Hideo Hosono is a professor at Laboratory for Frontier Materials and the founding director of Materials Research Center of Element Strategy, Tokyo Institute of Technology. He received his Ph.D at 1982 in Applied Chemistry from Tokyo Metropolitan University, and became a Professor at Materials and Structures Laboratory (MSL), Tokyo Institute of Technology in 1999 He has received various awards including a medal with purple ribbon (2008), Bernd.T.Matthias Prize, Jan Raychman Prize (SID), Thomson Reuters Citation Laureate in Physics (2013), APS McGroddy Prize for New Materials (2015), the Imperial Prize & the Japan Academy Prize (2015) and the Japan Prize (2016). He has published ~1,000 papers in SCI journals and total citation of his papers and the parents is ~67,000 (Google Scholar) and was chosen as a highly-cited researcher. His major concern is design and exploration of novel active oxide materials (optical materials, semiconductors, superconductors and catalysis).

Second Session

Plenary Speech

10:50 - 11:30

The Thirty Meter Telescope Project

Prof. Masanori Iye
TMT International Observatory, USA
National Astronomical Observatory, Japan
m.iye@nao.ac.jp

Abstract

National Astronomical Observatory of Japan (NAOJ) built 8.2m Subaru Telescope on Mauna Kea in 1999. Its wide field camera enabled the observational study of galaxies in the early Universe. The vision of the telescope was improved by ten times upon the completion of the Laser Guide star Adaptive Optics in 2011. NAOJ is now working with international partners from USA, Canada, China and India to build even larger telescope, the Thirty Meter Telescope (TMT), also on Mauna Kea. The scientific objectives and the status of the project are reviewed.

Content

The 8.2m Subaru Telescope atop Mauna Kea, Hawaii Island, has been in operation since 1999. Its unique wide field camera enabled survey of distant universe to spot young galaxy population to study the early history of the universe. The author discovered a galaxy IOK-1 at 12.9 billion light years away in 2006 using the wide field camera, that remained the most distant galaxy ever spotted by human being until 2011. Through a study of such galaxy population, we identified the epoch of the cosmic dawn when many galaxies were formed to reionize once cooled intergalactic medium by their stellar UV light.

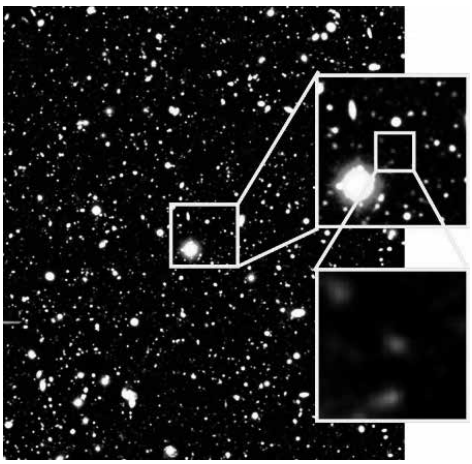

Figure 1. A galaxy IOK-1 at a distance of 12.9 billion light years was the most distant galxy with measured redshift during 2006-2011

Laser guide star adaptive optics system is a key innovation to improve the vision of the modern large telescopes by reducing the optical wavefront disturbance due to the turbulent atmosphere in real time compensation. This is achieved by a wavefront sensor that measures the wavefront disturbance distribution of the incoming beam at about 1khz and by a dynamic deformable mirror that compensate the disturbance in real time. Note that this is not a post processing of images.

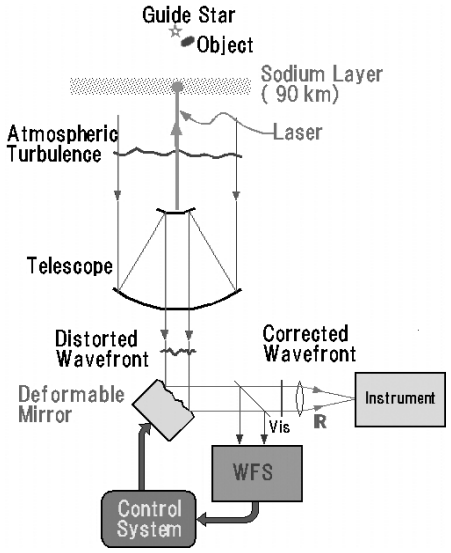

Figure 2. The system diagram to show the laser guide star adaptive optics system of Subaru Telescope.

Figure 3 shows a part of the sky in the Orion nebula taken with Subaru Telescope camera at its first light (left:1999) and 7 years later (right:2006) using the adaptive optics implemented. The spatial resolution is improved by a factor of ten providing a diffraction lmited images.

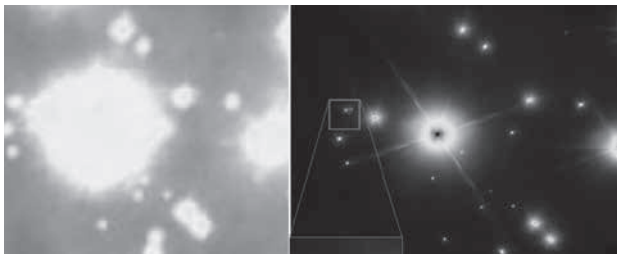

Figure 3. Images taken before (left) and after (right) the implementaion of the adaptive optics by Subaru Telescope.

Enhanced vision enabled direct imaging of faint planets orbiting around nearby stars by masking the condensed bright image of the star.

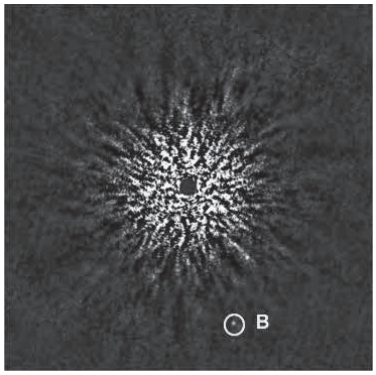

Figure 4. Subaru image of an extrasolar planet GJ758b. The bright mother star image was shrunk by adaptive optics and masked to reduce the scattered light.

Astonomers in the world are now starting to construct even larger telescopes. On Mauna Kea a 30m telescope TMT will be constructed by an international consortium of Japan, USA, Canada, China and India. The Thirty Meter Telescope International Observatory was founded as a limited liability company in USA in 2014. Japan is designing and building the main part of the telescope structure and provides 584 mirror blanks made of zero-expansion glass ceramics needed to form the segmented primay mirror of 30 m in diameter. Polishing the mirror segments will be carried out in parallel among the partners. Canada is building the unique enclosure and the adaptive optics system. Conntribution from Caltech and University of California is made mainly in cash to run the project. China will develop the tertiary mirror system and the laser guide star facility. India provides mirror support systems and the control software.

The figure below shows the CG rendering of the TMT launching a laser beam for adaptive optics observations. TMT when completed will enable observations of e.g., (1) the early history of the Universe when the first stars and galaxies were formed, (2) detailed studies of extrasolar planets and their formation process, (3) the nature of the dark matter and the dark energy, (4) active galactic nuclei where massive blank hole plays a key role, and many other yet unconceived objects and phenomena in the Universe.

Figure 5. Telescope Structure under final design phase.

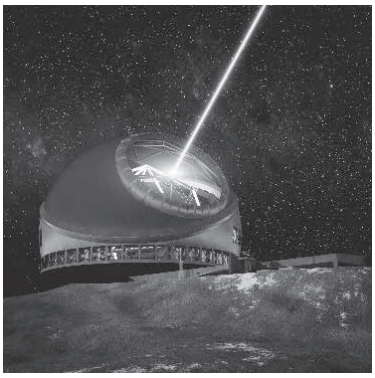

Figure 6. An artist's view of TMT upon completion.

Prof. Masanori Iye got his PhD from the University of Tokyo in 1977 and started his faculty position as a research associate, then associate professor in 1986 and professor in 1993 at the National Astronomical Observatory (NAOJ). He was the project scientist of 8.2m Subaru Telescope and promoted the TMT project as the project director at NAOJ. He serves as the Vice-chair and the Japan representative of the TMT International Observatory founded in 2014 to build and operate TMT on Mauna Kea. He got Japan Academy of Science prize (2013), Imperial Medal with Purple Ribbon (2011), Toray Science and Technology prize (2011), Nishina Memorial Prize (2008) for his research on the early history of the Universe discovering the most distant galaxy in 2006 and the contribution to develop Subaru Telescope and its Laser Guide Adaptive Optics system.

Plenary Speech

11:30-12:10

Extreme Light Infrastructure (ELI): The CERN of Laser Research

Dr. Georg Korn
Science and Technology Manager
Chief Scientist Research Programs
ELI Beamlines
Institute of Physics of the Academy of Science,
Czech Republic

In this talk we will be giving an overview on the development of the "ELI facilities" being built within the Extreme Light Infrastructure (ELI) project based on the European ESFRI (European Strategy Forum on Research Infrastructures) process.

The ELI project is constructing specialized branches (pillars) in several countries. ELI-Beamlines in the Czech Republic, which is a subject of this project, along with ELI-ALPS, the Attoseccond Laboratory (Szeged, Hungary) and ELI-NP, the Photonuclear Laboratory (Magurele, Romania). The Ultra High Field Science Laboratory as the fourth pillar (host country not yet determined) will be built later on. Individual pillars will be constructed and operated independently. After launching the individual pillars, it is proposed that the multi-sited infrastructure ELI will be managed and operated within central governance framework according to the model of ERIC (European Research Infrastructure Consortium). It is expected that the ELI-ERIC Consortium shall be established in 2018.

ELI Beamlines

The main objectives of ELI-Beamlines include the construction of a modern, cutting-edge laser facility and realization of many fundamental research and application projects based on interaction of light with matter at intensities that are about a magnitude greater than those achieved at present. The backbone instruments of ELI will be newly developed laser systems delivering ultrashort pulses lasting typically from 15 fs to 150fs with augmented repetition rates and peak-powers up to 10 PW. High repetition rate high intensity laser performance will be ensured by using diode pumped solid state pump lasers (DPSSL) driving broad band amplifiers or new cooling techniques.

The primary mission of ELI-Beamlines will consist of producing an entirely new generation of secondary sources driven by ultra-intense lasers. These secondary sources will produce pulses of radiation and particles such as flashes of XUV, X-rays and gamma-rays, bunches of accelerated electrons, protons and ions, etc., exploitable as qualitatively new tools for users in many research disciplines and in the development of new technologies.

ELI ALPS

The primary mission of the ELI-ALPS, Szeged research facility is to develop a wide range of ultrashort light sources accessible to international scientific community user groups. Laser driven secondary sources emitting coherent extreme-ultraviolet (XUV) and X-ray radiation confined in Attosecond pulses is a major research initiative of the infrastructure. The secondary purpose of the facility is to contribute to the necessary scientific and technological developments required for high peak intensity and high power lasers. The ELI-ALPS infrastructure will provide the users, in the fields of scientific research and industrial applications, primary laser pulses in conjunction with an impressive array of synchronized secondary light and particle pulses.

The outstanding characteristics of the source parameters include:

- Few-cycle pulses, from the terahertz/infrared up to the pet hertz/ultraviolet, with an impressive 10 Hz to 100 kHz repetition rate
- Attosecond extreme-ultraviolet, soft and hard x-ray mJ pulses with a 10 Hz - 100 kHz repetition rate
- Sub-femtosecond hard x-ray pulses up to 10 keV

photon energy and controlled ultra-relativistic pulse shapes with ultra-high contrast with 1Hz repetition rate.
- Controlled ultra-relativistic pulse shapes with ultra-high contrast at a few Hz repetition rate
- Precise synchronization of the above light sources.

ELI NP

The ELI-NP facility will generate laser and gamma beams with unique characteristics suited to perform frontier laser, nuclear and fundamental research. The core of the facility is a double multi-PW chain laser system. In order to perform cutting edge photo-nuclear physics experiments, a complementary high brilliance gamma beam, very low bandwidth, energies in the 15MeV range, will be generated via the laser interaction with a brilliant bunched electron beam. Thus ELI-NP will allow either combined experiments using the high power laser beams and theγ beam or stand-alone experiments. The design of the facility is modular, reserving the space for further extension of the laser system and allowing the extension later of the experimental area, according to the needs.

The basic objectives of the ELI-RO Nuclear Physics (NP) pillar are:
- precise diagnosis of the laser beam interaction with matter using nuclear methods and techniques.
- photonuclear reactions for nuclear structure studies and for applications
- exotic nuclear physics and astrophysics.
- frontier fundamental physics based on high intensity laser and very brilliant beams.

We will show and discuss the main developments and the status of the facilities.

Georg Korn earned a Ph.D. in physics from the Institute for Optics and Spectroscopy, Academy of Sciences, Berlin, in 1983. After a postdoc at the Lebedev Physical Institute of the Russian Academy of Sciences, he worked at institutions such as the Max-Born Institute for Nonlinear Optics and Short Pulse Spectroscopy (Berlin), the Center for Ultrafast Optical Sciences University of Michigan, the University of California, San Diego, the Laboratoir d´Optique Appliquee (Palaiseau, France), the Max Planck Institute for Quantum Optics (Garching, Germany) as well as in the medical laser industry. He has carried out research on a wide range of topics in laser physics and technology, including lasers for fusion, laserplasma interaction, laser-driven short-pulse x-ray generation, ultrafast and high-power lasers and lasers for material processing and vision correction. Since 2007 he has been the deputy coordinator of ELI (Extreme Light Infrastructure), a European high-power laser-facility project, and later became the chief scientist (2001) and the science and technology manager (2014) of the ELI Beamlines in Prague, Czech Republic. Georg Korn is a Fellow of the OSA and visiting professor at Osaka University.

OPIC 2016

Specialized International Conferences

Conferences Chairs' Welcome Letters 29

Conferences Committees

- **ALPS '16** (The 5th Advanced Lasers and Photon Sources) 36
- **BISC '16** (Biomedical Imaging and Sensing Conference 2016) 37
- **CLES 2016** (Conference on Laser Energy Science) 38
- **HEDS 2016** (International Conference on High Energy Density Science 2016) 39
- **LEDIA '16**
  (The 4th International Conference on Light-Emitting Devices and Their Industrial Applications) ... 40
- **LIC '16** (The 4th Laser Ignition Conference 2016) 41
- **LSSE 2016** (Laser Solution for Space and the Earth) 42
- **OMC '16** (The 3rd Optical Manipulation Conference) 43
- **PLD '16** (The 5th Pacific-rim Laser Damage Conference) 44
- **SLPC 2016** (The 2nd Smart Laser Processing Conference) 45
- **XOPT '16**
  (International Conference on X-ray Optics, Detectors, Sources, and Their Applications 2016) ... 46

Conference Chairs' Welcome Letters

The 5th Advanced Lasers and Photon Sources Conference (ALPS '16)

Hitoki Yoneda
Conference Chair
Institute for Laser Science, University of Electro-Communications

We are delighted to welcome you to the 5th Advanced Lasers and Photon Sources Conference (ALPS '16) in Yokohama, Japan.

The ALPS aims to provide a fruitful opportunity to exchange information and discuss recent progress in lasers and photon sources, and related basic research and industrial applications. The ALPS conference is organized as part of the OPTICS & PHOTONICS International Congress (OPIC 2016), which consists of eleven optics-related scientific conferences. In the ALPS '16, we will have 18 excellent invited talks and more than 100 contributed papers. The ALPS '16 will collaborate with the International Conference on X-ray optics, detectors, sources and their applications 2016 (XOPT '16), and the International Conference on High Energy Density Sciences (HEDS 2016) to hold a special joint session on higher photon energy coherent light and ultra-intense lasers and their applications.

In addition, the OPTICS & PHOTONICS International Exhibition (OPIE 2016) is held jointly at the congress site. We encourage you to actively participate in all aspects of the Congress and Exhibition and hope that you will find these interactions to be beneficial.

We hope that you enjoy your time at the conference, and that you will also take this opportunity to explore the rest of Yokohama.

The 2nd Biomedical Imaging and Sensing Conference (BISC '16)

Toyohiko Yatagai
Conference Chair
Center for Optical Research and Education, Utsunomiya University

We are delighted that the 2nd Biomedical Imaging and Sensing Conference in Yokohama is going to open successfully, within the framework of the OPTICS & PHOTONICS International Congress (OPIC 2016). In biomedical optics and photonics, optical tools are employed for the understanding and treatment of diseases, from the cellular level to macroscopic applications. At the cellular level, highly precise laser applications allows the manipulation, operation or stimulation of cells, even in living organisms or animals. Optical microscopy has been revolutionized by a thorough understanding of the different markers and their switching behavior. Maker-free microscopy, like CARS, SHG or THG-microscopy is spreading into multiple biological and clinical imaging applications. OCT is continuously broadening its clinical applicability by even higher resolution, higher speed and more compact and the use of Doppler and polarization sensitivity for functional imaging.

In the field of optics and photonics, biomedical imaging and sensing areas are most quickly progressing and expanding. Techniques developed in these areas could bring us great steps in advances of physical, engineering and biological knowledge as well as optics and photonics technology. This Conference aims at covering several aspects from the fundamental studies

at cellular level to clinical applications of various optical technologies.

Finally we hope the 2nd Biomedical Imaging and Sensing Conference contributes to the progress in this fields and we hope you enjoy fruitful discussions in the Conference.

Conference on Laser Energy Science (CLES 2016)

Hiroshi AZECHI
Chair, CLES 2016 Organizing Committee,
Director, Professor, Institute of Laser Engineering (ILE), Osaka University

We are delighted that you have joined us in Yokohama to share your latest research results.

This is the Conference on Laser Energy Science (CLES 2016) within the framework of the OPTICS & PHOTONICS International Congress (OPIC 2016), which consists of eleven laser-, and photonics-related scientific conferences.

The title of this conference, "Laser Energy Science" stands for the high energy-density plasma physics and intrinsically the development of high power lasers. While the laser energy science is aiming at laser fusion, its research area covers high-field physics with high-power lasers. Based on the themes in the preceded conference (laser inertial fusion, laser and accelerator neutron sources and applications, laser and synchrotron radiation, and laser astrophysics), we set "Laser fusion, particularly on Fast Ignition" as the main theme this year. For this reason, CLES 2016 will be jointly held with "the 14th International Workshop on High-Field Physics with High-Power Lasers", which has a long history for discussions on laser fusion by Fast Ignition scheme.

Recently there have been many activities related to laser fusion research. NIF (National Ignition Facility) in the US is working very well aiming to demonstrate the laser-driven fusion ignition and burn. Laser Mega Joule (LMJ) in France is under construction and a part of the system, PETAL, is being activated for experiments. Also in Rochester, US, OMEGA-EP is used for Fast Ignition. In Osaka, Japan, GEKKO-XII laser has long been used for laser fusion and many kinds of plasma experiments. Recently, a new ultra-intense short-pulse laser, LFEX, has been activated and performed 2 kJ output in a 1 ps pulse with a very high-pulse contrast of more than 10^{10}. The both lasers have been used for Fast Ignition experiment as the FIREX-1 project, as well as for high-intensity laser-plasma interaction experiments.

In this conference, we intend to discuss the recent topics of progress in laser fusion research. Particularly, we expect latest research works in the field of fast ignition and high field science with high power lasers.

We hope that you enjoy your time at the CLES 2016, and that you will also take this opportunity to explore the rest of Yokohama.

The 5th High Energy Density Science (HEDS 2016)

Ryosuke Kodama
Conference Chair
Director, the Photon Pioneers Center,
Deputy Director, Institute of Laser Engineering,
Professor, Graduate School of Engineering,
Osaka University

It is our pleasure to have an opportunity with you in Yokohama to share your latest research results in the fields of high energy density science with high power lasers in 2016.

This is the 5th International Conference on High Energy Density Sciences (HEDS 2016) within the framework of the OPTICS & PHOTONICS International Congress (OPIC 2016), which consists of seven optics-related scientific conferences. The HEDS15 will focus on the plasma photonics and laser plasma acceleration such as following topical fields; 1) Plasma photonics: Ultra-strong fields, Wake filed plasma, THz radiation, X-rays, Vacuum polarization; 2) Quantum beam generation: Electron, positron, ion, meson and other exotic particle beams, Laser-based X-ray Free Electron Lasers (XFEL); 3) Imaging Technologies: Ultrafast imaging with novel particle and radiation sources.

In HEDS 2016, we will collaborate with the Conference on Advanced Lasers and Photon Sources (ALPS 2016) and the International Conference on X-ray optics, detectors, sources, and their applications (XOPT 2016) to hold a special joint session on high power lasers including XFEL and their applications.

We hope that you enjoy your time at the conference, and that you will also take this opportunity to explore the rest of Yokohama.

The 4th International Conference on Light-Emitting Devices and Their Industrial Applications (LEDIA '16)

Tohru Honda
Chair, Steering Committee
Dean, School of Advanced Engineering, Kogakuin University

On behalf of the organizing committee and program committee, it is great pleasure to welcome you to the 4th International Conference on Light-Emitting devices and Their Industrial Applications (LEDIA '16) as a part of the 5th Optics and Photonics International Congress (OPIC 2016).

In this conference, we focus on light-emitting diodes (LEDs), laser diodes (LDs) and their related devices for the industrial applications. In 2014, Professors Isamu Akasaki, Hiroshi Amano (Conference chair, LEDIA 2016), and Shuji Nakamura received the 2014 Nobel Prize in Physics for "the invention of efficient blue light-emitting diodes, which has enabled bright and energy-saving white light sources." Now, further developments of this field are expected. In order to rapid increase in the application fields, the discussion opportunities between the device developers and material scientists are required. This meeting will be a great chance to realize it. In particular, discussions concerning with medical, illumination and display applications will be included in the program. We encourage you to actively participate in all aspects of the Congress and Exhibition. We also hope that you can find your interests and enjoy fruitful discussions.

Apart from the conference activities, I would like to have a chance to enjoy some of the famous tourist attractions in Yokohama or relax and recharge you. Please enjoy a Japanese spring season.

Finally, I welcome you once again to LEDIA '16. I hope all of the participants gain successful achievement in the conference.

The 4th Laser Ignition Conference (LIC '16)

Takunori Taira
Conference Chair
Institute for Molecular Science

Welcome to the 4th Laser Ignition Conference 2016 (LIC '16). This is the international forum to

discuss all aspects of laser induced ignition: advances in novel giant pulse micro-lasers, new insights into the phenomena of laser induced breakdown, and advanced combustion systems enabled by laser ignition. Since the invention of lasers, many researchers attempted "laser ignition" toward the ideal combustion engine. Recently, several kinds of laser ignition, from gas cogeneration to gasoline engine vehicle, have been demonstrated to solve for future energy crisis. The purpose of this meeting is to share information on laser ignition and related sciences and technologies. The conference will be held at Pacifico Yokohama, Yokohama, Japan, on May 18- 20, 2016 with the sponsorship from *Micro Solid-Sate Photonics Group* of the Laser Society of Japan (LSJ) in cooperation with several academic societies and associations.

A total of 52 papers will be presented during the conference, consisting of 1 OPIC/LIC plenary talk, 6 LIC/PLD/SLPC joint session invited talks, 4 LIC plenary talks, 16 invited papers, and 19 contributed papers, 6 poster papers including the joint session of laser damages. After an introduction of LIC '17 in Europe, the Award Ceremony will be held at which several papers will be commended for their outstanding achievement. Laser ignition systems promise better fuel efficiency and lower pollution than conventional systems. The door of "Laser Ignitions for Future Energy and New Science" should be opened by "*Giant Micro-photonics*". The future may herald new photonics.

We would like to extend our thanks to all the presenters and participants of LIC '16 for their contribution to the success of the conference. We also express our thanks to the endorsement and sponsor groups.

The 1st Laser Solutions for Space and the Earth (LSSE 2016)

Toshikazu Ebisuzaki
Conference Chair
RIKEN

We are pleased that you have joined in Yokohama to attend to Laser Solutions for Space and the Earth (LSSE 2016)

This is the 1st meeting of LSSE organized as a part of the OPTICS & PHOTONICS International Congress (OPIC 2015). The aim of "Laser Solution for Space and the Earth" is to discuss the application of emerging laser technologies to solve various problems for sustainable developments of space and the Earth. Featured topics for the year 2016 are "laser detection and remediation of orbiting space debris" and "Society Infrastructure Maintenance with Laser Technology." The most of the invited talks and half of ordinal presentations are devoted to a featured topic to explore it in deep enough, though presentations on other topics are also welcomed. The featured topic will be changed each year so that we can cover various fields that may need advanced laser technologies. We hope that you enjoy the conference, and of course Yokohama and Japan

The 3rd Optical Manipulation Conference (OMC '16)

Takashige Omatsu
Conference Chair
Chiba University

The 3rd Optical Manipulation Conference 2016 (OMC '16) aims to present and discuss up-to-date scientific subjects, new technologies, and applications related to the fields of optical manipulations and their surroundings. In particular, it also focuses on nano-optical technologies including nano-manipulation, nano-fabrication, and nano-imaging system by utilizing enhanced optical radiation forces in combination with structured materials.

Conventional optical tweezers based on optical radiation forces (scattering, absorption and gradient forces) produced by a tightly focused laser beam have been mostly adopted to particles with a dimension range from hundreds of nanometers to tens of micrometers. However, they do not always enable us to efficiently trap and manipulate particles on a nanoscale. A key issues for the above related nano-optical technologies will be how to manage structured lights, near-field optics and plasmonic fields, so as to reinforce significantly the optical radiation forces on a nanoscale.

This conference has been organized and sponsored by the Optical Society of Japan since 2014. The OMC '14 and OMC '15 were very successful to collect over 80 attendees. We hope that this conference will also facilitate scientific and professional networking as well as scientific inspiration through discussions.

The 5th Pacific-rim Laser Damage Conference (PLD '16)

Takahisa Jitsuno
Conference Chair
Institute of Laser Engineering, Osaka University

Pacific-rim Laser damage (PLD) was initiated by Prof. Jianda Shao of Shanghai Institute of Optics and Fine Mechanics in China at 2009. This conference was held as a satellite meeting of SPIE Laser Damage Symposium at Boulder. The purpose of this meeting is the communication between researchers especially in Pacific-rim area in the field of laser damage and related phenomena. Normally, PLD meeting was held biyearly at Shanghai in China, but due to request of Prof. Shao, PLD '14 meeting was held in Yokohama in 2014. At this year, PLD '16 will be held in Japan again as a part of OPIC conference. PLD '16 is a good opportunity to discuss about active topics in Laser Induced Damage phenomena.

PLD '16 includes following topics.

1) Joint session; PLD/LIC (Laser Ignition Conference)/ SLPC (Smart Laser Processing Conference)
2) Plenary session
3) High Power Laser Damage
4) Poster session
5) Nonlinear crystals and laser
6) High laser damage resistant coating
7) Defect, contamination, polishing and surface damage

We expect 50 papers in PLD '16. We have chosen 10 invited papers from world-wide laser damage researches. I hope we will have useful discussions and mutual communications. Special contribution of SPIE, and SIOM should be mentioned. This conference is

supported by Chinese Academy of Science as Japan-China Bilateral Forum.

The 2nd Smart Laser Processing Conference (SLPC 2016)

Prof. Dr. Yasuhiro Okamoto
Chair of SLPC 2016
Okayama University

Prof. Dr. rer. nat. Reinhart Poprawe, M. A.
Chair of SLPC 2016
Fraunhofer Institute for Laser Technology

On behalf of the organizing committee, it's our great pleasure to welcome you to The Second Smart Laser Processing Conference (SLPC 2016), organized by Japan Laser Processing Society (JLPS). The SLPC 2014 (first SLPC) was launched with generous support from scientists and engineers in the fields of laser materials processing at Yokohama on April 22-24, 2014. It was a great success with some of the fine scientists and engineers attending, and the second SLPC conference is held at Yokohama to encourage rapid development of laser processing technologies.

SLPC 2016 deals with science and technology of smart laser materials processing including micro- and macro-processing. SLPC 2016 aims at providing a forum for discussion of fundamental aspects of laser-matter interaction, and the state-of-the-art of smart laser processing, in addition to fostering next-generation concepts and innovation by collaboration among participants including scientists, end users and laser manufacturers.

The program for the 3-day event consists of a plenary session, joint sessions with The 5th Pacific-rim Laser Damage Conference (PLD '16) and The 4th Laser Ignition Conference 2016 (LIC '16), regular oral sessions, and poster session, collaborating with other 10 professional conferences in Optics & Photonics International Congress 2016 (OPIC 2016). 12 invited papers from SLPC 2016 and 47 contributed papers from 11 countries are included in the technical digest of SLPC 2016. We are convinced that SLPC 2016 will stimulate fruitful discussions and useful exchanges.

The conference site, Yokohama, is one of the famous port towns in Japan, and many technologies had been spread all countries in Japan through here. We wish smart laser processing technologies also spread all over the world through this conference.

We would like to express our sincere thanks to all the presenters, in particular the plenary and the invited speakers, cooperating societies, media partners, and our sponsors. We would also like to thank the chairs and the members of program committee, steering committee, international advisory committee, and the secretariat. Thank you very much for attending, and we sincerely hope you enjoy your time at the good season of fresh green leaves.

International Conference on X-ray Optics, Detectors, Sources, and their Applications 2016 (XOPT '16)

Tetsuya Ishikawa
Conference Co-Chair
RIKEN

Kazuto Yamauchi
Conference Co-Chair
Osaka University

We are pleased to announce the inauguration of the International Conference on X-ray Optics, Detectors, Sources, and their Applications (XOPT '16) as part of the Optics and Photonics International Congress 2016 (OPIC 2016) in Yokohama, Japan.

X-rays have facilitated a number of key scientific discoveries in recent years. Continuous technological breakthroughs in X-ray sources, optics, and detectors have laid the foundation for these achievements. For this conference, we are inviting leading experts in these fields from around the world to exchange the latest status of the developments, and to discuss the future. We believe it is appropriate to host this conference in Japan, as the Japanese scientific community has contributed significantly to the development of state-of-the-art X-ray optical technologies over the last fifty years.

We are happy to welcome you to participate in and enjoy the Conference.

OPIC 2016 Specialized International Conferences Committees

The 5th Advanced Lasers and Photon Sources ALPS '16

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The Laser Society of Japan

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Conference on Laser Energy Science CLES 2016

Sponsored & Organized by
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International Conference on High Energy Density Science 2016 HEDS 2016

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The 4th International Conference on Light-Emitting Devices and Their Industrial Applications LEDIA '16

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OPIC 2016 Conferences Program

Oral Sessions

Tue, 17 May, AM 48
Tue, 17 May, PM 52
Wed, 18 May 56
Thu, 19 May, AM 60
Thu, 19 May, PM 68
Fri, 20 May, AM..... 76
Fri, 20 May, PM..... 84

Poster Sessions

..... 92

Oral, Tuesday, May 17 AM

ALPS <Room 302>

[Opening Address] 8:55-9:00
H. Yoneda, Conference Chair
Inst. for Laser Sci., Univ. Electro-Comm., Japan

[ALPS1] 9:00-10:30
Frequency comb generation
Chair: M. Yan
Max-Planck-Inst. Quantenoptik, Germany

ALPS1-1 9:00 *Invited*

GHz fiber laser technology and 30 GHz astro-comb

Z. Zhang, Y. Ma, C. Li, and A. Wang
State Key Lab. of Adv. Optical Comm. System and Networks, School of Electronics Eng. and Computer Sci., Peking Univ., China

ALPS1-2 9:30

Fully Monolithic Mode-Locked Laser Frequency Comb

W. Xie[1], C.-C. Lee[1], T. Shoji[1], S. Todaro[1], K. L. Silverman[2], A. Feldman[2], T. Harvey[2], R. P. Mirin[2], and T. R. Schibli[1,3,4]
[1]Dept. of Phys., Univ. of Colorado at Boulder, USA, [2]NIST, USA, [3]Dept. of Electrical, Computer and Energy Eng. Univ. of Colorado, USA, [4]JILA, NIST and Univ. of Colorado, USA

ALPS1-3 9:45

Effects with Kerr comb in silica toroid microcavity: Raman scattering and third harmonic generation

R. Suzuki, T. Kato, A. Chen-Jinnai, T. Kobatake, S. Fujii and T. Tanabe
Keio Univ., Japan

ALPS1-4 10:00

Tunable mid-infrared optical frequency comb based on supercontinuum at 1 μm wavelength range

L. Jin[1], M. Yamanaka[1], V. Sonnenschein[1], H. Tomita[1], T. Iguchi[1], A. Sato[2], A. Omori[2], A. Ideno[2], T. Oh-hara[2], N. Nishizawa[1]
[1]Nagoya Univ., Japan, [2]Sekisui Medical Co. Ltd. Japan

ALPS1-5 10:15

Mode filtering of fiber-based optical frequency comb by use of Fabry-Perot cavities and its application

S. Yoshida[1,2], A. Nishiyama[1,2,3], A. Asahara[1,2], Y. Nakajima[1,2], K. Minoshima[1,2]
[1]Univ. Electro-Comm., Japan, [2]JST, ERATO IOS Project, Japan, [3]JSPS, Japan

----- 10:30-10:45 Break -----

ALPS <Room 511+ 512>

CLES <Room 418>

[Opening] 9:00 – 9:15
Opening Remarks 9:00
H. Azechi
Conference Chair of CLES 2016,
Director, Institute of Laser Engineering, Osaka Univ., Japan
H. Shiraga
Co-Chair of FIWS 2016,
Institute of Laser Engineering, Osaka Univ., Japan

[CLES1] 9:15-10:30
Integrated Experiment (Electron)
Chair: P. Norreys
Univ. Oxford, UK

CLES1-1 9:15 *Invited*

Where Do the Fast Electrons Deposit Energy in Laser-Compressed High-Density Fast-Ignition Targets?

F. Beg[1], C. Jarrott[1], M. Wei[2], C. McGuffey[1], A. Solodov[3], W. Theobald[3], C. Stoeckl[3], R. Betti[3], H. Cchen[4], H., Habara[5], H. Mclean[4], P. Patel[4], J. Santos[6], H. Sawada[7], Rich, Stephens[2], and Toshi Yabuuchi[5]
[1]Center for Energy Research, Univ. of California at San Diego, USA [2]General Atomics, San Diego, USA [3]Laboratory for Laser Energetics, Univ. of Rochester, USA [4]Lawrence Livermore National Laboratory, USA [5]Osaka Univ., Japan [6]Centre Lasers Intenses et Applications, Univ. of Bordeaux, France [7]Univ. of Nevada, USA

CLES1-2 9:45 *Invited*

Progress of FIREX Project in Japan.

S. Fujioka[1], and FIREX Project Team[1]
[1]Institute of Laser Engineering, Osaka Univ., Japan

CLES1-3 10:15

First Demonstration of Heating Effect in Indirect-Drive Integrated Fast Ignition Experiment

Y. Gu
Laser Fusion Research Center, CAEP, China

----- 10:30-11:00 Break -----

Oral Program

Oral, Tuesday, May 17 AM

HEDS <Room 311+312>

[Opening] 9:00-9:10
Opening Remarks 9:00
R. Kodama
Conference Chair of HEDS 2016
Osaka University, Japan

[HEDS1] 9:10-10:30
Plenary (ImPACT Session I)
Chair: T. Hosokai
Osaka University, Japan

HEDS1-1 9:10 *Plenary I*

High intensity laser interaction studies at BELLA
Eric Esarey
Lawrence Berkeley National Laboratory, USA

HEDS1-2 9:50 *Plenary II*

Applications for electron beams generated by Laser Wakefield Accelerators
Karl Krushelnick
the University of Michigan, USA

----- 10:30-11:00 Group Photo &Break -----

LSSE <Room 316>

[Opening] 9:45-10:00
Opening Remarks 9:45
T. Ebisuzaki
Conference Chair of LSSE 2016
Chief Scientist, Computational Astrophysics Laboratory, RIKEN, Japan

[LSSE1] 10:00-12:00
Space Debris Detection Remediation 1
Chair: H. Yamakawa
RISH, Kyoto University, Japan

LSSE1-1 10:00 *Invited*

Pulsed Lasers for Clearing Debris in LEO and GEO
C. Phipps
Photonic Associates, LLC, USA

SLPC <Room 416+417>

[Opening] 9:00-9:15
Opening Remark 9:00
Y. Okamoto
Okayama Univ., Japan

[SLPC1] 9:15-10:15
Plenary
Chairs: R. Poprawe
Fraunhofer Institute for Laser Technology, Germany
Y. Okamoto
Okayama Univ., Japan

SLPC1-1 9:15 *Keynote*

Advanced Smart Laser Processing Technologies for Improving Quality of Life and Environment
L. Li
The Univ. of Manchester, UK

SLPC1-2 9:45 *Keynote*

The Current Status and Future Perspective of Metal Additive Manufacturing in Japan
H. Kyogoku
Kindai Univ., Japan

----- 10:15-10:45 Break -----

Oral, Tuesday, May 17 AM

ALPS <Room 302>

[ALPS2] 10:45-12:00
Applications of optical frequency comb
Chair: Z. Zhang
Peking Univ., China

ALPS2-1 10:45 *Invited*

Laser frequency combs for new approaches to molecular spectroscopy
M. Yan[1,2], T. W. Hänsch[1,2], N. Picqué[1, 2]
[1]Max-Planck-Institut für Quantenoptik, Germany, [2]Ludwig-Maximilians-Universität München, Fakultät fur Physik, Germany

ALPS2-2 11:15

Time-Domain Measurements for Characterization of Solids by Dual-Comb Spectroscopy and Asynchronous Optical Sampling
A. Asahara[1,2], A. Nishiyama[1,2,3], S. Yoshida[1,2], K. Kondo[1], Y. Nakajima[1,2], and K. Minoshima[1,2]
[1]Univ. Electro-Comm., Japan, [2]ERATO IOS Project, Japan, [3]JSPS, Japan

ALPS2-3 11:30

Frequency comb two-color interferometry for self-correction of refractive index of air beyond accuracy of empirical equation
K. Miyano[1,2], G. Wu[3], T. Makino[1], Y. Nakajima[1,2], K. Minoshima[1,2]
[1]Univ. Electro-Comm., Japan, [2]JST, ERATO IOS, Japan, [3]Tsinghua Univ., China.

ALPS2-4 11:45

Spectral interferometric imaging with chirped frequency comb for non-scanning three-dimensional measurement
T. Kato[1,2], M. Uchida[1], K. Minoshima[1,2]
[1]Univ. Electro-Comm., Japan, [2]JST, ERATO IOS. project, Japan

----- 12:00-13:00 Lunch Break-----

ALPS <Room 511+ 512>

[ALPS3] 11:00-12:00
Ultrafast technologies
Chair: A. Pirozhkov
Kansai Photon Sci. Inst.,QST, Japan

ALPS3-1 11:00 *Invited*

Laser-Plasma-Based Secondary Sources: Accelerating Particles and Light
C. Spielmann[1,2]
[1]Inst.of Optics and Quantum Electronics, Abbe Center of Photonics, Jena Univ., Germany, [2]Helmholtz Inst. Jena, Germany

ALPS3-2 11:30

Suppression of Gain Narrowing in Ti:Sapphire by Polarization Encoded Chirped Pulse Amplification
M. Kalashnikov[1,2], H. Cao[2], K. Osvay[2], V. Chvykov[2], N. Khodakovskiy[1], R. S. Nagymihaly[2]
[1]Max-Born-Inst. for Nonlinear Optics and Short Pulse Spectroscopy, Germany, [2]ELI-Hu Nkft., Hungary

ALPS3-3 11:45

Ti:sapphire Laser Pumped by Wavelength Multiplexed 521/478-nm InGaN Diode Lasers
R. Sawada, H. Tanaka, F. Kannari
Keio Univ., Japan

----- 12:00-13:00 Lunch Break-----

CLES <Room 418>

[CLES2] 11:00-12:30
Electron Transport and Generation
Chair: S. Fujioka
Osaka Univ., Japan

CLES2-1 11:00

Study of Magnetic Instability on the Divergence of Ultraintense Laser-Driven Electrons
X. Yang, B. Xu, Z. Ge, H. Zhuo, and Y. Ma
College of Science, National Univ. of Defense Technology, China

CLES2-2 11:15

Selectron Transport in The Background Plasma with Steep Density Gradient
Y. Hayashi[1], A. Das[2] , H. Habara[1], P. Kaw[2], K. A. Tanaka[1]
[1]Osaka Univ., Japan, [2]Institute of Plasma Research, India

CLES2-3 11:30

High Current Electron Beam Transport in Fast Ignition
L. Cao [1,2,3]
[1]Institute of Applied Physics and Computational Mathematics, China [2]HEDPS, Center for Applied Physics and Technology Peking Univ., China [3]IFSA Collaborative Innovation Center, Shanghai Jiao Tong Univ., China

CLES2-4 11:45

Investigation of Resistive Guiding of Fast Electrons in Ultra Intense Laser-Solid Interactions
K. Lancaster[1], N. Booth[2], J. Green[2], C. Murphy[1], C. Ridgers[1], and A. Robonson[2]
[1]York Plasma Institute, Department of Physics, Univ. of York, UK [2]Central Laser Facility, STFC Rutherford Appleton Laboratory, UK

CLES2-5 12:00

Resistivity Gradient Based Guiding of Fast Electrons in the Inverse Conical Taper Configuration
A. Robinson[1], and H. Schmitz[1]
[1]Plasma Physics Group, Central Laser Facility, STFC Rutherford-Appleton Laboratory, UK

CLES2-6 12:15

Characteristics of Fast Electrons Generated by Multi Beam of LFEX Laser
M. Hata[1], H. Sakagami[2], T. Johzaki[3], Y. Ssentoku[4], and H. Nagatomo[1]
[1]Institute of Laser Engineering, Osaka Univ., Japan, [2]National Institute for Fusion and Sciences, Japan, [3]Hiroshima Univ., Japan [4]Univ. of Nevada, USA

----- 12:30-13:30 Break -----

Oral, Tuesday, May 17 AM

HEDS <Room 311+312>

[HEDS2] 11:00-12:00
High-Field Physics I (ImPACT Session II)
Chair: S. V. Bulanov
National Institutes for Quantum and Radiological Science and Technology (QST), Japan

HEDS2-1 11:00 *Invited*

Evidences of new features in X-ray emission of plasma, irradiated by relativistic laser pulses
Anatoly Faenov
Osaka University, Japan

HEDS2-2 11:30 *Invited*

Database on shock-wave experiments and equations of state at high energy densities
K V Khishchenko
Joint Institute for High Temperatures RAS, Russia

----- 12:00-13:30 Lunch -----

LSSE <Room 316>

LSSE1-2 10:40 *Invited*

Legal Aspects of Laser in Space Activities
S. Aoki
Keio University, Japan

LSSE1-3 11:20 *Invited*

Concept of Space Debris Deorbitor Mission for the 1-10 cm Size Space Debris
Y. Takizawa, T Ebisuzaki
RIKEN, Japan

----- 12:00-13:00 Lunch -----

SLPC <Room 416+417>

[SLPC2] 10:45-12:15
Beam Sources and Components for Smart Laser Processing
Chairs: E. Mottay
Amplitude Systemes, France
H. Nakano
Kindai Univ., Japan

SLPC2-1 10:45 *Invited*

Ultrashort Pulse Laser Sources and Components for Precise Processing – Results of a Recent German Research Initiative
S. Nolte[1,2]
[1]Friedrich Schiller Univ., Germany, [2]Fraunhofer Institute for Applied Optics and Precision Engineering IOF, Germany

SLPC2-2 11:15 *Invited*

High Power CO Lasers: New Application Potential for Smart Laser Processing
A. Held, J. Franks
Coherent, Inc., USA

SLPC2-3 11:45

High Power, Air-Cooled, Nanosecond, Single Mode SHG Green Laser Oscillator
K. Inoue, M. Saito
Laser Development Division, Amada Miyachi Co., Ltd, Japan

SLPC2-4 12:00

Copper Nanostructures Forming During Laser-Induced Synthesis Exhibit Catalytic Activity
D. I. Gordeychuk[1], L. S. Logunov[1], A. G. Kuzmin[2], I. A. Balova[1], V. A. Kochemirovsky[1]
[1]Saint-Petersburg Univ., Russia, [2]Russian Academy of Sciences, Russia

----- 12:15-13:15 Lunch Break -----

Oral, Tuesday, May 17 PM

ALPS <Room 302>

[ALPS4] 13:00-15:00
Fiber-based novel sources
Chair: T. Schibli
Program Committee Member, Univ. of Colorado, USA
Chair: S. Matsushita
Program Committee Member, Furukawa Electric Co., Ltd., Japan

ALPS4-1 13:00 *Invited*

Higher-Order Mode Fiber Lasers

J. W. Nicholson, R. Ahmad, K. Abedin1
A. DeSantolo, P. S. Westbrook, R.S. Windeler, C. Headley, and D. J. DiGiovanni
OFS Laboratories, USA

ALPS4-2 13:30

Coherent, broadband supercontinuum Optical Frequency Comb Based on Er-doped Ultrashort Pulse Fiber Laser

T. Niinomi[1], Y. Nomura[1], L. Jin[1], Y. Ozeki[2], and N. Nishizawa[1]
[1]Nagoya Univ., Japan, [2]Univ. of Tokyo, Japan

ALPS4-3 13:45

Fully and high-quality phase stabilized high-repetition-rate optical frequency comb based on a mode-locked Yb:fiber laser

H. Yasui[1,2], B. Xu[1,2], Y. Nakajima[1,2], Y. Ma[3], Z. Zhang[3], K. Minoshima[1,2]
[1]Univ. Electro-Comm., Japan, [2]Univ. Electro-Comm., ERATO IOS Project, Japan, [3]Peking Univ., China

ALPS4-4 14:00

Mid-infrared comb generation at 3 μm through DFG using high repetition rate Er-doped fiber laser with SWNT

M. Tsuzuki[1], Y. Nomura[1], L. Jin[1], M. Yamanaka[1], V. Sonnenchein[1], H. Tomita[1], T. Iguchi[1], A. Sato[2], A. Omori[2], A. Ideno[2], T. Ohara[2] , Y. Sakakibara[3], E. Omoda[3], H. Kataura[3], Y. Sakakibara[3], and N. Nishizawa[1]
[1]Dept. of Quantum Eng., Nagoya Univ., Japan, [2]Sekisui Medical Co. Ltd, Japan, [3]AIST, Japan

ALPS4-5 14:15

High power supercontinuum generation with Gaussian-like spectral shape in 2100 nm spectral band for optical coherence tomography

T. Sato, H. Kawagoe, M. Yamanaka, N. Nishizawa
Nagoya Univ., Japan

ALPS4-6 14:30

Tunable SESAM mode-locked Tm fiber laser at the wavelength range of two micron

Y. Mashiko, E. Fujita, M. Tokurakawa
Inst. for Laser Sci., Univ. Electro-Comm., Japan

ALPS4-7 14:45

Femtosecond Er-Doped Fiber Laser Mode-Locked by Hybrid Scheme of Nonlinear Polarization Rotation and Single-Wall Carbon Nanotube

L. Jin, K. Nonobe, N. Nishizawa
Dept. Quantum Eng., Nagoya Univ., Japan

----- 15:00-15:30 Break-----

ALPS <Room 511+ 512>

[ALPS5] 13:00-15:00
Petawatt and high power lasers
Chair: H. Yoneda
Conference Chair, Inst. for Laser Sci., Univ. Electro-Comm., Japan
Chair: C. Spielmann
Inst. of Optics and Quantum Electronics, Germany

ALPS5-1 13:00 *Invited*

Next generation Petawatt Laser Systems

C. L. Haefner, C.W. Siders, A. Bayramian, T. Spinka, J. Atherton, S. Baxamusa, S. Betts, D.R. Bopp, B. Demaret, B. Deri, J.M. Di Nicola, R. Dylla-Spears, C. Gates, A. Erlandson, J. Jarboe, B. Heidl, J. Horner, D. Kim, E. Koh, G. Korn, J. Lusk, C. Marshall, D. Mason, J. Menapace, P. Miller, B. Rus, K. Schaffers, L. Seppala, D.E. Smith, J. Stanley, T. Suratwala, S. Telford, D. VanBlarcom
NIF Photon Science, Lawrence Livermore National Laboratory, USA

ALPS5-2 13:30

PENELOPE laser system update - on the way to first light

D. Albach[1], M. Siebold[1], M. Loeser[1,2], F. Roeser[1], P. Eiselt[1,2] and U. Schramm[1,2]
[1]Helmholtz-Zentrum Dresden-Rossendorf, Germany, [2]Tech. Univ. Dresden, Germany

ALPS5-3 13:45

Meter-size Gratings for Multi-Petawatt Lasers

A. Cotel, and B. Villier
HORIBA Jobin Yvon SAS, France

ALPS5-4 14:00

The development of ozone grating for high energy lasers

Y. Michine, H. Yoneda
Inst. for Laser Sci., Univ. Electro-Comm., Japan

ALPS5-5 14:15

Spectral control of x-ray atomic laser pumped with intense XFEL pulses

T. Masutani[1], Y. Michine[1], T. Suzuki[1], Y. Inubushi[2], M. Yabashi[2], and H. Yoneda[1]
[1]Inst. for Laser Sci., Univ. Electro-Comm., Japan, [2]RIKEN XFEL, Japan

ALPS5-6 14:30

Development of high rep. rate 100-J class diode-pumped solid-state laser system

Y. Takeuchi, T. Sekine, Y. Hatano, T. Kurita, Y. Muramatsu, Y. Kato, N. Sato, and T. Kawashima
Industries Development Lab., Hamamatsu Photonics K.K., Japan

ALPS5-7 14:45

Discharge-pumped Non-chain HF/DF Lasers with Joule Output

L. You, X. Fang, X. Liang, Q. Wang, G. Yin
Anhui Inst. of Optics and Fine Mechanics, Chinese Academy of Sci., China

----- 15:00-15:30 Break-----

CLES <Room 418>

[CLES3] 13:30-15:30
Proton Fast Ignition
Chair: J. Fernandez
Los Alamos National Laboratory, USA

CLES3-1 13:30 *Invited*

Progress in Fundamental and Applied Proton Fast Ignition Research

C. Mcguffey[1], J. Kim[1], M.-S. Wei, H. Habara[3], T. Yabuuchi[3,8], K. Tanaka[3], W. Theobald[4], B. Qiao[1], F.-N. Beg[1], S.-N. Chen[5], P.-M. Nilson[4], R. Stephens[2], J. Fuchs[5], M. Foord[6], H. Mclean[6], H. Shiraga[7]
[1]Univ. of California San Diego, USA, [2]General Atomics, USA, [3]Osaka Univ., Japan [4]Laboratory for Laser Energetics, Rochester, USA, [5]LULI, École Polytechnique, CNRS, CEA, UPMC, France, [6]Lawrence Livermore National Laboratory, USA, [7]Institute of Laser Engineering, Osaka Univ., Japan, [8](currently) RIKEN, Spring-8 Center, Japan

CLES3-2 14:00 *Invited*

Proton Fast Ignition Scheme Revisited

J. Honrubia[1], A. Morace[2] and M. Murakami[2]
[1]School of Aerospace Engineering, Polytechnic Univ. of Madrid, Spain, [2]Institute of Laser Engineering, Osaka Univ., Japan

CLES3-3 14:30

Integrated Simulations of Core Heating for Ion Assisted Fast Ignition

H. Sakagami[1], T. Johzaki[2], A. Sunahara[3], and H. Nagatomo[4]
[1]Fundamental Physics Simulation Division, National Institute for Fusion Science, Japan, [2]Graduate School of Engineering, Hiroshima Univ., Japan, [3]Institute for Laser Technology, Japan, [4]Institute of Laser Engineering, Osaka Univ., Japan

CLES3-4 14:45

Proton Fast Ignition: Limits of the Classic Method and Alternative Approaches.

A. Morace[1] J. Honrubia[2], T. Johzaki[3], H. Sakagaami[4], S. Fujioka[1], A. Yogo[1], M. Murakami[1], Y. Arikawa[1], S. Kojima[1], S. Sakata[1], Y. Abe[1], N. Kamitsukasa[1], S.-H. Lee[1], S. Tosaki[1], K. Matsuo[1], A. Sagisaka[5], K. Kondo[5], A. Pirozhkov[5], T. Norimatsu[1], T. Jitsuno[1], N. Miyanaga[1], H. Shiraga[1], M. Nakai[1], H. Nishimura[1] and H. Azechi[1]
[1]Institute of Laser Engineering, Osaka Univ., Japan, [2]ETSIA, Univ. Politecnica de Madrid, Spain, [3]Graduate School of Engineering, Hiroshima Univ., Japan, [4]National Institute of Fusion Science, Japan, [5]Kansai Photon Science Institute, Japan Atomic Energy Agency, Japan

CLES3-5 15:00

Fast Ignition Using Shock Accelerated Ions in the Target Corona

E. Boella[1], R. Bingham[2], R. Cairns[3], P. Norreys [2,4], R. Trines[2], M. Vranic[1] and L. Silva[1]
[1]Centro de Fisicade Plasma, Instituto Superior Tecnico, Portugal, [2]STFC Rutherford Appleton Laboratory, UK, [3]Univ. of St. Andrews, UK, [4]Univ. of Oxford, UK

CLES3-5 15:15

Effect of Resistivity Gradient on Laser Driven Electron Transport and Ion Acceleration

H. Zhuo[1], X. Yang[1], and S. Zhang[1]
[1]College of Science, National Univ. of Defense Technology, China

----- 15:30-16:00 Break -----

Oral Program

Oral, Tuesday, May 17 PM

HEDS <Room 311+312>

[HEDS3] 13:30-15:00
High-Field Physics II (ImPACT Session III)
Chair: A. Zhidkov
Osaka University, Japan

HEDS3-1 13:30 *Invited*

What can we learn from studying magnetic reconnection in laser plasmas?
S. V. Bulanov
QST, Japan

HEDS3-2 14:00

Non-equilibrium extreme radiation plasmas produced by the interaction between high power laser and heavy element materials
Yasuaki Kishimoto
Kyoto University, Japan

HEDS3-3 14:20

X-ray spectroscopy diagnostics on supersonic astrophysically-relevant recombining plasma jets collimated by poloidal magnetic field
Sergei Pikuz
RAS, Russia

HEDS3-4 14:40

Nearly Isolated Measurement of the Vacuum Contribution to the Scattering of γ-rays off Nuclei
James K. Koga
QST, Japan

LSSE <Room 316>

[LSSE2] 13:00-15:00
Space Debris Detection Remediation 2
Chair: S. Wada
RIKEN Center for Advanced Photonics, RIKEN

LSSE2-1 13:00 *Invited*

A Novel Laser System Based on a Massive Coherent Amplifying Network (CAN) to Mitigate Orbital Debris
G. Mourou
IZEST, Ecole Polytechnique, France

LSSE2-2 14:00

Mandelstam-Brillouin Mirrors for Chirped Pulse Fiber Laser Networks
A. Y. Okulov
Russian Academy of Sciences, Russia

LSSE2-3 14:20

Experimental Evaluation of Laser Ablation Impulse
A. Sasoh, B. Wang, H. Tsuruta, Y. Katagiri, A. Iwakawa
Nagoya University, Japan

LSSE2-4 14:40

Impulse Generation by Multiple-Pulse Laser Ablation with Oblique Incidence
B. Wang, H. Tsuruta, A. Sasoh
Nagoya University, Japan

SLPC <Room 416+417>

[SLPC3] 13:15-15:15
Additive Manufacturing
Chairs: H. Kyogoku
Kindai Univ., Japan
M. Tsukamoto
Osaka Univ., Japan

SLPC3-1 13:15 *Invited*

Development of a Hybrid Multi-Tasking Machine Tool: Integration of Laser Metal Deposition Technology with CNC Machining
T. Yamazaki,
Yamazaki Mazak Corp., Japan

SLPC3-2 13:45

High Speed and High Accuracy LMD 3D Printer
N. Okada[1], Y. Shiomi[1], H. Ohno[1], S. Fujimaki[2], Y. Fukase[2], S. Fukuyama[2]
[1]Toshiba Corp., Japan, [2]Toshiba Machine Co. Ltd., Japan

SLPC3-3 14:00

Diode Lasers in New Applications High Speed Cladding and Tailored Blank Welding
T. Schopphoven[1], A. Gasser[1], K. Wissenbach[1], R. Poprawe[2], A. Eltze[3], M. Ruetering[3]
[1]Fraunhofer-Institute for Laser Technology, Germany, [2]Chair for Laser Technology, RWTH Aachen Univ., Germany, [3]Laserline GmbH, Germany

SLPC3-4 14:15

Development of Center Nozzle Laser Coating System and Its Coating Characteristics
D. Tanigawa[1], T. Nakaaze[1], N. Abe[2], M. Tsukamoto[2], H. Yamazaki[2], Y. Hayashi[2], M. Sengoku[3], M. Yoshida[3], Y. Funada[4], S. Muratani[5]
[1]Graduate School of Engineering, Osaka Univ., Japan, [2]Joining and Welding Research Institute, Osaka Univ., Japan, [3]Graduate School of Science and Engineering, Kindai Univ., Japan, [4]Industrial Research Institute of Ishikawa, Japan, [5]Muratani Machine Inc. Japan

SLPC3-5 14:30

Sensory Properties of Copper Microstructures Obtained by Laser-Induced Deposition from Water-Based Solution
M. S. Panov, A. V. Smikhovskaya, S. S. Ermakov, I. I. Tumkin
Saint-Petersburg Univ., Russia

SLPC3-6 14:45

Spray-coating of CuO Nanoparticles for Femtosecond Laser Reduction Patterning on Nonplanar Substrates
Y. Ito, M. Mizoshiri, J. Sakurai, S. Hata
Department of Micro-Nano Systems Engineering, Graduate School of Engineering, Nagoya Univ., Japan

SLPC3-7 15:00

Cu Micropatterning on Poly (Dimethylsiloxane) Using Femtosecond Laser Reduction of CuO Nanoparticles
M. Mizoshiri, Y. Ito, J. Sakurai, S. Hata
Graduate School of Engineering, Nagoya Univ., Japan

----- 15:00-15:30 Break -----

----- 15:00-15:30 Break -----

----- 15:15-15:45 Break -----

Oral, Tuesday, May 17 PM

ALPS <Room 302>

[ALPS6] 15:30-17:30
Fiber lasers and laser diodes
Chair: J. W. Nicholson
Program Committee Member, OFS Laboratories, USA

ALPS6-1 15:30 *Invited*

Scaling ultrafast fiber source performances: coherent combining of femtosecond pulses
F. Guichard[1], M. Hanna[2], Y. Zaouter[1], F. Druon[2], C. Hönninger[1], E. Mottay[1], and P. Georges[2]
[1]Amplitude Systèmes, France, [2]Lab. Charles Fabry, Inst. d'Optique, CNRS, Univ. Paris-Sud, France

ALPS6-2 16:00

Divided Pulse Amplification: Spectral Phase and Combining Efficiency
K. Iwata, H. Tünnermann, A. Shirakawa
Inst. for Laser Sci., Univ. Electro-Comm., Japan

ALPS6-3 16:15

Phase-locked 7-core multi-core photonic crystal fiber laser
Y. Kurosu[1], T. Kubouchi[1], H. Tünnermann[1], A. Shirapkawa[1], K. Saito[2]
[1]Inst. for Laser Sci., Univ. Electro-Comm., Japan, [2]Toyota Tech. Inst., Grad. School of Eng., Japan

ALPS6-4 16:30

Experimentally fabrication of a monolithic fiber end cap collimator with long collimation length for high power applications
X. Zhou, Z. Chen, Z. Wang, J. Hou, X. Xu
College of Optoelectric Sci. and Eng., National Univ. of Defense Tech., China

ALPS6-5 16:45

Generation of red Q-switch pulse laser in Pr-doped double-clad structured waterproof fluoride glass fiber with graphene thin film
S. Kajikawa[1,2], T. Terao[1,2], S. Motokoshi[3], M. Yoshida[1], O. Ishii[4], M. Yamazaki[5], Y. Fujimoto[2]
[1]Faculty of Sci. and Eng. Kindai Univ., Japan, [2]ILE, Osaka Univ., Japan, [3]Inst. of Laser Tech., [4]Production Eng. Section, Optical Glass Production Dept. Sumita Optical Glass, Inc., Japan, [5]Glass Res. Division, R&D Dept. Sumita Optical Glass, Inc., Japan

ALPS6-6 17:00

976nm 300W Fiber Coupled Laser Diode Module
E. Katayama, Y. Ishige, Y. Ohki, H. Mori, T. Kimura, T. Mukaihara
Furukawa Electric Co., Ltd., Japan

ALPS6-7 17:15

Wavelength locking and bandwidth narrowing for spatial beam-combined high-power laser-diode stacks using single volume Bragg grating
T. Sekine, Y. Zheng, H. Kan, N. Satoh, and T. Kawashima
Hamamatsu Photonics K.K., Japan

ALPS <Room 511+ 512>

[ALPS7] 15:30-17:30
Ultrafast light sources
Chair: A. Suda
Tokyo Univ. of Sci., Japan
Chair: Bruno E. Schmidt
Few-cycle Inc., Canada

ALPS7-1 15:30 *Invited*

Concepts for scaling peak power and average power via Frequency domain OPA (FOPA)
M. Giguere[1], G. Ernotte[2], P. Lassonde[2], A. Stephanides[3], T. Mans[3], F. Légaré[2], B. E. Schmidt[1]
[1]Few-cycle Inc., Canada, [2]NRS-EMT, Canada, [3]AMPHOS GmbH, Germany

ALPS7-2 16:00

Sub-Two-Cycle, Millijoule IR Light Source for Attosecond Streaking of Extreme Ultraviolet High Harmonics
N. Ishii[1], N. Saito, T. Kanai[1], S. Watanabe[2], and J. Itatani
[1]The Inst. for Solid State Phys., Japan, [2]Tokyo Univ. of Sci., Japan

ALPS7-3 16:15

Retrieval of Vacuum-Ultraviolet Waveform and Plasma Mirror Reflectivity Using Frequency-Resolved Optical Gating
R. Itakura, T. Kumada, M. Nakano, H. Akagi
Kansai Photon Sci. Inst., JAEA, Japan

ALPS7-4 16:30

Chirped-Pulse Amplification Using Thulium-Doped Fluoride Fibers
Y. Nomura and T. Fuji
Inst. for Molecular Sci., Japan

ALPS7-5 16:45

Ultrashort 34 fs, 50 μJ fiber source through nonlinear compression in hypocycloid core Kagome fiber
F. Guichard[1], L. Lavenu[1,2], Y. Zaouter[1], M. Hanna[2], Q. Mocaer[1], G. Machinet[1], B. Debord[3], F. Gerome[3,4], C. Hönninger[1], E. Mottay[1], F. Benabid[3,4], and P. Georges[2]
[1]Amplitude Systèmes, France, [2]Lab. Charles Fabry, France, [3]GPPM group laboratoire XLIM, GLOphotonics, France

ALPS7-6 17:00

Synchronization of Two-Color Femtosecond Fiber Chirped-Pulse Amplifiers by Use of Dispersive-Wave Generation
D. Yoshitomi and K. Torizuka
AIST, Japan

ALPS7-7 17:15

Measurement of time-dependent plasma formation in noncollinear high harmonic generation
M. Kohga, K. Sato, T. Kuroda, M. Hata, and A. Suda
Dept. of Phys. Faculty of Sci. and Tech., Tokyo Univ. of Sci., Japan

CLES <Room 418>

[CLES4] 16:00-18:00
Ion Acceleration
Chair: M. Roth
Technische Univ., Darmstadt, Germany

CLES4-1 16:00 *Invited*

Towards Spectral Control of Laser-Driven Ion Beams Generated in the Relativistic Transparency Regime
J. Fernandez[1], S. Palaniyappan[1], C. Huang[1], D. Gautier[1], C. Hamilton[1], M. Santiago[1], C. Kreuzer[2], and R. Shah[1]
[1]Los Alamos National Laboratory, USA, [2]Ludwig-Maximilian-Univ., Germany

CLES4-2 16:30 *Invited*

Anomalous Electron Heating and Ion Acceleration with High Contrast Laser Pulses on LFEX
A. Yogo[1], N. Iwata[1], K. Mima[2], A. Morace[1], S. Tosaki[1], S. Fujioka[1], Y. Arikawa[1], Y. Abe[1], S. Kojima[1], S. Sakata[1], S.-H. Lee[1], K.-F. Law[1], K. Matsuo[1], H. Nagatomo[1], A. Sunahara[2], T. Johzaki[3], H. Sakagami[5], T. Ozaki[5], T. Sano[1], Y. Fujimoto[1], K. Yamanoi[1], T. Norimatsu[1], S. Tokita[1], Y. Nakata[1], J. Kawanaka[1], T. Jitsuno[1], N. Miyanaga[1], M. Nakai[1], H. Nishimura[1], H. Shiraga[1], S. Bulanov[6], A. Sagisaka[5], K. Ogura[5], K. Kondo[6], and H. Azechi[1]
[1]Institute of Laser Engineering, Osaka Univ., Japan, [2]The Graduate School for the Creation of New Photon Industries, Japan, [3]Institute for Laser Technology, Japan, [4]Graduate School of Engineering, Hiroshima Univ., Japan, [5]National Institute for Fusion Science, Japan, [6]Kansai Photon Science Institute, Japan Atomic Energy Agency, Japan

CLES4-3 17:00

Electron Heating and Ion Acceleration Mechanisms in Pico-Second Scale Interaction between Solid Foil and High Intensity Lasers
N. Iwata[1], A. Yogo[1], S. Tosaki[1], K. Koga[1], H. Nagatomo[1], Y. Kishimoto[2], H. Nishimura[1], K. Mima[3] and H. Azechi[1]
[1]Institute of Laser Engineering, Osaka Univ., Japan, [2]Graduate School of Energy Science, Kyoto Univ., Japan, [3]The Graduate School for the Creation of New Photonics Industries, Japan

CLES4-4 17:15

Efficient Ion Acceleration by Collision-Less Shock for Fast Ignition
K. Mima[1], Q. Jia[2], H.-B. Cai[2], T. Taguchi[3], T. Asahina[4], N. Iwata[4], H. Nagatomo[4], A. Yogo[4]
[1]The Graduate School for the Creation of New Photonics Industries, Japan, [2]HEDPS, Center for Applied Physics and Technology, Peking Univ. and Institute of Applied Physics and Computational Mathematics, China, [3]Faculty of Engineering, Setsunan Univ., Japan, [4]Institute of Laser Engineering, Osaka Univ., Japan

CLES4-5 17:30

Enhanced Laser-Driven Proton Acceleration from Relativistically Transparent Transversely Nano-striped Target
M. Murakami[1], J. Wang[1,2], H. Xu[3], J. Ju[2] and W. Yu[2]
[1]Institute of Laser Engineering, Osaka Univ., Japan, [2]State Key Laboratory of High Field Laser Physics, SIOM, China, [3]National Laboratory for Parallel and Distributed Processing, China,

CLES4-5 17:45

Quasi-Monoenergetic Laser-Driven Ion Acceleration by Coulomb Explosion of Optimized Two-Species Nanocluster
X. Zhou[1] and M. Murakami[1]
[1]Institute of Laser Engineering, Osaka University, Japan

Oral Program

Oral, Tuesday, May 17 PM

HEDS <Room 311+312>

[HEDS4] 15:30-17:50
Ultra-fast Imaging(ImPACT Session IV)
Chair: M. Kando
QST, Japan

HEDS4-1 15:30 *Invited*

Ultrafast electron diffraction and deflectometry with laser accelerated electrons
Shuji Sakabe
Kyoto University, Japan

HEDS4-2 16:00 *Invited*

Laser–driven electron sources and their application to ultrafast electron diffraction
Jérôme Faure
CNRS, France

HEDS4-3 16:30 *Invited*

Multi-Mode Ultrafast Electron Diffraction: Probe Structural Dynamics with Atomic-scale Resolution of Space and Time
Wenxi Liang
Huazhong University of Science and Technology, China

HEDS4-4 17:00

Progress in all-optical ultra-fast single-shot electron microscopy in MeV range
Alexey Zhidkov
Osaka University, Japan

HEDS4-5 17:20 *Invited*

Ultrafast Electron Microscopy using a relativistic-energy femtosecond electron beam
Jinfeng Yang
Osaka University, Japan

LSSE <Room 316>

[LSSE3] 15:30-17:10
Space Debris Detection Remediation 3
Chair: A. Sasoh
Nagoya University, Japan

LSSE3-1 15:30

Space Debris Studies at Kyoto University
H. Yamakawa, K. Masunari, N. Iwanaga, N. Ikeda, T. Iwahori, T. Nishimura, Y. Kobayashi, T. Fukushima
RISH, Kyoto University, Japan

LSSE3-2 15:50

Large Debris Removal in LEO and GEO with a Spacecraft Equipped with a High Power Laser System
N. Thiry, J. M. Romero Martin, M. Vasile
University of Strathclyde, UK

LSSE3-3 16:10

Development of Observational Technologies for Space Debris in JAXA
T. Yanagisawa, H. Kurosaki
Japan Aerospace Exploration Agency, Japan

LSSE3-4 16:30

Application and Spatially and Temporally Resolved OES Study of Polymers Ablated in Laser Propulsion
L. Jiao[1,2,3], J. Cai[2], B. Truscott[3], H. Liu[3], M. Ashford[3]
[1]Univ. of Sci. and Tech. of China, China, [2]Chinese Academy of Sciences, China, [3]University of Bristol, UK

LSSE3-5 16:50

A PHD Filter for Tracking Mid-Course Group Targets via Space-Based Laser
H. Yu, W. An, W. Sheng, X. Wang
National Univ. Defence Tech., China

SLPC <Room 416+417>

[SLPC4] 15:45-17:45
Micro & Nano Processing
Chairs: B. Neuenschwander
Bern Univ. of Applied Science, Switzerland
M. Fujita
Institute for Laser Technology, Japan

SLPC4-1 15:45 *Invited*

Ultrafast Lasers Interacting on Different Material Surfaces
E. L. Gurevich, A. Ostendorf
Ruhr-Univ. Bochum, Germany

SLPC4-8 16:15

Direct Writing of Sub-100 nm Cr Particles by Laser Induced Forward Transfer (LIFT) Using an Annular fs-laser Beam
T. Nakamura, K. Omachi, S. Sato
Institute of Multidisciplinary Research for Advanced Materials, Tohoku Univ., Japan

SLPC4-3 16:30

Find Out the Best Pulse Duration to Do Effective Micro Laser Process with Ultra Fast Pulse Lasers
Y. Nakamura[1], M. Koitzsch[2], B. Becker[2], C. Siebert[2], S. Russ[3]
[1]TRUMPF Corp., Japan, [2]TRUMPF Laser- und Systemtechnik GmbH, Germany, [3]TRUMPF Laser GmbH + Co. KG, Germany

SLPC4-4 16:45

Industrial Femtosecond Lasers for Micromachining Applications with Highest Quality and Efficiency
D. Achenbach, F. Hendricks, V. Matylitsky
Spectra-Physics, Austria

SLPC4-5 17:00

Structure Evolution of Metal Nanowire Gratings to Nanodots by Femtosecond Laser Irradiation
Y. Nakajima[1], N. N. Nedyalkov[2], A. Takami[1], M. Terakawa[1]
[1]Keio Univ., Japan, [2]Bulgarian Academy of Sciences, Bulgaria

SLPC4-9 17:15

Femtosecond Laser Processing of Poly (Lactic-co-glycolic Acid) at 800, 400, and 266 nm Wavelengths
A. Shibata[1], S. Yada[1], M. Terakawa[1,2]
[1]School of Integrated Design Engineering, Keio Univ., Japan, [2]Department of Electronics and Electrical Engineering, Keio Univ., Japan

SLPC4-7 17:30

Fabrication of Bi-anisotropic Optical Metamaterials for Infra-red Spectral Range by Direct Laser Write Technique
I. Faniayeu[1,2], V. Mizeikis[1]
[1]Research Institute of Electronics, Shizuoka Univ., Japan, [2]Department of General Physics, Francisk Skorina Gomel State Univ., Belarus

[SLPC Reception] 18:15-20:15
@Room 419

Tue, 17 May, PM

Oral, Wednesday, May 18

Congress <Room 501+502>

Plenary Sessions 9:00-12:10

[Greetings] 9:00-9:15

Andreas Ostendorf
Congress Chair
Professor, Ruhr-University Bochum, Germany
Sadao Nakai
IAB Chair
Professor Emeritus,Osaka University, Japan
Reinhart Poprawe
IAB
Director, Fraunhofer Inst.for Laser Tech., Germany

[First session OPIC1] 9:15-10:35

Chair: Kenichi Iga
Professor Emeritus, Tokyo Institute of Technology

OPIC1-1 9:15-9:55

Retinal Imaging Laser Eyewear : from Low-Vision Aids to Smart Glass
Mitsuru Sugawara
President, QD Laser Inc., Japan

OPIC1-2 9:55-10:35

Cultivation of Electro-Active Functionality in Transparent Oxides
Hideo Hosono, Professor
Tokyo Institute of Technology, Japan

----- 10:35-10:50 Break -----

[Second session OPIC2] 10:50 -12:15

Chair: Chris Barty
CTO, Lawrence Livermore National Laboratory. USA

OPIC2-1 10:50-11:30

The Thirty Meter Telescope project
Masanori Iye
Professor Emeritus, National Astronomical Observatory of Japan

OPIC2-2 11:30-12:10

ELI: The CERN of laser research
Georg Korn
CSO, Head of Department of Experimental Program, Extreme Light Infrastructure(ELI)

----- 12:10-13:30 Lunch Break -----

ALPS & HEDS & XOPT <Room 302>

[ALPS, HEDS, XOPT Joint Session 1] 13:30-15:30

Chair: M. Yabashi
SPring-8/SACLA, Japan
T. Hosokai
Osaka Univ., Japan

XOPTj-1 13:30 *Invited*

X-rays as a Subject for Optics Research
T. Ishikawa
RIKEN SPring-8 Center, Japan

XOPTj-2 14:00 *Invited*

LCLS-II: A High Repetition Rate X-ray Laser Facility
D. M. Fritz
SLAC National Accelerator Laboratory, USA

HEDSj-1 14:30 *Invited*

Exploration of New fields of High Energy Density Science
R. Kodama
Osaka Univ., Japan

ALPSj-1 15:00 *Invited*

HiLASE100: a cryo-cooled 100 J, 10 Hz DPSSL System
A. Lucianetti, M. Divoký, J. Pilař, O. Slezák, M. Sawicka-Chyla, V. Jambunathan, P. Navrátil, M. Hanuš, M. Boehm, M. Lukaszewski, and T. Mocek
HiLASE Centre, Inst. of Phys., CAS, Czech Republic

----- 15:30-15:45 Break -----

LIC & PLD & SLPC <Room 301>

[LIC+PLD+SLPC Joint Session 1](PLD1)(SLPC5) 13:30-15:15

Chair: K. Washio
Paradigm Laser Research, Japan

Introduction 13:30
T. Taira[1], T. Jitsuno[2], and Y. Okamoto[3]
[1]Inst. Mo. Sci., Japan, [2]Osaka Univ., Japan, [3]Okayama Univ., Japan

SLPC5j-1 13:45 *Invited*

Optimized Design and Performance of Laser Ablation Systems for Paint and Coating Removal for Manufacturing and Maintenance of Vehicles and Airplanes
Y. Kwon
Powerlase Photonics, UK

PLDj-1 14:15 *Invited*

High Performance Interference Coatings for Near Infrared High Energy Lasers
C. Menoni
Colorado State Univ., USA

PLDj-2 14:45 *Invited*

Modeling of Laser Induced Damage and Usage at National Ignition Facility
Z. Liao
Lawrence Livermore Nat. Laboratory, USA

----- 15:15-15:45 Break -----

BISC & OMC <Room 414+415>

[BISC & OMC Joint Session] 13:30-16:30

Chairs: T. Omatsu
Chiba Univ., Japan
O. Matoba
Kobe Univ., Japan

BISC & OMC-1 13:30 *Invited*

Direct Real Time En-face Optical Coherence Tomography
A. Podoleanu[1,4], A. Bradu[1], S. Rivet[1], K. Kapinchev[2], F. Barnes[2], M. Maria[1,3], T. Feuchter[3], L. Leick[3], T. Garway-Heath[4], P. Keane[4], R. Rajendram[4]
[1]Appl. Opt. Univ. of Kent, UK, [2]School of Comput. Univ. of Kent, UK, [3]NKT Photonics A/S, Denmark, [4]Univ. Col. London, UK

BISC & OMC-2 14:00 *Invited*

Nanoscale Localization Sampling by Plasmonic Aperture Arrays for Imaging Molecular Events
D. Kim
Yonsei Univ., Republic of Korea

BISC & OMC-3 14:30 *Invited*

Advanced Light Shaping for Biomedical Applications
K. Dholakia
Univ. of St Andrews, UK

----- 15:00-15:30 Break -----

Oral Program

Oral, Wednesday, May 18 PM

ALPS & HEDS & XOPT <Room 302>

[ALPS, HEDS, XOPT Joint Session 2]
15:45-16:45
Chair: J. Itatani
Program Committee Member
Univ. Tokyo, Japan

ALPSj-2 15:45 *Invited*

Current status of PW laser at CoReLS and applications
S. K. Lee
GIST, Korea

HEDSj-2 16:15 *Invited*

High-energy Density Science and plasma physics at ELI Beamlines
G. Korn
Director of ELI Beamlines, Czech Republic

----- 17:00-18:00 Break / Move -----

LIC & PLD & SLPC <Room 301>

[LIC+PLD+SLPC Joint Session 2](PLD2)(SLPC6)
15:45-17:20
Chair: K. Washio
Paradigm Laser Research, Japan

SLPC6j-1 15:45 *Invited*

Fiber Delivery of Ultrafast Lasers
E. Mottay
Amplitude Systems, France

LICj-1 16:15 *Invited*

The Latest Technology Demand of the Internal Processing Type Laser Dicing Technology
T. Takahashi, N. Uchiyama
Hamamatsu Photonics, Japan

LICj-2 16:45 *Invited*

From analytics to material processing: the versatile microlaser and its applications
A. Kevorkian
Team Photonics, France

Closing 17:15
K. Washio
Paradigm Laser Research, Japan

BISC & OMC <Room 414+415>

BISC & OMC-4 15:30 *Invited*

Label-free Multimodal Imaging for Discrimination of Cell Type and Pathogen Response
N. Smith
IFReC Osaka Univ., Japan

BISC & OMC-5 16:00

Full-field Optical Coherence Tomography Using Ultrathin Forward-imaging Short Multimode Fiber
M. Sato[1], D. Saito[1], K. Shouji[1], I. Nishidate[2]
[1]Yamagata Univ., Japan, [2]Tokyo Univ. of Agriculture and Technology, Japan

BISC & OMC-6 16:15

Optical Trapping of Quantum-dot Conjugated Cell Surface Molecules of Neuronal Cell Cultured onto a Plasmonic Chip
C. Hosokawa[1], K. Miyauchi[1,2], S. N. Kudoh[2], T. Taguchi[3], K. Tawa[2]
[1]AIST, Japan, [2]Kwansei Gakuin Univ., Japan, [3]NICT, Japan

[OPIC Reception] 18:00-20:00 <Room 501+502>

Wed, 18 May

ALPS <Room 511+ 512>

[ALPS8] 13:30-15:30
Novel structured lasers/nonlinear media
Chair: S. Kurimura
Program Committee Member
National Inst. for Materials Sci., Japan

ALPS8-1 13:30 *Invited*

Optical parametric vortex lasers and their applications towards chiral materials science
T. Omatsu
Chiba Univ., Japan

ALPS8-2 14:00

High-Power 355-nm UV Generation in Prism-Coupled $CsLiB_6O_{10}$
M. Yoshimura[1], K. Ueda[1], Y. Orii[2], Y. Takahashi[1], G. Okada[2], and Y. Mori[1]
[1]Osaka Univ., Japan, [2]Spectronix Corp., Japan

ALPS8-3 14:15

Evaluation of the thermally induced birefringence in a Nd:YAG/diamond composite laser fabricated with the room-temperature bonding
K. Yamaguchi, Y. Okuyama, H. Ichikawa, and I. Shoji
Chuo Univ., Japan

ALPS8-4 14:30 *Invited*

Photonic quantum devices using single light emitters
H. Takashima[1-3], A. W. Schell[1], A. Fukuda[1], S. Fujita[1], Y. Oe[1-3], S. Kamioka[2, 3], M. Fujiwara[2, 3], S. Takeuchi[1-3]
[1]Grad. School of Eng., Kyoto Univ., Japan, [2]Res. Inst. for Electronic Sci., Hokkaido Univ., Japan, [3]The Inst. of Scientific and Industrial Res., Osaka Univ., Japan

ALPS8-5 15:00

750-nm LED-pumped Nd:YAG laser with 9% optical efficiency
K.-Y. Huang, C.-K. Su, M.-W. Lin, Y.-C. Chiu, Y.-C. Huang
National Tsing Hua Univ., Taiwan

ALPS8-6 15:15

Illusion Medium Mimicking Scattered Waves of a Bump on a Flat Surface Based on Transformation Electromagnetics
T. Nagayama, A. Sanada
Yamaguchi Univ., Japan

----- 15:30-15:45 Break -----

[ALPS9] 15:45-17:15
Metamaterials, Photon handling
Chair: T. Tanabe
Program Committee Member, Keio Univ., Japan

ALPS9-1 15:45 *Invited*

Spin-orbit interaction in optical metamaterials
J. W. Wu
Ewha Womans Univ., Korea

ALPS9-2 16:15 *Invited*

Terahertz Component Platforms Inspired by Metamaterials
T. Suzuki
Ibaraki Univ., Japan

ALPS9-3 16:45

Bio-inspired, nanostructured anti-reflective surfaces for laser applications
Z. Diao[1], J.-H. Dirks[1,2], J. P. Spatz[1,3]
[1]Dept. of New Mater. and Biosystems, Max Planck Inst. for Intelligent Systems, Germany, [2]Dept. for Biomimetics, Hochschule Bremen-Univ. of Applied Sci., Germany, [3]Dept. of Biophysical Chemistry, Univ. of Heidelberg, Germany

ALPS9-4 17:00

Low Loss Asymmetrical Optical Power Splitter on SOI Platform with Various Influenced Parameters
C. P. Vardhani, N. Pendam
Osmania Univ., India

----- 17:00-18:00 Break / Move -----

[OPIC Reception] 18:00-20:00 <Room 501+502>

Oral, Wednesday, May 18 PM

CLES <Room 418>

[CLES5] 13:30-15:30
Magnetic Field Assisted fast Ignition
Chair: H.-B. Cai
Institute of Applied Physics & Computational Mathematics, China

CLES5-1 13:30 *Invited*

Collimation of Relativistic Electron Beams in Dense Matter by Externally Imposed Magnetic Field

M. Bailly-Grandvaux[1], D. Batani[1], C. Bellei[1], J.-L. Dubois[1], M. Ehret[1,2], P. Forestier-Colleoni[1], S. Fujioka[3], L. Giuffrida[1], J. Honrubia[4], S. Hulin[1], S. Kojima[3], P. Korneev[1,5], J. Marquès[6], A. Morace[3], P. Nicolaï[1], O. Peyrusse[1], A. Poyé[1], M. Roth[2], S. Sakata[3], G. Schaumann[2], J. Servel[1], V. Tikhonchuk[1], Z. Zhang[3], and J. Santos[1]
[1]Univ. Bordeaux, CNRS, CEA, CELIA, UMR, France, [2]Institut für Kernphysik, Tech. Univ., Germany, [3]Institute of Laser Engineering, Osaka Univ., Japan, [4]Univ. Politécnica de Madrid, Spain, [5]National Research Nuclear Univ. MEPhI, Russian Federation, [6]LULI, Ecole Polytechnique, CNRS, CEA, UMR, France [7]CEA/DAM/CESTA, France

CLES5-2 14:00 *Invited*

Magnetically Assisted Fast Ignition

W.-M. Wang[1], P. Gibbon[2], Z. Sheng[3], Y.-T. Li[1] and J. Zhang[3]
[1]Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, CAS, China, [2]Forschungszentrum Jülich GmbH, Institute for Advanced Simulation, Jülich Supercomputing Centre, Germany, [3]Key Laboratory for Laser Plasmas (MoE) and Department of Physics and Astronomy, Shanghai JiaoTong Univ., China

CLES5-3 14:30 *Invited*

Optimum Solid Target Compression Under the Strong Magnetic Field for Fast Ignition

H. Nagatomo[1], T. Johzaki[2], K. Matsuo[1], T. Asahina[1], M. Hata[1], A. Sunahara[3], H. Sakagami[4], S.-H. Lee[1], S. Fujioka[1]
[1]Institute of Laser Engineering, Osaka Univ., Japan, [2]Hiroshima Univ., Japan, [3]Institute for Laser Technology, Japan, [4]National Institute for Fusion Science, Japan

CLES5-4 15:00

Computational Study on Thermal Conduction in Magnetized Plasmas

T. Asahina[1], H. Nagatomo[1], A. Sunahara[2], T. Johzaki[3], M. Hata[1] and Y. Sentoku[4]
[1]Institute of Laser Engineering, Osaka Univ., Japan, [2]Institute for Laser Technology, Japan, [3]Graduate School of Engineering, Hiroshima Univ., Japan, [4]Univ. of Nevada, USA

CLES5-5 15:15

Hydrodynamic Instability of High-Energy-Density-Plasma in Strong Magnetic Field

K. Matsuo[1], H. Nagatomo[1], T. Sano[1], Z. Zhang[2], P. Nicolai[3], J. Breil[3], Y. Sakawa[1], Y. Hara[1], H. Shimogawara[1], Y. Arikawa[1], S. Sakata[1], K.- F. Law[1], S.-H. Lee[1], S. Kojima[1], H. Kato[1], K. Shigemori[1], S. Fujioka[1] and H. Azechi[1]
[1]Institute of Laser Engineering, Osaka Univ., Japan, [2]Institute of Physics Chinese Academy of Sciences, China, [3]CELIA Univ. of Bordeaux, France

----- 15:30-16:00 Break -----

LEDIA <Room 411+412>

[Opening] 13:20-13:30
Opening Remarks 13:20
T. Honda
Steering Committee Chair of LEDIA '16
Kogakuin Univ., Japan

[LED1] 13:30-15:30
Special Session 1 (Industrial Applications)
Chair: G. Hatakoshi
Program Committee Member of LEDIA '16
Waseda Univ., Japan

LED1-1 13:30 *Invited*

Narrow-Band LEDs for Medical Applications

M. Ogasawara[1], T. Hirao[2], and S. Fujita[2]
[1]Mignon Belle Clinic, Japan, [2]Kyoto Univ., Japan

LED1-2 14:00 *Invited*

Current Status and Future Prospects of LED Lighting in Horticulture

N. Hasegawa and N. Kurata
Inochio Holdings Inc., Japan

LED1-3 14:30 *Invited*

Laser Headlights

Y. Nakazato, T. Tokiwa, and M. Uchida
Stanley Electric Co., Ltd., Japan

LED1-4 15:00 *Invited*

Beyond Illumination: Lighting Enabled System Applications

R. F. Karlicek, Jr.
Rensselaer Polytechnic Inst., U.S.A.

----- 15:30-16:00 Break -----

LSSE <Room 316>

[LSSE4] 13:30-14:50
Remote Sensing
Chair: N. Saito
RIKEN Center for Advanced Photonics, RIKEN

LSSE4-1 13:30

Precision and Relative Error Analysis of Spaceborne Multiple Wavelengths Vapor Water Range-Resolved DIAL

T. Li, Y. Zhang, S. Chen, P. Guo, H. Chen, Y. Ma
Beijing Institute of Technology, China

LSSE4-2 13:50

Lidar Monitoring of Volcanic, Terroristic and Radiological Hazards

L. Fiorani[1], A. Aiuppa[2], G. Maio[3,4], A. Palucci[1], S. Parracino[3,4], A. Puiu[1], S. Santoro[2,4]
[1]ENEA, Italy, [2]University of Palermo, Italy, [3]ARES Consortium, Italy, [4]ENEA guest, Italy, [5]University of Rome "Tor Vergata", Italy

LSSE4-3 14:10

Four Generations of Sodium Guide Star Lasers for Adaptive Optics in Astronomy and Space Situational Awareness

C. d'Orgeville[1], G. Fetzer[2]
[1]Australian National University, Australia, [2]Arete Associates, Sensors, Sources and Systems Division, USA

LSSE4-4 14:30

Integrating Cavity Measurements: A New Paradigm in Spectroscopic Optical Environmental Characterization

J. N. Bixler, J. Mason, B. H. Hokr, E. S. Fry, V. V. Yakovlev
Texas A&M University, USA

Oral Program

Oral, Wednesday, May 18 PM

CLES <Room 418>

[CLES6] 16:00-18:00
High Field Generation with Laser
Chair: E. Hill
Plasma Physics Group, Imperial College, UK

CLES6-1 16:00 *Invited*

THz Generation from Relativistic Laser Produced Plasmas

Y.-T. Li[1], G. Liao[1], C. Li[1], W.-M. Wang[1] and Z. Sheng[2]
[1]Institute of Physics, Chinese Academy of Sciences, China, [2]Key Laboratory for Laser Plasmas (MoE) and Department of Physics, Shanghai Jiao Tong Univ., China

CLES6-2 16:30 *Invited*

Taming of Laser Produced Spontaneous Magnetic Fields

P. Korneev[1], S. Fujioka[2], Y. Aabe[2], E. d'Humieres[3], J. Antos[3] and V. Tikhonchuk[3]
[1]National Research Nuclear Univ. "MEPh", Russian Federation, [2]Institute of Laser Engineering, Osaka Univ., Japan, [3]Univ. of Bordeaux, CNRS, CEA, CELIA, France

CLES6-3 17:00

Temporal Evolution of External Magnetic Fields Applied to the Cone Target

A. Sunahara[4], K.-F. Law[1] , S. Sakata[1], S.-H. Lee[1], Y. Aarikawa[1], S. Fujioka[1], T. Johzaki[2], H. Sakagami[3], H. Nagatomo[1], H. Shiraga[1], H. Azechi[1], and FIREX Group[1]
[1]Institute of Laser Engineering, Osaka Univ., Japan, [2]Hiroshima Univ., Japan, [3]National Institute for Fusion Science, Japan, [4]Institute for Laser Technology, Japan

CLES6-4 17:15

High Magnetic Field Generation by Short Pulse Lasers for FI

Z. Zhang[1], S. Fujioka[2], B.-J. Zhu[1], F. Li[1] W.-M. Jiang[1], Y.-H. Zhang[1], Y. Abe[2] and Y.-T. Li[1]
[1]Institute of Physics, Chinese Academy of Sciences, China, [2]Institute of Laser Engineering, Osaka Univ. Japan

CLES6-5 17:30

Electron Acceleration by Laser Driven Beat Wave Excited by Cross-Focused Cosh-Gaussian Laser Beams in Thermal Quantum Plasma

N. Gupta and A. Singh
National Institute of Technology, Jalandhar, India

CLES6-6 17:45 *Invited*

New Regime of Magnetic Reconnection Laboratory Experiment Realized by Kilo-Tesla Magnetic Field Generated with a Snail Target and LFEX Laser

Y. Abe[1], K.-F. Law[1], A. Morace[1], A. Yogo[1], S. Kojima[1], S. Sakata[1], S.-H. Lee[1], K. Matsuo[1], A. Oshima[1], Y. Arikawa[1], M. Nakai[1], Y. Sakawa[1], K. Kondo[2], E. d'Humieres[3], V. Tikhonchuk[3], J. J. Santos[3], Z. Zhang[4], Y.-Y. Li[4], T. Norimatsu[1], H. Azechi[1], P. Korneev[5] and S. Fujioka[1]
[1]Institute of Laser Engineering, Osaka Univ., Japan, [2]RLNR, Tokyo Institute of Technology, Japan, [3]CELIA, Univ. of Bordeaux, France, [4]Institute of Physics, Chinese Academy of Science, China, [5]NRNU MEPhI, Russian Federation

LEDIA <Room 411+412>

[LED2] 16:00-17:45
Special Session 2 (Industrial Applications)
Chair: T. Miyajima
Program Committee Vice-Chair of LEDIA '16
Meijo Univ., Japan

LED2-1 16:00 *Invited*

New Developments of LEDs for the Visible Spectrum, from UV to Red

B. Monemar[1-3]
[1]Linköping Univ., Sweden, [2]Lund Univ., Sweden, [3]Tokyo Univ. of Agri. & Tech., Japan

LED2-2 16:30

Optimization Analysis of the Arrangements of LEDs for an Indoor Visible Light Communication System

M. Gao, T. Lan, Z. Shen, and X. Chen
Beijing Inst. of Tech., China

LED2-3 16:45

Design of Multi-Functional Integrated Quantum Dot Sheet to Enhance Efficiency of LED Backlight Unit

S. –E. Kim, J. –Y. Lee, M. –H. Shin, and Y. –J. Kim
Yonsei Univ., Korea

LED2-4 17:00

GaN Light-Emitting Diode with Monolithically-Integrated Photodetector

H. T. Lu, K. H. Li, and H. W. Choi
The Univ. of Hong Kong, Hong Kong

LED2-5 17:15

Efficient Laser Beam Coupling with a Waveguide-Type Red-Green-Blue Combiner

A. Nakao[1], S. Hayashiguchi[1], S. Tanaka[1], S. Yokokawa[1], and T. Katsuyama[1,2]
[1]Univ. of Fukui, Japan, [2]UF-HISAC, Univ. of Fukui, Japan

LED2-6 17:30

A High Efficiency Laser Spotlight Illuminator

T. Miwa[1], A. Takamori[2], and K. Morimoto[3]
[1]IDEC Corp., Japan, [2]Osaka Univ., Japan, [3]AIS company, Panasonic Corp., Japan

LSSE <Room 316>

[OPIC Reception] 18:00-20:00 <Room 501+502>

Wed, 18 May

Oral, Thursday, May 19 AM

ALPS <Room 302>

[ALPS10] 9:00-10:30
High power lasers
Chair: J. Kawanaka
Program Committee Member
Osaka Univ., Japan

ALPS10-1 9:00 *Invited*

Diode-pumped amplification of broad band pulses to more than 50 J

J. Hein[1,2], M. Hornung[1,2], S. Keppler[1], H. Liebetrau[2], M. Hellwing[1], A. Kessler[2], F. Schorcht[2], J. Körner[1], M. C. Kaluza[1,2]
[1]Inst. of Optics and Quantum Electronics, Friedrich-Schiller-Univ., Germany, [2]Helmholtz-Institute Jena, Germany

ALPS10-2 9:30

High energy regenerative amplifier based on Yb:CaF_2

J.-G. Brisset[1,2], P. Sevillano[3], A. Courjaud[3]
[1]Max Born Inst., Germany, [2]Univ. de Genéve, GAP-Biophotonics, Switzerland, [3]Amplitude Systémes, France

ALPS10-3 9:45

Development of a High-Energy, Compact Power Laser System Using Diode-Pumped Solid-State Laser Technologies

Y. Kato[1,3], T. Kurita[1,3], T. Morita[1,3], T. Sekine[1,3], Y. Tamaoki[1,3], Y. Takeuchi[1,3], M. Miyamoto[2], T. Fujita[2], D. Hori[2], M. Takauji[2], T. Kokubo[2], T. Nagakura[2], H. Suzuki[2], and T. Kawashima[1,3]
[1]Hamamatsu Photonics K.K., Development Bureau, Industries Development Lab., Japan, [2]Miyakoda Factory, Japan, [3]ImPACT Program, Japan

ALPS10-4 10:00

Recent Progress of the Development of the Kumgang Laser - Coherent Beam Combination Laser using Self-controlled Stimulated Brillouin Scattering Phase Conjugate Mirrors (SBS-PCMs)

H. J. Kong[1], S. Park[1], S. Cha[1], S. Choi[1], H. Ahn[1], H. Lee[1], J. Oh[1], J. S. Kim[2]
[1]KAIST, Korea, [2]Laser Spectronix, Korea

ALPS10-5 10:15

Exploring the optimal temperature for the cryogenic 946-nm Nd:YAG laser

C.-Y. Cho, H. P. Cheng, and Y.-F. Chen, Dept. of Electrophysics, National Chiao Tung Univ., Taiwan

----- 10:30-11:00 Break -----

ALPS <Room 511+ 512>

[ALPS11] 9:00-10:30
Biomedical imaging and applications
Chair: N. Nishizawa
Program Committee Chair
Nagoya Univ., Japan

ALPS11-1 9:00 *Invited*

Progress of high-speed optical coherence tomography

M. Ohmi
Osaka Univ., Japan

ALPS11-2 9:30

Optical coherence microscopy in 1700 nm spectral band for deep and 3D high-resolution imaging of biological samples

T. Teranishi, M. Yamanaka, H. Kawagoe, N. Nishizawa
Dept. quantum Eng. Nagoya Univ. Japan

ALPS11-3 9:45

Scaling in Frame Number of Single-shot Ultrafast 2D-burst Imaging by STAMP utilizing Spectral Filtering

T. Suzuki, R. Hida, R. Ueda, F. Isa, and F. Kannari
Keio Univ., Japan

ALPS11-4 10:00

Single-Shot Multispectral Imaging by SF-STAMP System Using a Supercontinuum Pulse

R. Hida, T. Suzuki, R. Ueda, F. Isa, and F. Kannari
Keio Univ., Japan

ALPS11-5 10:15

Ablation property of demineralized dentin by nanosecond pulsed laser irradiation at wavelengths around 3 μm

K. Shimizu[1], K. Ishii[1], K. Hashimura[1,2], K. Yoshikawa[3], K. Yasuo[3], K. Yamamoto[3], K. Awazu[1,4,5]
[1]Grad. School of Eng., Osaka Univ., Japan, [2]Res. Fellow of JSPS, Japan, [3]Dept. of Operative Dentistry Dental Univ., Japan, [4]Grad. School of Frontier Biosciences, Osaka Univ., Japan, [5]Global Center for Medical Eng. and Informatics, Osaka Univ., Japan

----- 10:30-11:00 Break -----

BISC <Room 419>

[Opening] 9:00-9:15
Opening Remark 9:00
T. Yatagai
Chair of BISC '16
Utsunomiya Univ., Japan

[BISC1] 9:15-10:45
OCT, Phase Imaging
Chairs: O. Matoba
Kobe Univ., Japan
B. Cense
Utsunomiya Univ., Japan

BISC1-1 9:15 *Invited*

Towards Intraoperative Evaluation of Microvascular Anastomosis Based on Fourier Domain Optical Coherence Tomography

Y. Huang
Beijing Institute of Technology, China

BISC1-2 9:45 *Invited*

Dispersion-Insensitive Optical Coherence Tomography Based on Spectral Intensity Interferometry

T. Shirai
AIST, Japan

BISC1-3 10:15

Sensor-less Adaptive Optics Optical Coherence Tomography with a Liquid Crystal Wavefront Corrector and a 3.0 mm Beam

M. Reddikumar[1], A. Tanabe[2], N. Hashimoto[2], B. Cense[1]
[1]Center for Optical Research and Education, Utsunomiya Univ., Japan, [2]Citizen Holding, Japan

BISC1-4 10:30

Compact and Optical Table Free Quantitative Phase Microscope for non-Invasive Live Cell Imaging

T. Yamauchi, H. Yamada, K. Goto, Y. Ueda
Hamamatsu Photonics K.K., Japan

----- 10:45-11:15 Break -----

Oral, Thursday, May 19 AM

CLES <Room 418>

[CLES7] 9:00-10:30
Integrated Simulation and Modeling
Chair: P. Patel
Lawrence Livermore National Laboratory, USA

CLES7-1 9:00 *Invited*

Physical Studies of Fast Ignition at the IAPCM
H.-B. Cai, S.-Z. Wu, H. Zhang, J.-F. Wu, G.-L. Ren, L.-H. Cao, M.-Q. He, C.-T. Zhou, S.-P. Zhu and X.-T. He
Institute of Applied Physics & Computational Mathematics, China

CLES7-2 9:30 *Invited*

Integrated Simulation of Imploded Core Heating for the FIREX Project
T. Johzaki[1], H. Nagatomo[2], Y. Sentoku[3], H. Sakagami[4], A. Sunahara[5], S. Fujioka[2], A. Yogo[2], H. Shiraga[2], H. Azechi[2], and FIREX Project Group[2]
[1]Hiroshima Univ., Japan, [2]Institute of Laser Engineering, Osaka Univ., Japan, [3]Univ. of Nevada, USA, [4]National Institute for Fusion Science, Japan [5]Institute for Laser Technology, Japan

CLES7-3 10:00 *Invited*

Converting High Laser Light Absorption into Efficient Isochoric Heating of Dense Plasmas
S. Wilks[1], M. Tabak[1], K. Akli[2], D. Higginson[1], C. Jarrott[1], S. Jiang[1], R. Kirkwood[1], M. Levy[3], S. Libby[1], A. Link[1], P. Norreys[3], D. Turnbull[1] and D. Schumacher[2]
[1]Lawrence Livermore National Laboratory, USA, [2]Ohio State Univ., USA, [3]Oxford Univ., UK

----- 10:30-11:00 Break -----

HEDS <Room 311+312>

[HEDS5] 9:00-10:30
Particle Acceleration I(ImPACT Session V)
Chair: TBD

HEDS5-1 9:00 *Invited*

Beam diagnostics for staged laser electron acceleration experiments
Masaki Kando
QST, Japan

HEDS5-2 9:30 *Invited*

Laser wakefield acceleration research under the ImPACT-UPL program
Tomonao Hosokai
Osaka University, Japan

HEDS5-3 10:00 *Invited*

ImPACT: A Five-year National Program to Realize Ultra-compact XFELs by LWFA
Yuji Sano
ImPACT program, JST, Japan

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

LEDIA <Room 411+412>

[LED3] 9:00-12:00
Bulk & Epitaxy
Co-Chairs: H. Murakami
Program Committee Member of LEDIA '16
Tokyo Univ. of Agri. & Tech., Japan
Y. Honda
Program Committee Member of LEDIA '16
Nagoya Univ., Japan

LED3-1 9:00 *Invited*

Improving Growth Rate and Transparency of Basic Ammonothermal GaN Crystals
S. Pimputkar[1], S. Griffiths[1], T. Malkowski[1], S. Suihkonen[2], J. S. Speck[1], and S. Nakamura[1]
[1]Univ. of California, Santa Barbara, U.S.A., [2]Aalto Univ., Finland

LED3-2 9:30

Fabrication of Crack-Free Freestanding GaN Substrates by Dissolution of Sapphire Substrates using Li after the Na-Flux Growth
T. Yamada, M. Imanishi, K. Nakamura, K. Murakami, H. Imabayashi, D. Matsuo, M. Honjo, M. Maruyama, M. Imade, M. Yoshimura, and Y. Mori
Osaka Univ., Japan

LED3-3 9:45

Detailed Study of Homoepitaxial HVPE GaN Growth in the c-Direction
B. Lucznik[1,2]
[1]Inst. of High Pressure Physics PAS, Poland, [2]TopGaN Sp z o.o., Poland

LED3-4 10:00

Study of Homoepitaxial Non-polar and Semi-polar Growth of GaN by HVPE. Influence of Lateral Growth on HVPE-GaN Grown in the c-Direction.
M. Amilusik[1,2], T. Sochacki[1,2], M. Iwinska[1], M. Fijalkowski[1], B. Lucznik[1,2], I. Grzegory[1], and M. Bockowski[1]
[1]Inst. of High Pressure Physics PAS, Poland, [2]TopGaN Sp z o.o., Poland

LED3-5 10:15

High Temperature Growth of Thick InGaN Layers using Tri-Halide Vapor Phase Epitaxy
M. Meguro[1], T. Hirasaki[1], T. Hasegawa[1], Q. T. Thieu[1], H. Murakami[1], Y. Kumagai[1], B. Monemar[1,2], and A. Koukitu[1]
[1]Tokyo Univ. of Agri. & Tech., Japan, [2]Linköping Univ., Sweden

----- 10:30-11:00 Break -----

Thu, 19 May, AM

Oral, Thursday, May 19 AM

LIC <Room 301>

[LIC1] 9:00-10:00
LIC plenary session
Chair: T. Taira
Inst. Mol. Sci., Japan

LIC1-1 9:00

Opening remarks for LIC
T. Taira
Inst. Mol. Sci., Japan

LIC1-2 9:15

Message for LIC16 from OSA (tentative)
G. Quarles
OSA (The Optical Society), USA

LIC1-3 9:30

Estimating the Size of the Photonics Market
P. F. Hallett
SPIE (The International Society for Optics and Photonics), USA

LIC1-4 9:45

Message from SFO for LIC '16
B. Boulanger
SFO (La Société Française d'Optique), France

[LIC2] 10:00-12:30
Fundamental ignition studies
Chair: S. Gupta
Argonne Nat. Lab, USA

LIC2-1 10:00 *Invited*

Laser Applications in Engine Combustion Research -Diagnostics and Ignition-
K. Akihama
Nihon Univ., Japan

----- 10:30-10:45 Break -----

LSSE <Room 316>

OMC <Room 414+415>

[OMC1] 9:00-10:30
Optical Manipulation
Chair: Sile Nic Chormaic
OIST Graduate University, Japan

OMC1-1 9:00 *Invited*

Optical micromanipulation in studies of motility
Halina Rubinsztein-Dunlop
University of Queensland, Australia

OMC1-2 9:30

Submicron particle trapping and manipulation with plasmonic nanoring devices
Xue Han, Viet Giang Truong,
Seyedeh Sahar Seyed Hejazi, and Síle Nic Chormaic
Light-Matter Interactions Unit, Okinawa Institute of Science and Technology Graduate University, Japan

OMC1-3 9:45

A study of the metal particle manipulation in the glass by laser irradiation
Tatsuki Iwamoto, Jun Wada, Hirofumi Hidai, Souta Matsusaka, Akira Chiba, Noboru Morita
Chiba University, Japan

OMC1-4 10:00

Rotational dynamics and heating of trapped nanovaterite particles
Yoshihiko Arita[1,2], Joseph M. Richards, Michael Mazilu[1], Gabriel C. Spalding[3], Susan E. Skelton Spesyvtseva[1], Derek Craig[1], Kishan Dholakia[1]
[1]SUPA, School of Physics and Astronomy, University of St Andrews , United Kingdom, [2]MCRC, Molecular Chirality Research Centre, Graduate School of Advanced Integration Science, Chiba University, Japan, [3]Illinois Wesleyan University, USA

OMC1-5 10:15

Hydrodynamics of micro-objects near curved surfaces
S. Zhang, D. M. Carberry, T. A. Nieminen, H. Rubinsztein-Dunlop
Department of Mathematics and Physics, the University of Queensland, Australia

----- 10:30-11:00 Break -----

Oral, Thursday, May 19 AM

PLD <Room 413>

[PLD3] 9:00-10:15
Plenary and coatings
Chair: T. Jitsuno
Osaka Univ., Japan

PLD3-1 9:00 *Plenary*

Coatings for high power laser system in China
J. Shao
Shanghai Inst. of Opt. Fine Mech., China

PLD3-2 9:30

Laser-induced damage performance of high-reflectance coatings with co-evaporated interfaces at 1064nm
H. Xing, J. Sun, Y. Chai, M. Zhu, J. Shao
Shanghai Inst. of Opt. Fine Mech., China

PLD3-3 9:45

Non-destructive investigations to highlight first stages of fatigue effect under multiple laser irradiations
J.Y. Natoli, F. R. Wagne, A. Beaudier, L. Gallais, K. Lliopoulos
Institut Fresnel, France

PLD3-4 10:00

Ion-assisted coating for large-scale Bimorph deformable mirror
T. Mikami, T. Okamoto, T. Jitsuno[1], S. Motokoshi[2], V. Samarkin[3], A. Kudryashov[3], J. Kawanaka[1], N. Miyanaga[1]
Okamoto Optics Works, Inc., [1]Osaka Univ. Japan, [2]Japan, Inst. for Laser Tech., Japan, [3]Active Optics NightN Ltd, Russia

----- 10:15-10:45 Break -----

SLPC <Room 416+417>

[SLPC7] 8:30-10:00
Surface Structuring and Modification
Chairs: A. Ostendorf
Ruhl-Univ. Bochum, Germany
T. Nakamura
Tohoku Univ., Japan

SLPC7-1 8:30 *Invited*

Process Parameter Optimization for High Speed and High Quality Surface Structuring of Metals with 100 W of Average Power and Ultra-short Pulses
B. Jaeggi[1], M. Zimmermann[1], B. Neuenschwander[1], G. Hennig[2], R. Streubel[3], B. Goekce[3], S. Barcikowski[3]
[1]Institute for Applied Laser, Photonics and Surface Technology ALPS, Bern Univ. of Applied Sciences, Switzerland, [2]Daetwyler Graphics AG, Switzerland, [3]Technical Chemistry I and Center for Nanointegration, Duisburg-Essen (CENIDE), Univ. of Duisburg-Essen, Germany

SLPC7-2 9:00

Shape Change of Periodic Nanostructures Produced with Ultrashort Pulsed Laser on Titanium Surface
T. Shinonaga, S. Kinoshita, Y. Okamoto, A. Okada
Okayama Univ., Japan

SLPC7-3 9:15

Femtosecond Laser Peening of 2024 Aluminum Alloy Without Sacrificial Overlay under Atmospheric Conditions
T. Sano[1], T. Eimura[1], R. Kashiwabara[1], T. Matsuda[1], A. Hirose[1], S. Tsutsumi[2], K. Arakawa[3], K. Masaki[4], Y. Sano[5]
[1]Division of Materials and Manufacturing Science, Osaka Univ., Japan, [2]Joining and Welding Research Institute, Osaka Univ., Japan, [3]Shimane Univ., Japan, [4]Okinawa National College of Technology, Japan, [5]Toshiba Corp. (Japan Science and Technology Agency -ImPACT at present), Japan

SLPC7-6 9:30

Fabrication of Nano-periodic Structures with Holographic Line-shaped Vector Beams
S. Hasegawa, Y. Hayasaki
Center for Optical Research and Education (CORE), Utsunomiya Univ., Japan

SLPC7-7 9:45

In-process Debris Removal Based on Dual Polarizations with Optical Time Delay and Holographic Beam Shaping
T. Abe[1], S. Hasegawa[1], H. Takahashi[2], Y. Hayasaki[1]
[1]Center for Optical Research and Education (CORE), Utsunomiya Univ., Japan, [2]Aisin Seiki CO., LTD., Japan

----- 10:00-10:30 Break -----

XOPT <Room 313+314>

[Opening] 8:55-9:00
XOPT Opening Remarks 8:55
Kazuto Yamauchi
Osaka University, Japan

[XOPT1] 9:00-9:30
X-ray source
Chair: M. Yabashi
SPring-8/SACLA, Japan

XOPT1-1 9:00 *Invited*

Frontline and future perspectives in X-ray light source development
H. Tanaka
RIKEN SPring-8 Center, Japan

[XOPT2] 9:30-12:00
X-ray optics for advanced light sources
Chair: M. Yabashi
SPring-8/SACLA, Japan

XOPT2-1 9:30 *Invited*

Nanofocusing mirror optics developments for the ESRF ID-16 beamlines
R. Barrett
ESRF, France

XOPT2-2 10:00 *Invited*

X-ray mirrors at the European XFEL
H. Sinn
European XFEL, Germany

----- 10:30-11:00 Break -----

Thu, 19 May, AM

Oral, Thursday, May 19 AM

ALPS <Room 302>

[ALPS12] 11:00-12:00
Photonic lasers and applications
Chair: J. Hein
Friedrich schiller Univ. Jena, Germany

ALPS12-1 11:00 *Invited*

High-Light-Extraction Nanophotonic Structure for High-power DUV-LEDs

S.-I. Inoue
Adv. ICT Res. Inst., National Inst. of Information and Comm. Tech. (NICT), Japan

ALPS12-2 11:30

Nanosecond pulsed operation of a PCSEL for high peak powers

H. Nishida[1], X. Guo[1,2], S. Tokita[1], K. Ishizaki[2], S. Noda[2], K. Hirose[3], T. Sugiyama[3], A. Watanabe[3], J. Kawanaka[1]
[1]ILE, Osaka Univ., Japan, [2]Dept. of Electronic Sci. and Eng. Kyoto Univ., Japan, [3]Industries Development Lab. Hamamatsu Photonics K.K., Japan

ALPS12-3 11:45

Photonic Crystal Surface Emitting Laser Direct-Pumped Cryogenically Cooled Yb:YAG Oscillator

X. Guo[1,3], S. Tokita[1], K. Hirose[2], T. Sugiyama[2], A. Watanabe[2], K. Ishizaki[3], S. Noda[3], J. Kawanaka[1]
[1]Osaka Univ., Japan, [2]Hamamatsu Photonics K.K, Japan, [3]Kyoto Univ., Japan

----- 12:00-13:00 Lunch Break -----

ALPS <Room 511+ 512>

[ALPS13] 11:00-12:00
Biomedical spectroscopy
Chair: M. Ohmi
Program Committee Member
Osaka Univ., Japan

ALPS13-1 11:00 *Invited*

Hollow optical fiber probe for Raman spectroscopy

T. Katagiri[1], Y. Matsuura[2]
[1]Dept. of Eng., Tohoku Univ., Japan, [2]Dept. of Biomedical Eng., Tohoku Univ., Japan

ALPS13-2 11:30

Temperature determination at the nanoscale via tip-enhanced THz-Raman spectroscopy

M. V. Balois[1], N. Hayazawa[1,2], F. C. Catalan[2], S. Kawata[3], T. Tanaka[1], T. Yano[4], T. Hayashi[4]
[1]Innovative Photon Manipulation Res. Team-RIKEN, Japan, [2]Surface and Interface Sci. Lab.-RIKEN, Japan, [3]Osaka Univ., Japan, [4]Tokyo Inst. of Tech., Japan

ALPS13-3 11:45

Femtosecond Mid-Infrared Spectrometer Using Chirped-Pulse Upconversion in a Wide-Bandgap Nonlinear Crystal

Y. Inagaki[1,2], H. Hata[1,2], T. Kamimura[2], N. Umemura[3], N. Hamada[1], R. Nakamura[1]
[1]Osaka Univ., Japan, [2]Osaka Inst. Tech., Japan, [3]Chitose Inst. Sci. Tech., Japan

----- 12:00-13:00 Lunch Break -----

BISC <Room 419>

[BISC2] 11:15-12:15
Microscopy
Chairs: G. Nishimura
Hokkaido Univ., Japan
M. Sato
Yamagata Univ., Japan

BISC2-1 11:15 *Invited*

Emerging Endomicroscopy Technologies for Histological Imaging of Biological Tissues *in vivo*

Xingde Li
Johns Hopkins Univ., USA

BISC2-2 11:45

High Resolution Imaging of Biological Cell by EXA Microscope with Electron Irradiation Damage Suppression

M. Fukuta[1], Y. Nawa[2], W. Inami[2], Y. Kawata[2]
[1]Shizuoka Univ., Japan, [2]RIE Shizuoka Univ., Japan

BISC2-3 12:00

High Resolution Raman Imaging by Structured Line Illumination Microscopy

K. Watanabe[1], A. F. Palonpon[1], N. I. Smith[2], L. Chiu[3], A. Kasai[4,5], H. Hashimoto[4,6,7], S. Kawata[1], K. Fujita[1]
[1]Osaka Univ., Japan, [2]IFR*e*C, Osaka Univ., Japan, [3]Univ. of Tokyo, Japan, [4]Graduate School of Pharmaceutical Sciences, Osaka Univ., Japan, [5]Institute for Academic Initiatives, Osaka Univ., Japan, [6]Graduate School of Pharmaceutical Sciences, Osaka Univ., Japan. [7]Molecular Research Center for Children's Mental Development, United Graduate School of Child Development, Osaka Univ., Kanazawa Univ., Hamamatsu Univ. School of Medicine, Chiba Univ. and Univ. of Fukui, Japan.

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

Oral, Thursday, May 19 AM

CLES <Room 418>

[CLES8] 11:00-12:30
Novel Scheme of Fast Ignition
Chair: A. Robinson
STFC Rutherford-Appleton Laboratory, UK

CLES8-1 11:00 *Invited*

Dense Plasma Heating using Crossed Relativistic Electron Beams

P. Norreys[1,2,3], N. Ratan[1], L. Ceurvorst[1], J. Sadler[1], M. Kasim[1], J. Holloway[1], R. Trines[2] and R. Bingham[2]
[1]Clarendon Laboratory, Univ. of Oxford, UK, [2]Central Laser Facility, STFC Rutherford Appleton Laboratory, UK, [3]AWE, UK

CLES8-2 11:30 *Invited*

Counter-Beam Fast Ignition Experiments and the Related Studies

Y. Kitagawa[1], Y. Mori[1], Y. Nishimura[1,2], K. Ishii[1], R. Hanayama[1], S. Nakayama[1], T. Sekine[3], N. Sato[3], T. Kurita[3], T. Kawashima[3], H. Kan[3], T. Nishi[4], T. Hioki[5], T. Motohiro[5], H. Azuma[6], A. Sunahara[7], Y. Sentoku[8], E. Miura[9], Y. Arikawa[10], Y. Abe[10], and S. Ozaki[11]
[1]The Graduate School for the Creation of New Photonics Industries, Japan, [2]TOYOTA Technical Development Corp., Japan, [3]Hamamatsu Photonics, K. K., Japan, [4]TOYOTA Central R&D Labs, Inc., Japan, [5]Nagoya Univ., GREMO, Japan, [6]Aichi SR Center, Japan, [7]Institute for Laser Technology, Japan, [8]Univ. of Nevada, USA, [9]National Institute of Advanced Industrial Science and Technology, Japan, [10]Institute of Laser Engineering, Osaka Univ., Japan, [11]National Institute for Fusion Science, Japan

CLES8-3 12:00

Physics of Fast Heating of an Imploded Core under Counter Beam Irradiation

Y. Mori[1], Y. Nishimura[1], K. Ishii[1], R. Hanayama[1], Y. Kitagawa[1], T. Sentoku[2], T. Kurita[2], N. Sato[2], T. Kawashima[2], H. Kan[2], T. Nishi[3], T. Hioki[4], T. Momohiro[4], H. Azuma[5], A. Sunahara[6], Y. Sentoku[7] and E. Miura[8]
[1]The Graduate School for the Creation of New Photonics Industries, Japan, [2]Hamamatsu Photonics, K. K., Japan, [3]TOYOTA Central Research and Development Laboratories, Inc., Japan, [4]Nagoya Univ., GREMO, Japan, [5]Aichi Synchrotron Radiation Center In "Knowledge Hub Aichi", Japan, [6]Institute for Laser Technology, Japan, [7]Univ. of Nevada, USA, [8]National Institute of Advanced Industrial Science and Technology, Japan

CLES8-4 12:15

Observation of Trace due to Laser-Driven Fast-Electron Currents in a CD Target

R. Hanayama[1], Y. Nishimura[1,2], Y. Mori[1], K. Ishii[1], Y. Kitagawa[1], T. Sekine[3], T. Kurita[3], N. Sato[3], T. Kawashima[3], H. Kan[3], T. Nishi[4], T. Hiroki[5], T. Motohiro[5], H. Azuma[6], A. Sunahara[7], Y. Sentoku[8] and E. Miura[9]
[1]The Graduate School for the Creation of New Photonics Industries, Japan, [2]TOYOTA Technical Development Corporation, Japan, [3]Hamamatsu Photonics, K. K., Japan, [4]TOYOTA Central Research and Development Laboratories, Inc., Japan, [5]Nagoya Univ., GREMO, Japan, [6]Aichi Synchrotron Radiation Center In "Knowledge Hub Aichi", Japan, [7]Institute for Laser Technology, Japan, [8]Univ. of Nevada, Reno, USA, [9]National Institute of Advanced Industrial Science and Technology, Japan

----- 12:30-13:30 Break -----

HEDS <Room 311+312>

[HEDS6] 11:00-12:00
Particle Acceleration II (ImPACT Session VI)
Chair: J. Faure
LOA, France

HEDS6-1 11:00 *Invited*

Multistage Coupling of Independent Laser Plasma Accelerators

Sven Steinke
Lawrence Berkeley National Laboratory, USA

HEDS6-2 11:30 *Invited*

Recent progress of high quality plasma based acceleration at Tsinghua University

Wei Lu
Tsinghua University, China

----- 12:00-13:00 Lunch Break -----

LEDIA <Room 411+412>

LED3-6 11:00

Influence of Growth Conditions on Transport Properties in Undoped N-polar GaN Grown by Metalorganic Vapor Phase Epitaxy

T. Tanikawa, K. Prasertsuk, A. Miura, S. Kuboya, R. Katayama, and T. Matsuoka
Tohoku Univ., Japan

LED3-7 11:15

The Growth of Semi-Polar GaN on (0001) C-Plane Nano-Sized Patterned-Sapphire Substrates

V. –C. Su[1], Z. –H. Hung[1], Y. –H. You[1,2], H. –S. Wu[1], P. –H. Chen[1,2], H. –A. Liu[1], and C. –H. Kuan[1]
[1]National Taiwan Univ., Taiwan, [2]Kingwave Corp., Taiwan

LED3-8 11:30

Characterization of RF Plasma Nitridated α-$(AlGa)_2O_3$ for AlGaN Growth

T. Araki[1], A. Buma[1], N. Masuda[1], M. Oda[2], T. Hitora[2], and Y. Nanishi[1]
[1]Ritsumeikan Univ., Japan, [2]FLOSFIA, Japan

LED3-9 11:45

Growth of In_2O_3 by Halide Vapor Phase Epitaxy

S. Numata[1], R. Togashi[1], K. Goto[2], H. Murakami[1], A. Kuramata[2], S. Yamakoshi[2], and Y. Kumagai[1]
[1]Tokyo Univ. of Agri. & Tech., Japan, [2]Tamura Corp., Japan

----- 12:00-13:00 Lunch Break -----

Oral, Thursday, May 19 AM

LIC <Room 301>

LIC2-2 10:45

Optimizing double-pulse strategy for spray ignition

N. Beheran[1], R. George[1,2], M. Orain[2], and L. Zimmer[1]
[1]Lab. EM2C, CNRS, CentraleSupélec, Univ. Paris-Saclay, France, [2]ONERA – The French Aerospace Lab. (DMPH/SLM), France

LIC2-3 11:00

A comparative study of spark ignitions induced by high-power laser and by high-voltage electrodes

Y. Takenaka, Y. Sako, K. Mikami, T. Johzaki, S. Namba, D. Shimokuri, and T. Endo
Depart. Mechanical Systems Eng., Hiroshima Univ., Japan

LIC2-4 11:15 *Invited*

Temporally and spectrally resolved measurement of spark discharge in a spark ignition engine

N. Kawahara
Okayama Univ., Japan

LIC2-5 11:45

Laser breakdown assisted long discharge ignition (LBALDI) - Ignition behavior in lean mixture-

T. Ikemoto[1], Y. Fukumi[1], E. Takahashi[3], H. Furutani[4], O. Imamura[2], and K. Akihama[2]
[1]Graduate School of Industrial Tech., Nihon Univ., Japan, [2]College of Industrial Tech., Nihon Univ., [3]Energy Technology Research Inst., AIST, Japan, [4]Renewable Energy Res. Center, AIST, Japan

LIC2-6 12:00

Comparison of Laser and Spark Ignition: Laminar Burning Velocity Measurements in Natural Gas/Air Mixtures

B. Almansour, S. Alawadhi, and S. S. Vasu-CATER
Mechanical and Aerospace Eng. Depart., Univ. Central Florida, USA

LIC2-7 12:15

Influence of maximum fluence and fluence volume on energy transfer and plasma evolution during laser ignition with passively Q-switched laser

M. Bärwinkel, S. Lorenz, R. Stäglich, and D. Brüggemann
Univ. Bayreuth, Germany

----- 12:30-13:30 Lunch Break -----

LSSE <Room 316>

[LSSEp5] 10:30-12:00
Poster Session
<Exhibition Hall A>

Poster session program p.92

----- 12:00-13:00 Lunch -----

OMC <Room 414+415>

[OMC2] 11:00-12:00
OptoMechanics
Chair: Kishan Dholakia
University of St Andrews, UK

OMC2-1 11:00 *Invited*

Nanoengineered angular optomechanics

Etinne Brasselet
University of Bordeaux 1, France

OMC2-2 11:30

Rotation of multiple trapped microparticles in vacuum: observation of optically mediated parametric resonances and optical binding

Yoshihiko Arita[1,2], Michael Mazilu[1], Tom Vettenburg[1], Ewan M. Wright[1,3], Kishan Dholakia[1,3]
[1]SUPA, School of Physics and Astronomy, University of St Andrews, United Kingdom, [2]MCRC, Molecular Chirality Research Centre, Graduate School of Advanced Integration Science, Chiba University, Japan, [3]College of Optical Sciences, The University of Arizona, USA

OMC2-3 11:45

Photon-induced Force Microscopy in Heterodyne AM Technique

Junsuke Yamanishi, Yoshitaka Naitoh, Yan Jun Li, and Yasuhiro Sugawara
Department of Applied Physics, Graduate School of Engineering, Osaka University, Japan

----- 12:00-13:00 Lunch Break -----

Oral, Thursday, May 19 AM

PLD <Room 413>

[PLD4] 10:45-12:00
Nonlinear materials
Chair: J. Shao
SIOM, China

PLD4-1 10:45 *Invited*

Dielectric coatings as frequency converters - the Frequency Tripling Mirror (FTM)
W. Rudolph, C. Rodriguez, L. A. Emmert, D. Ristau[1], S. Günster[1], F. B. A. Aghbolagh, A. K. Oskouei
Univ of New Mexico, USA, [1]Laser Zentrum Hannover, Germany

PLD4-2 11:15

Multilayer technology for terahertz pulse generation
Y. Ochi, K. Nagashima, M. Tsubouchi, F. Yoshida, M. Maruyama
Japan Atomic Energy Agency, Japan

PLD4-3 11:30

Real-time analysis and mitigation of laser damage initiators on the surface of DKDP crystals
G. Hu, Y.Zhao, Y.Wang, D. Li , X. Liu, Z. Cao
Shanghai Inst. of Opt. Fine Mech., China

PLD4-4 11:45

Laser conditioning mechanism in improving damage performance of KDP
F. Wang
China Academy of Engineering Physics, China

----- 12:00-13:00 Lunch Break -----

SLPC <Room 416+417>

[SLPC8] 10:30-12:15
Cutting and Welding
Chairs: L. Li
The Univ. of Manchester, UK
Y. Sato
Osaka Univ., Japan

SLPC8-1 10:30 *Invited*

High-quality Processing of CFRP with Kilowatt Average Power Short-pulse Lasers
R. Weber, C. Freitag, M. Wiedenmann, T. Graf
IFSW, Univ. of Stuttgart, Germany

SLPC8-2 11:00

Wavelength and Pulsewidth Dependences of Laser Processing of CFRP
M. Fujita[1], H. Ohkawa[2], T. Somekawa[1], M. Otsuka[2], Y. Maeda[2], T. Matsutani[2], N. Miyanaga[3]
[1]Institute for Laser Technology, Japan, [2]Kindai Univ., Japan, [3]Institute of Laser Engineering, Osaka Univ., Japan

SLPC8-3 11:15

Examination of Structuring Patterns for Laser-based Polymer-metal-connections
K. V. D. Straeten, F. Haschke, A. Olowinsky, A. Gillner
Fraunhofer Institute for Laser Technology ILT, Germany

SLPC8-4 11:30

Influence of Spatial Power Modulation on Pore and Crack Formation in Laser Beam Welding of Aluminum
P. Heinen[1], F. Eichler[2], A. Haeusler[3], A. Olowinsky[1], A. Gillner[1], R. Poprawe[3]
[1]Fraunhofer-Institut für Lasertechnik ILT Germany, [2]Chair for Technology of Optical Systems TOS of RWTH Aachen Univ., Germany, [3]Chair for Laser Technology LLT of RWTH Aachen Univ., Germany

SLPC8-5 11:45

Experimental Characterization of Energy Transfer from Large-diameter Kilowatt CW Laser Beams to Metal Samples
J. Osterholz, D. Heunoske, J. Horak, B. Lexow, M. Lueck, M. Wickert
Fraunhofer EMI, Germany

SLPC8-6 12:00

An Interactive Real-time Simulation Tool for Laser Cutting and Laser Drilling of Metals
T. Hermanns[1], W. Schulz[2]
[1]RWTH Aachen Univ., Germany, [2]Fraunhofer Institute for Laser Technology ILT, Germany

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

XOPT <Room 313+314>

Chair: H, Sinn
European XFEL, Germany

XOPT2-3 11:00 *Invited*

Status and Development of hard X-ray optics and diagnostics at the Linac Coherent Light Source
A. Robert
SLAC National Accelerator Laboratory, USA

XOPT2-4 11:30 *Invited*

Optics for XFEL at SACLA
K. Tono
SPring-8/SACLA, Japan

----- 12:00-13:00 Lunch Break -----

Oral, Thursday, May 19 PM

ALPS

[ALPSp14] 13:00-15:00
Poster Session
<Exhibition Hall A>

Poster session program p.92

BISC <Room 419>

[BISC3] 13:30-15:00
Holography
Chairs: O. Matoba
Kobe Univ., Japan
Y. Awatsuji
Kyoto Inst. Tech., Japan

BISC3-1 13:30 *Invited*

Spatial-spectral Biomedical Holographic Microscopy

Y. Luo
National Taiwan Univ., Taiwan

BISC3-2 14:00 *Invited*

Interferometric Generation of Vortex Beams from Gaussian Beam

D. N. Naik, N. K. Viswanathan
[1]Univ. of Hyderabad, India

BISC3-3 14:30

4D Imaging of Zebrafish Microcirculation by Digital Holography

D. Donnarumma, A. Brodoline, D. Alexandre, M. Gross
Laboratoire Charles Coulomb - UMR 5221 CNRS-Université de Montpellier, France

BISC3-4 14:45

Non-axial-scanning Multifocal Confocal System with Volume Holographic Gratings

P.-H. Wang[1,2] K.-B. Sung[2,3], Y. Luo[1,2]
[1]Inst. of Medical Device and Imaging, National Taiwan Univ., Taiwan, R.O.C, [2]Molecular Imaging Center, National Taiwan Univ., Taiwan, R.O.C, [3]National Taiwan Univ., Taiwan, R.O.C

----- 15:00-15:30 Break -----

Oral, Thursday, May 19 PM

CLES <Room 418>

[CLES9] 13:30-15:30
High Energy Density Physics with High Intensity Lasers
Chair: Y.-T. Li
Institute of Physics, Chinese Academy of Sciences, China

CLES9-1 13:30 *Invited*
Nuclear Physics with Laser-Accelerated Ion Beams and Progress in Proton Fast Ignition
M. Roth, Technische Univ., Darmstadt, Germany

CLES9-2 14:00 *Invited*
Integrated Modeling of Short-Pulse Laser Interactions with Buried-Layer Targets
M. Sherlock[1], E. Hill[1], S. Rose[1] and W. Rozmus[2]
[1]Imperial College London, UK, [2]Univ. of Alberta, Canada

CLES9-3 14:30 *Invited*
Electron-Positron Pair Production in HED Plasmas
E. Hill[1], O. Pike[1] and S. Rose[1]
[1]Plasma Physics Group, Imperial College, UK

CLES9-4 15:00 *Invited*
New Approach to Experimental Observation of the Breit-Wheeler Pair Generation Process
X. Ribeyre[1], E. d'Humieres[1], S. Jequier[1], O. Jansen[1] and V. Tikhonchuk[1]
[1]Univ. of Bordeaux-CNRS-CEA, Centre Lasers Intenses et Applications, France

----- 15:30-16:00 Break -----

HEDS <Room 311+312>

[HEDS7] 13:00-13:30
Commercial Products for HEDS (ImPACT Session VII)
Chair: J. Sasaki
Japan Laser Corp., Japan

HEDS7-1 13:00
Innovative Targetry for Laser Plasma Interaction
Francois Sylla
Sourse LAB, France

HEDS7-2 13:15
Towards high repetition rate ultra-intense lasers, latest developments at Amplitude Technologies
Federico Canova
Amplitude Technologies, France

[HEDS8] 13:30-15:00
Radiation Sources I (ImPACT Session VIII)
Chair: J. V. Malka
LOA, France

HEDS8-1 13:30 *Invited*
Initial steps towards Free Electron Laser Amplification with Laser Plasma Acceleration
Marie-Emmanuelle Couprie
Synchrotron SOLEIL, France

HEDS8-2 14:00 *Special*
Betatron x-rays from laser-wakefield accelerators: a novel probe for time-resolved HED science experiments
Felicie Albert
Lawrence Livermore National Laboratory, USA

HEDS8-3 14:30 *Invited*
ELI-ALPS: Advanced Laser Technologies for High Peak and Average Power Systems
Mikhail Kalashnikov
ELI-ALPS, Hungary

----- 15:00-15:30 Break -----

LEDIA <Room 411+412>

[LEDp4] 13:00-14:45
Short Presentations for Poster Session
Co-Chairs: Y. Honda
Program Committee Member of LEDIA '16
Nagoya Univ., Japan
T. Yamaguchi
Program Committee Member of LEDIA '16
Kogakuin Univ., Japan
H. Murakami
Program Committee Member of LEDIA '16
Tokyo Univ. of Agri. & Tech., Japan
R. Togashi
Program Committee Member of LEDIA '16
Tokyo Univ. of Agri. & Tech., Japan

Short Presentation by LEDp4-(1-33)

Thu, 19 May, PM

Oral, Thursday, May 19 PM

LIC <Room 301>

[LIC3] 13:30-14:45
Giant micro-photonics
Chair: Y. Oki
Kyushu Univ., Japan

LIC3-1 13:30 *Invited*

Total design of high power VCSEL pumped passively Q-switched micro-lasers for laser ignition
T. Suzudo[1], K. Hagita[1], T. Ikeo[1], K. Izumiya[1], N. Jikutani[1], Y. Higash[1], and T. Taira[2]
[1]Ricoh Co. Ltd., Japan, [2]Inst. Mol. Sci., Japan

LIC3-2 14:00

Multi-pulse oscillation of passively Q-switched micro-laser pumped by VCSEL module
K. Hagita[1], T. Ikeo[1], Y. Ishikawa[1], Y. Higashi[1], N. Jikutani[1], T. Taira[2], and T. Suzudo[1]
[1]Ricoh Co. Ltd., Japan, [2]Inst. Mol. Sci., Japan

LIC3-3 14:15

Development of a 0.3 GW Microchip-seeded Amplifier
V. Yahia and T. Taira
Inst. Mol. Sci., Japan

LIC3-4 14:30

808 nm range high power (QCW 200 W) fiber coupled VCSEL pump module for laser ignition
K. Izumiya, Y. Ohkura, M. Numata, N. Arai, K. Ikeda, Y. Sasaki, N. Jikutani, and T. Suzudo
Ricoh Co. Ltd., Japan

[LIC4] 14:45-17:00
Advanced applications of giant-pulse microchip laser systems
Chair: T. Suzudo
Ricoh Co. Ltd., Japan

LIC4-1 14:45 *Invited*

Remote analysis technique under severe environments using LIBS
H. Ohba[1], M. Saeki[1], I. Wakaida[1], T. Sakka[2], and B. Thornton[3]
[1]Collaborative Lab. Advanced Decommissioning Sci., JAEA, Japan, [2]Graduate School of Eng., Kyoto Univ., Japan, [3]Inst. Industrial Sci., Univ. Tokyo, Japan

LIC4-2 15:15 *Invited*

Development of UV Microchip Lasers for Compact MALDI Spectroscopy Systems
R. Bhandari[1], K. Tojo[1], and T. Taira[2]
[1]Shimadzu Co., Japan, [2]Inst. Mol. Sci., Japan

----- 15:45-16:00 Break -----

LSSE <Room 316>

[LSSE6] 13:00-15:00
Maintenance of Social Infrastructure 1
Chair: A. Nishimura
Japan Atomic Energy Agency, Japan

LSSE6-1 13:00 *Invited*

Laser-Induced Breakdown Spectroscopy for Detection and Analysis in the Environment
J. Yu
Institut Lumière Matière, France

LSSE6-2 13:30 *Invited*

LIBS Applications to Thermal Power Plants and Iron and Steel Making Processes
Y. Deguchi[1], A. Ikutomo[1], S. Katsumori[1], T. Komatsubara[1], R. Liu[1,2], Z. Wang[2], J. Yan[2], J. Liu[2]
[1]Tokushima University, Japan, [2] Xi'an Jiaotong University, China

LSSE6-3 14:00

The Evaluation of Limit of Detection/ Quantification for Minor/Major Elements in Low-Alloy Steels by Laser-Induced Breakdown Spectroscopy
S. Kashiwakura, K. Wagatsuma
Inst. for Materials Res., Tohoku Univ., Japan

LSSE6-4 14:20

Monitoring of Gaseous Trace Antimony in Syngas by LIBS
R. Yoshiie[1], R. Ishikawa[1], Y. Ueki[2], I. Naruse[2]
[1]Dept. of Mechanical Sci. & Eng., Nagoya Univ., Japan, [2]Inst. of Materials and Systems for Sustainability, Nagoya Univ., Japan

LSSE6-5 14:40

Laser-Induced Breakdown Spectroscopy for Diagnosis of Concrete Infrastructure
T. Fujii, S. Eto
Electric Power Engineering Research Laboratory, CRIEPI, Japan

----- 15:00-15:30 Break -----

OMC <Room 414+415>

[OMC3] 13:00-15:15
OptoMechnics &Plasmonics
Chair: Tatsuya Shoji
Osaka City University, Japan

OMC3-1 13:00 *Invited*

Angular momentum enabled opto-mechanical elements
Saulius Juodkazis
Swinburne University, Australia

OMC3-2 13:30

Transfer of orbital angular momentum of light to trapped particles in vacuum: a platform for new quantum tests in optomechanics
Yoshihiko Arita[1,2], Michael Mazilu[1], Tom Vettenburg[1], Juan M. Aunon[1], Ewan M. Wright[1,3], Kishan Dholakia[1,3]
[1]SUPA, School of Physics & Astronomy, University of St Andrews, United Kingdom, [2]MCRC, Molecular Chirality Research Centre, Graduate School of Advanced Integration Science, Chiba University, Japan, [3]College of Optical Sciences, The University of Arizona, USA

OMC3-3 13:45

Potential analysis of nano-particle plasmonic trapping using a trimer nano-structure
Shutaro Ishida, Takashi Wada, and Keiji Sasaki
Research Institute for Electronic Science, Hokkaido University, Japan

OMC3-4 14:00 *Invited*

Microscopic Thermodynamics with levitated Nanoparticles: Approaching the quantum regime
Jan Gieseler
Harvard University, Department of Physics, Cambridge, MA, United States

OMC3-5 14:30

Near-field enhancements of mid-infrared femtosecond pulses upon collective plasmon excitations in metal nanorod arrays
Akinobu Takegami[1,2], Fumiya Kusa[1,2], Satoshi Ashihara[1]
[1]Dept. of Applied Physics, Tokyo Univ. of Agriculture and Technology, Japan, [2]Institute of Industrial Science, The Univ. of Tokyo, Japan

OMC3-6 14:45

Generation and control of plasmonic wave packet in a single gold nanorod
Yoshio Nishiyama[1], Kohei Imura[3], Hiromi Okamoto[1,2]
[1]Institute for Molecular Science, Japan, [2]The Graduate Univ. for Advanced Studies (Sokendai), Japan, [3]School of Advanced Science and Engineering, Waseda University, Japan

OMC3-7 15:00

Selective Trapping and Fixation of DNAs at Desired Positions Using Plasmonic Optical Tweezers
Kenta Itoh[1], Tatsuya Shoji[1], Kei Murakoshi[2], Takahiro Yoshii[2], Yasuyuki Tsuboi[1]
[1]Graduate School of Science, Osaka City University, Japan, [2]Graduate School of Chemical Sciences and Engineering, Hokkaido University, Japan

----- 15:15-15:30 Break -----

Oral Program

Oral, Thursday, May 19 PM

PLD <Room 413>

[PLD5] 13:00-15:15
Short pulse phenomena
Chair: TBD

PLD5-1 13:00 *Invited*

Femtosecond laser-induced damage: lessons learned from time-resolved measurements
A. Melninkaitis
Univ. Vilnius, Lithuania

PLD5-2 13:30 *Invited*

Ultrafast carrier dynamics related to fs lasers-induced damage in optical coatings
J. Du, Z. Li, B. Xue[1], T. Kobayashi[1], F. Kong, Y. Jin, Y. Zhao, Y. Leng, J. Shao
Shanghai Inst. of Opt. Fine Mech., China, [1]The Univ. of Electro-Communications, Japan

PLD5-3 14:00

In situ imaging and control of layer-by-layer femtosecond laser thinning of graphene
Y. Lu, D. Li, Y. Zhou, X. Huang, L. Jiang[1], J. F. Silvain[2]
[1]Beijing Institute of Technology, China, [2]Institut de Chimie de la Matière Condensée de Bordeaux, France

PLD5-4 14:15

Confined ablation on the SiO2/Si interface with embedded nanoparticles
Z. U. Rehman, L. T. Na, C. L.Tan[1], K. A. Janulewicz
Gwangju Inst. of Science and Tech., Korea, [1]Northwestern Univ., USA

PLD5-5 14:30

Interferometric analysis of optical breakdown dynamics in bulks of transparent dielectrics induced by sub-nanosecond laser pulse
V. H. Nguyen, N. T. Le, Z. U. Rehman, K. A. Janulewicz
Gwangju Inst. of Science and Tech., Korea

PLD5-6 14:45

Plasma dynamics and phase transitions in optical breakdown of transparent dielectrics
K. A. Janulewicz, Z. U. Rehman, N. T. Le, V. H. Nguyen, K. A. Tran
Gwangju Inst. of Science and Tech., Korea

PLD5-7 15:00

Spatial-temporal distortions and calibration of ultrashort pulses in complex optical systems
J. Liu, Z. Zheng, L. Zhu, S. Chang, A. Chen, S. Liu, F. Yuan, H. Zhang
Zhejiang Univ., China

----- 15:15-15:45 Break -----

SLPC <Room 416+417>

[SLPC9] 13:30-15:00
Poster Session
<Exhibition Hall A>

Poster session program p.94

----- 15:00-15:30 Break -----

XOPT <Room 313+314>

[XOPT3] 13:00-15:00
X-ray microscopy & imaging
Chair: H. Mimura
The University of Tokyo, Japan

XOPT3-1 13:00 *Invited*

Ptychography for x-ray nano-optics characterization at synchrotron radiation sources and x-ray free-electron lasers
C. G. Schroer[1,2]
[1]Deutsches Elektronen-Synchrotron DESY, Germany, [2]Universität Hamburg, Germany

XOPT3-2 13:30 *Invited*

Recent Developments in X-ray Phase Imaging
A. Momose[1,2,3]
[1]Tohoku University, Japan, [2]ERATO, JST, Japan, [3]JASRI/SPring-8, Japan

XOPT3-3 14:00

Achromatic and high-resolution full-field X-ray microscopy based on four total-reflection mirrors
S. Matsuyama[1], S. Yasuda[1], H. Okada[2], Y. Kohmura[3], Y. Sano[1], M. Yabashi[3], T. Ishikawa[3], and K.Yamauchi[1]
[1]Osaka University, Japan, [2]JTEC Corporation, Japan, [3]RIKEN SPring-8 Center, Japan

XOPT3-4 14:15

Development of a compact x-ray imaging optical system using two pairs of concave and convex mirrors
J. Yamada, S. Matsuyama and K. Yamauchi
Osaka University, Japan

XOPT3-5 14:30

Grating-Based Ultra-Small-Angle X-ray Scattering Imaging and its Application to Grazing-Incidence Case
W. Yashiro[1,2] and A. Momose[1,2]
[1]Tohoku University, Japan, [2]ERATO, JST, Japan

XOPT3-6 14:45

X-ray Laser Diffraction Imaging of Samples in Solution Using Micro-Liquid Enclosure Array
T. Kimura[1], Y. Joti[2], Y. Bessho[3], and Y. Nishino[1]
[1]Hokkaido University, Japan, [2]JASRI, Japan, [3]Academia Sinica, Taiwan

----- 15:00-15:30 Break -----

Oral, Thursday, May 19 PM

ALPS

BISC <Room 419>

[BISC4] 15:30-18:00
Organized Session
Adaptive Optics: Pushing the boundaries of deep imaging in living cells and tissues
Chairs: Y. Tamada
Natl. Inst. Basic Biol., Japan
M. Hattori
Natl. Inst. Basic Biol., Japan

Opening remark 15:30
Y. Tamada
Natl. Inst. Basic Biol., Japan

BISC4-1 15:33 *Invited*
Adaptive Optics from Microscopy to Nanoscopy
Martin Booth
Univ. Oxford, UK

BISC4-2 16:08 *Invited*
A Test Bench of General Purpose Adaptive Optics and its Application to Microscopy
M. Hattori
Natl. Inst. Basic Biol., Japan

BISC4-3 16:33 *Invited*
Super-resolution and Chromatic Correction above the Cover Slip
A. Matsuda
Natl. Inst. Inform. Commun. Tech., Japan

BISC4-4 16:58 *Invited*
A Practical Way to Use Adaptive Optics in Optical Coherence Tomography for Retinal Imaging
B. Cense
Utsunomiya Univ., Japan

BISC4-5 17:23 *Invited*
Adaptive Optical Microscopy Using Direct Wavefront Sensing
J. Kubby
Univ. California, USA

Closing remark 17:58
Y. Tamada
Natl. Inst. Basic Biol., Japan

Oral, Thursday, May 19 PM

CLES <Room 418>

[CLES10] 16:00-17:45
Fuel Assembly Production
Chair: D. Batani
CELIA, Univ. of Bordeaux, France

CLES10-1 16:00 *Invited*

Flash X-Ray Radiography of High Density Spherical Targets for Fast-Ignition

H. Sawada[1], S. Fujioka[2], S. Lee[2], Y. Arikawa[2], H. Nagatomo[2], K. Shigemori[2], H. Nishimura[2], A. Sunahara[3], T. Shiroto[4], N. Ohnishi[4], W. Theobald[5], F. Perez[6], P. Patel[7] and F. Beg[8]
[1]Univ. of Nevada, USA, [2]Institute of Laser Engineering, Osaka Univ., Japan, [3]Institute for Laser Technology, Japan, [4]Department of Aerospace Engineering, Tohoku Univ., Japan [5]Laboratory for Laser Energetics, Univ. of Rochester, USA, [6]LULI, Ecole Polytechnique, France, [7]Lawrence Livermore National Laboratory, USA [8]Univ. of California San Diego, USA

CLES10-2 16:30

Effect of High Energy X-Ray on the Indirect Drive Ablative RT Instability

B. Xu[1], Y. Ma[1], X. Yang[1], W. Tang[1], Z. Ge[1] and Y. Zhao[1]
[1]National Univ. of Defense Technology, China

CLES10-3 16:45

Double-Shell Target Design and Experiment on SGIII Facility

Z. Dai[1], J. Li[1], W. Zheng[1], J. Yan[2], W. Pei[1] and S. Zhu[1]
[1]Institute of applied physics and computational mathematics, China, [2]Laser Fusion Research Center, China

CLES10-4 17:00

A New Turning Method of the Low-Model Asymmentry for Ignition Capsule Implosions

J. Gu[1], Z. Dai[1], S. Zou[1], P. Song[1], W. Ye[1], W. Zheng[1] and P. Gu[1]
[1]Institute of Applied Physics and Computational Mathematics,China

CLES10-5 17:15

Shock Velocity Measurement using Frequency Domain Interferometer with Chirped Pulse Laser

K. Ishii[1], Y. Nishimura[1,2], Y. Mori[1], R. Hanayama[1], Y. Kitagawa[1], T. Sekine[3], T. Kurita[3], N. Sato[3], T. Kawashima[3], H. Kan[3], T. Nishi[4], T. Hiroki[5], T. Momohiro[5], H. Azuma[6], A. Sunahara[7], Y. Sentoku[8], and E. Miura[9]
[1]The Graduate School for the Creation of New Photonics Industries, Japan, [2]TOYOTA Technical Development Corporation, Japan, [3]Hamamatsu Photonics, K. K., Japan, [4]TOYOTA Central Research and Development Laboratories, Inc., Japan, [5]Nagoya Univ., GREMO, Japan, [6]Aichi Synchrotron Radiation Center In "Knowledge Hub Aichi", Japan [7]Institute for Laser Technology, Japan, [8]Univ. of Nevada, USA, [9]National Institute of Advanced Industrial Science and Technology, Japan

CLES10-6 17:30

Phase Transition in Single Crystal Crystal Yttria-Stabilized Zirconia by Ultra-Intense Laser-Driven Compression

Y. Nishimura[1,2], K. Ishii[1], Y. Kitagawa[1], Y. Mori[1], R. Hanayama[1], H. Azuma[3], T. Hioki[4], T. Motohiro[4,5], T. Nishi[5], T. Sekine[5], N. Sato[5], T. Kurita[5], T. Kawashima[5], H. Kan[5], A. Sunahara[7], Y. Sentoku[8], and E. Miura[9]
[1]The Graduate School for the Creation of New Photonics Industries, Japan, [2]TOYOTA Technical Development Corp., Japan, [3]Aichi SR Center, Japan, [4]GREMO, Nagoya Univ., Japan, [5]TOYOTA Central R&D Labs., Inc., Japan, [6]Hamamatsu Photonics K.K., Japan, [7]Institute of Laser Technology, Japan, [8]Department of Physics, Univ., of Nevada, USA, [9]National Institute of Advanced Industrial Science and Technology, Japan

HEDS <Room 311+312>

[HEDS9] 15:30-16:20
Radiation Sources II
Chair: K. Kondo
QST, Japan

HEDS9-1 15:30 *Special*

Required Laser Properties for Efficient High-Order Harmonic Generation from Relativistic Electron Spikes

Alexander S. Pirozhkov
QST, Japan

HEDS9-2 16:00

Current Design and Development of Gamma-ray Polarimeter for Probing Vacuum Birefringence at ELI-NP

Yoshihide Nakamiya
Kyoto University, Japan

----- 16:20-16:30 Break -----

[HEDS10] 16:30-17:30
Student Session
Chair: A.S. Pirozhkov
QST, Japan

HEDS10-1 16:30

Generation of strong surface waves on a metal wire using intense laser interaction with solid targets

Kensuke Teramoto
Kyoto University, Japan

HEDS10-2 16:50

Structure and Dynamics of electric fields produced in the interaction between a single cluster and a background gas irradiated by a high power laser

Ryutaro Matsui
Kyoto University, Japan

HEDS10-3 17:10

Probing Space-Time Distortion with Laser Wake Field Acceleration and X-ray Free Electron Lasers

Masahiro Yano
Osaka University, Japan

LEDIA <Room 411+412>

[LEDp4] 15:30-17:00
Poster Session
<Exhibition Hall A>

Poster session program p.95

Oral, Thursday, May 19 PM

LIC <Room 301>

LIC4-3 16:00 *Invited*

A Flange-Mounted UV Microchip Laser for Imaging Mass Spectrometry

T. Sakamoto[1], K. Ohishi[1], Y. Furukawa[2], L. Zheng[3] and T. Taira[3]
[1]Depart. Appl. Phys., Kogakuin Univ., Japan, [2]Oxide Co., Japan, [3]Inst. Mol. Sci., Japan

LIC4-4 16:30 *Invited*

Development of Ultra-compact Pulse Lasers and Applications by Giant micro-photonics

Y. Sano
ImPACT, Japan

[LIC5] 17:00-18:00
Laser ignition of energetic materials
Chair: Z. Zhgang
Univ. Beijing, China

LIC5-1 17:00 *Invited*

Physical and Chemical Problems of Laser Ignition

R. Shen, L. Wu, S. Chen, W. Zhang, J. Xu, and Y. Ye
Depart. Appl. Chem., Nanjing Univ. Sci. Tech., China

LIC5-2 17:30

Application of laser-ignition systems in liquid rocket engines

S. Soller[1], N. Rackemann[1], and A. Preuss[2]
[1]Airbus Safran Launchers GmbH, Germany, [2]Airbus Defense and Space, Germany

LIC5-3 17:45

Laser ignition experiment of HAN-based monopropellant

T. Katsumi, Y. Miyajima, and S. Kadowaki
Nagaoka Univ. Tech., Japan

LSSE <Room 316>

[LSSE7] 15:30-16:30
Maintenance of Social Infrastructure 2
Chair: T. Fujii
Electric Power Eng. Res. Lab., CRIEPI, Japan

LSSE7-1 15:30

Evaluation of Residual Strain in the Structural Materials of Nuclear Power Plants by Magnetic Incremental Permeability Method

T. Uchimoto[1], T. Takagi[1], T. Matsumoto[1], G. Dobmann[2]
[1]Tohoku University, Japan, [2]Saarland University, Germany

LSSE7-2 15:50

In-Service Monitoring of Distortion by a Heat Resistant FBG Sensor for a Sodium Circulation Loop

A. Nishimura, T. Shimomura, Y. Takenaka, T. Furuyama, M. Ueda, K. Saruta, H. Daido
Japan Atomic Energy Agency, Japan

LSSE7-3 16:10

High Performance Hydrogen Storage Alloy Produced by Short Pulse Laser Surface Modification

H. Daido[1,2], H. Abe[3], T. Shobu[4], T. Shimomura[1], A. Nishimura[1,2], H. Uchida[5]
[1]Applied Laser Technology Institute, Japan Atomic Energy Agency, Japan, [2]Fukushima Research Infrastructural Creation Center, Japan Atomic Energy Agency, Japan, [3]Quantum Beam Science Center at Takasaki, Japan Atomic Energy Agency, Japan, [4]Quantum Beam Science Center at SPring-8, Japan Atomic Energy Agency, Japan, [5]Faculty of Engineering, Tokai University, Japan

OMC <Room 414+415>

[OMC4] 15:30-17:45
Structured Light
Chair: Takashige Omatsu
Chiba University, Japan

OMC4-1 15:30

Tuning of whispering gallery modes of microspheres during optical levitation

Yosuke Minowa, Yusuke Toyota, and Masaaki Ashida
Osaka University, Japan

OMC4-2 15:45

Topological Transformations between Integer and Fractional Optical Vortex Beams

Maruthi M. Brundavanam, Satyajit Maji and Abhijit Roy
Department of Physics, Indian Institute of Technology Kharagpur, India

OMC4-3 16:00

Plasmonic Archimedean Spiral Modes on Concentric Metal Ring Gratings

Yi-Chieh Lai and Yung-Chiang Lan
Department of Photonics, National Cheng Kung University, Taiwan

OMC4-4 16:15

Rule of selection for geometric modes in broad -area vertical cavity surface emitting lasers

Yan-Ting Yu, Pi-Hui Tuan, Kai-Chi Chang, Kuan-Wei Su, and Yung-Fu Chen
Department of Electrophysics, National Chiao Tung University, Taiwan

OMC4-5 16:30

Octave-band tunable optical vortex parametric laser

Roukuya Mamuti[1], Aizitiaili Abulikemu[1], Katsuhiko Miyamoto[1,2], Takashige Omatsu[1,2]
[1]Graduate School of Advanced Integration Science, Chiba University, Japan, [2]Molecular chirality research center, Chiba University, Japan

OMC4-6 16:45

Study of Surface Processing onto Photonic-crystal Lasers for Generating Optical Vortex Beam

Kyoko Kitamura[1,2], Miki Kitazawa[1], and Susumu Noda[2,3]
[1]Kyoto Institute of Technology, Japan, [2]Department of Electronic Science and Engineering, Graduate School of Engineering, Kyoto University, Japan, [3]Photonics and Electronics Science and Engineering, Kyoto University, Japan

OMC4-7 17:00

Generation of third-harmonic vortex beams in air using nearinfrared femtosecond laser pulses

Yu-Chieh Lin, Yasuo Nabekawa, Katsumi Midorikawa
RIKEN, Japan

OMC4-8 17:15

Single-Shot Measurements of Anisotropic Excitons via Four-Wave Mixing Spectroscopy with Radially Polarized Pulses

Kyohhei Shigematsu, Masato Suzuki, Keisaku Yamane, Ryuji Morita, and Yasunori Toda
Department of Applied Physics, Hokkaido University, Japan

OMC4-9 17:30

Maxwell–Schrödinger equations for space-variant wave plates and Pancharatnam–Berry phase on the extended Poincarè sphere

Masato Suzuki, Keisaku Yamane, Kazuhiko Oka, Yasunori Toda, Ryuji Morita
Department of Applied Physics, Hokkaido University, Japan

Oral, Thursday, May 19 PM

PLD <Room 413>

[PLD6] 15:45-17:15
High power resistant coatings
Chair: S. Motokoshi
Institute for Laser Technology, Japan

PLD6-1 15:45 *Invited*

Developments of high damage threshold meter-scale optical components for multi-PW lasers

A. Hervy, L. Gallais[1], G. Chériaux, D. Mouricaud, S. Djidel, A. Fréneaux, J. P. Chambaret[2], C. Leblanc[2], M. Somekh[2], F. Mathieu[2], N. Bonod[1], A. Cotel[3], F. Desserouer[3], O. Utéza[4], R. Clady[4], M. Sentis[4]
REOSC, France, [1]Institut Fresnel, France, [2]Laboratoire d'Utilisation des Lasers Intenses, Ecole Polytechnique, France, [3]HORIBA Jobin Yvon S.A.S., France, [4]Aix Marseille Université, CNRS, LP3 UMR 7341, France

PLD6-2 16:15

Revealing the nature of laser-induced damage from ultra-fast response of dielectric coatings

A. Melninkaitis, B. Momgaudis, L. Smalakys, R. Grigutis, J. Vaicenavičius, S. Guizard[1], L. Gallais[2], V. Sirutkaitis
Vilnius Univ, Lithuania, [1]CEA-IRAMIS/CNRS/Ecole Polytech, France, [2]Institut Fresnel, France

PLD6-3 16:30

Study on the laser induced damage of low dispersion mirrors

J. Zhang, B. Ma, X. Cheng, Z. Wang
Tongji Univ., China

PLD6-4 16:45

The Investigation of laser induced damage threshold of multilayer mirrors under the simultaneous irradiation of two wavelengths

M. Sugiura, K. Tamura, M. Kobiyama[1], S. Motokoshi[2], T. Jitsuno[3]
Tokai Optical Co., LTD., [1]Tecwave Co., Ltd, [2]Inst. Laser Tech., [3]Osaka Univ., Japan

PLD6-5 17:00

The damage characteristics of the high -reflection coatings irradiated from the active gain medium

X. Liu
Shanghai Inst. of Opt. Fine Mech., China

SLPC <Room 416+417>

[SLPC10] 15:30-17:15
Industrial Applications
Chairs: C. Freitag
IFSW, Univ. of Stuttgart, Germany
K. Washio
Paradigm Laser Research, Japan

SLPC10-1 15:30 *Invited*

Large Area Flexible Electronics Manufacture at High Speed Using an Integrated ps Fiber Laser and 3D Scanner

T. S. McComb, K. E. Gross, J. Small, T. L. Lowder, D. M. McCal, M. Atchley, J. Debartolo, R. J. Martinsen
nLIGHT Corp., USA

SLPC10-2 16:00

Laser Cleaning Technique Using Laser-Induced Acoustic Streaming for Silicon Wafers

C. H. Tsai, W. S. Peng
Department of Mechatronic Engineering, Huafan Univ., Taiwan

SLPC10-3 16:15

Inline Inspection of Micro and Macro Welds

M. Kogel-Hollacher[1], M. Schönleber[1], J. Schulze[1], T. Bautze[2]
[1]Precitec Optronik GmbH, Germany, [2]Precitec GmbH & Co. KG, Germany

SLPC10-4 16:30

Examples of Laser Applications in the Automotive Industry

A. Andreev[1], Y. Guertler[2], M. Beranek[2]
[1]TRUMPF Corp., Japan, [2]TRUMPF Laser-und Systemtechnik GmbH, Germany

SLPC10-5 16:45 *Invited*

Outlook of Advanced Industrial Laser Applications for Smart Factories

R. Poprawe[1], C. Hinke[2]
[1]Fraunhofer-Institute for Laser Technology ILT, Germany, [2]Chair for Lasertechnology LLT at RWTH Aachen Univ., Germany

[Closing] 17:15-17:30
Closing Remark 17:15
M. Tsukamoto
Osaka Univ., Japan

XOPT <Room 313+314>

[XOPT4] 15:30-16:45
X-ray optics (I): refractive optics & applications
Chair: H. Yumoto
JASRI/SPring-8, Japan

XOPT4-1 15:30 *Invited*

20 years of X-ray refractive optics. New promising prospectives for diffraction limited X-ray sources.

A. Snigirev
Immanuel Kant Baltic Federal University, Russia

XOPT4-2 16:00

Diamond refractive lenses as the breakthrough optic tool for high heat flux X-ray beams

M.V. Polikarpov[1], S.A. Terentiev[2], S.N. Polyakov[2], S.I. Zholudev[2], V.A. Yunkin[3], I.Snigireva[4], Y. Shvyd'ko[5], V.D. Blank[2], and A. Snigirev[1]
[1]Immanuel Kant Baltic Federal University, Russia, [2]FSBI TISNCM, Russia, [3]Institute of Microelectronics Technology RAS, Russia, [4]ESRF, France, [5]Advanced Photon Source, Argonne National Laboratory, USA

XOPT4-3 16:15

Coherent hard X-ray microscopy for the characterization of mesoscopic materials

I. Snigireva[1], A. Snigirev[2]
[1]ESRF, France, [2]Immanuel Kant Baltic Federal University, Russian Federation

XOPT4-4 16:30

Design of quasicrystal structure for X-ray focusing

T. Hoshino[1], T. Fukamizu[1], W. Li[1], J. Sugisaka[2], N. Watanabe[1], S. Aoki[1], M. Itoh[1]
[1]University of Tsukuba, Japan, [2]Kitami Institute of Technology, Japan

[XOPT5] 16:45-17:30
X-ray detectors
Chair: H. Yumoto
JASRI/SPring-8, Japan

XOPT5-1 16:45 *Invited*

Requisites of X-ray Imaging Detectors for X-ray Free-electron lasers and future Synchrotron Radiation Sources

T. Hatsui
RIKEN SPring-8 Center, Japan

XOPT5-2 17:15

Development of gallium nitride devices for X-ray detection

Q. Xu[1], W. Chuirazzi[1], P. Mulligan[1], J. Wang[1,2], and L. Cao[1]
[1]The Ohio State University, USA, [2]Stanford University, USA

----- 17:30-18:30 Break / Move -----

[XOPT Banquet] 18:30-20:30
TBD (outside of conference center)

Oral, Friday, May 20 AM

ALPS <Room 416+417>

[ALPS15] 9:00-10:30
Terahertz-wave sensing and devices
Chair: J.-H. Son
Program Committee Member
Univ. of Seoul, Korea

ALPS15-1 9:00 *Invited*

Noninvasive THz Sensing of Critical Components in Human Blood
C.-K. Sun[1] and T.-D. Wang[2]
[1]National Taiwan Univ., [2]Taiwan, National Taiwan Univ. Hospital, Taiwan

ALPS15-2 9:30

Injection-Seeded Terahertz-Wave Parametric Generator at 77 K
Y. Takida, K. Nawata, Y. Tokizane, Z. Han, M. Koyama, T. Notake, S. Hayashi, and H. Minamide
RIKEN, Japan

ALPS15-3 9:45

Terahertz parametric amplification using $KTiOPO_4$
M.-H. Wu[1], Y.-C. Chiu[1], T.-D. Wang[2], G. Zhao[3], A. Zukauskas[4], Y.-C. Huang[1], and F. Laurell[4]
[1]National Tsing Hua Univ., Taiwan, [2]CSIST Inc., Taiwan, [3]Peking Univ., China, [4]KTH Univ., Sweden

ALPS15-4 10:00

Terahertz wave generation from cluster plasma produced by double pulse-laser beams
K. Mori[1,2], M. Hashida[1,2], T. Nagashima[3], K. Teramoto[1,2], S. Inoue[1,2], and S. Sakabe[1,2]
[1]ICR, Kyoto Univ., Japan, [2]GSS, Kyoto Univ., Japan, [3]Setsunan Univ., Japan

ALPS15-5 10:15

Analysis of propagation modes in THz-hollow optical fibers by time-domain spectroscopy
K. Ito[1],T. Katagiri[2], and Y. Matsuura[1]
[1]Grad. School of Biomedical Eng., Tohoku Univ., Japan, [2]Grad. School of Eng., Tohoku Univ., Japan

----- 10:30-11:00 Break -----

BISC <Room 419>

[BISC5] 9:00-10:00
Multi-modal Imaging, Photo-acoustic Imaging
Chair: K. Fujita
Osaka Univ., Japan

BISC5-1 9:00 *Invited*

Improvements and Applications in "*in vivo*" Multi-photon Microscopy
T. Nemoto, R. Kawakami, T. Hibi, K. Otomo, S. Ipponjima, K. Sawada, A. Tanabe
Hokkaido Univ., Japan

BISC5-2 9:30 *Invited*

Improvement of Imaging Speed and Contrast in Two-photon Photoacoustic Microscopy (TP-PAM)
Y. Yamaoka
Saga Univ., Japan

----- 10:00-10:30 Break -----

Oral Program

Oral, Friday, May 20 AM

CLES <Room 418>

[CLES11] 9:00-10:30
Integrated experiment and simulation
Chair: H. Nagatomo
Institute of Laser Engineering, Osaka Univ., Japan

CLES11-1 9:00 *Invited*

Shock Ignition Studies at the Laboratory for Laser Energetics
R. Betti[1], A. Bose[1], W. Shang[1,2] and W. Theobald[1]
[1]Fusion Science Center for Extreme States of Matter, Univ. of Rochester, USA, [2]Research Center for Laser Fusion, Chinese Academy of Engineering , China

CLES11-2 9:30 *Invited*

Laser-Plasma Interaction and Shock Generation in the Shock-Ignition Intensity Regime
D. Batani[1], L. Antonelli[1,2], G. Boutoux[1], A. Colaitis[1], P. Nicolai[1], S. Atzeni[2], G. Cristoforetti[3], L. Gizzi[3], E. Krousky[4], O. Renner[4] and M. Smid[4]
[1]CELIA, Univ. of Bordeaux, France [2]Univ. of Roma «La Sapienza», Italy [3]Intense Laser Irradiation Laboratory, INO-CNR, Italy, [4]Institute of Physics, Czech Republic

CLES11-3 10:00 *Invited*

Direct Drive Fast Ignition Experiments on SG-Ⅱ Up Laser Facility
W. Wang[1], C. Wang[1], Z. Fang[1], H. An[1], J. Xiong[1], R. Wang[1], A. Lei[1], W. Pei[1], and S. Fu[1]
[1]Shanghai Institute of Laser Plasma, China

----- 10:30-11:00 Break ---------

HEDS <Room 311+312>

[HEDS11] 9:00-9:40
Plenanry (ImPACT Session IX)
Chair: TBD

HEDS11-1 9:00 *Plenary III*

Manipulating Electrons with Intense Laser Pulses
Victor Malka
Laboratoire d' Optique Appliquee, France

[HEDS12] 9:40-10:30
Particle Acceleration III (ImPACT Session X)
Chair: K.Kurshelnick
the University of Michigan, USA

HEDS12-1 9:40 *Invited*

High charge electron acceleration from solid target
Liming Chen
Chinese Academy of Sciences, China

HEDS12-2 10:10

Quasi-monoenergetic proton beam generation from an ion-layer embedded metal foil irradiated by an intense laser pulse
Kyung Nam Kim
Korea Atomic Energy Research Institute, Korea

----- 10:30-11:00 Break -----

LEDIA <Room 411+412>

[LED5] 9:00-10:30
LEDs
Chair: J. Cho
Program Committee Member of LEDIA '16
Chonbuk National Univ., Korea

LED5-1 9:00 *Invited*

Enhanced Red Photo/electroluminescence from Eu-doped GaN through Optimization of Defect Environment
Y. Fujiwara[1], W. Zhu[1], B. Mitchell[2], D. Timmerman[1], A. Uedono[3], and A. Koizumi[1]
[1]Osaka Univ., Japan, [2]Univ. of Mt. Union, U.S.A., [3]Univ. of Tsukuba, Japan

LED5-2 9:30

8-inch GaN on Si MOCVD Growth of >80% WPE Blue LEDs
J. Ramer, W. Fenwick, K. Knieriem, D. Lee, L. Ye, T. Shioda, and K. Tachibana
Toshiba America Electronic Components, Inc., U.S.A.

LED5-3 9:45

Highly Uniform InGaN/GaN MQW Grown on 200 mm Si Substrate at 500 Torr by Fast Rotating Single-Wafer MOCVD
Y. Iyechika, Y. Ishikawa, Y. Sato, and H. Takahashi
NuFlare Technology, Inc., Japan

LED5-4 10:00

A InGaN-MQW Blue LED on (-2 0 1) β-Ga_2O_3 Substrate
Y. P. Lan[1], Y. J. Shih[2], T. C. Chang[3], and C. Y. Chang[2,4]
[1]Microelectronic and information system research center, National Chiao Tung Univ., Taiwan, [2]Dept. of Electronics Eng., National Chiao Tung Univ., Taiwan, [3]Dept of Photonics and Inst. of Electro-Optical Eng., National Chiao Tung Univ., Taiwan, [4]Research Center for Applied Sciences, Academia Sinica, Taiwan

LED5-5 10:15

Low-Temperature Grown p-Side Structure with GaInN Tunnel Junction and n-GaNSb
K. Suzuki[1], K. Takarabe[1], D. Komori[1], D. Takasuka[1], N. Koide[1], T. Takeuchi[1], M. Iwaya[1], S. Kamiyama[1], and I. Akasaki[1,2]
[1]Meijo Univ., Japan, [2]Akasaki Research Center, Nagoya Univ., Japan

----- 10:30-11:00 Break -----

Oral, Friday, May 20 AM

LIC <Room 301>

[LIC6] 9:00-10:45
Advanced ignition systems for vehicular applications
Chair: R. Bhandari
Shimadzu Co., Japan

LIC6-1 9:00 *Invited*

Multi-point laser ignition for in-combustion event feedback control of an automobile engine

G. Dearden[1], Z. Kuang[1], E. Lyon[1], H. Cheng[2], V. Page[2], and T. Shenton[2]
[1]Laser Group, School of Eng., Univ. Liverpool, UK, [2]Powertrain Control Group, School of Eng., Univ. Liverpool, UK

LIC6-2 9:30

The effect of laser ignition on a homogenous lean mixture of an automotive gasoline engine

A. Birtas[1], G. Croitoru (Salamu)[2], M. Dinca[3], T. Dascalu[2], N. Boicea[1], and N. Pavel[2]
[1]Renault Technologie Roumanie, Romania, [2]Nat. Inst. Laser, Plasma and Radiation Phys., Lab. Solid-State Quant. Electron., Romania, [3]Faculty of Physics, Univ. Bucharest, Romania

LIC6-3 9:45 *Invited*

Laser Ignition Systems for Space Propulsion Applications

C. Manfletti and M. Börner
DLR, Inst. Space Propulsion, Germany

LIC6-4 10:15

Laser spark ignition of kerosene in Ma 2.52 supersonic flow

X. Li[1,2], L. Yang[3], Y. Yu[1,2], J. Peng[1,2], X. Yu[1,2], and J. Liang[3]
[1]Nat. Key Lab. Sci. Tech. Tunable Laser, Harbin Inst. Tech., China, [2]Inst. Opto- electron., Harbin Inst. Tech., China, [3]College of Aerospace Sci. Eng., Nat. Univ. Defense Tech., China

LIC6-5 10:30

Performance of an internal combustion engine using multi-point laser ignition under nitrogen dilution conditions

T. Saito[1], Y. Suzuta[1], E. Takahashi[2], and H. Furutani[3]
[1]Depart. Mechanical Eng., Meisei Univ., Japan, [2]Research Inst. Energy Conservation, AIST, Japan, [3]Renewable Energy Research Center, AIST, Japan

----- 10:45-11:00 Break -----

LSSE <Room 316>

[LSSE8] 10:00-12:00
Maintenance of Social Infrastructure 3
Chair: Y. Shimada
Institute of Laser Technology, Japan

LSSE8-1 10:00 *Invited*

Nondestructive Inspection of Infrastructures by Laser and Neutron Beam Technology

S. Wada[1], N. Saito[1], K. Kase[1], Y. Otake[1], Y. Ikeda[1], T. Kawachi[2], H. Daido[3], Y. Shimada[4], K. Midorikawa[1]
[1]RIKEN Center for Advanced Photonics, Japan, [2]Quantum Beam Science Center, Japan Atomic Energy Agency, Japan, [3]Applied Laser Technology Institute, Japan Atomic Energy Agency, Japan, [4]Institute for Laser Technology, Japan

----- 10:30-11:00 Break -----

OMC <Room 414+415>

[OMC5] 9:00-10:45
Structured Materials Fabrication
Chair: Masaaki Ashida
Osaka University, Japan

OMC5-1 9:00 *Invited*

Ultrafast lasers: as tools for micro/nanofabrication and probing surface plasmons

Quan Sun[1], Takaya Tokiwa[1], Hidenori Asahi[1], Han Yu[1], Kosei Ueno[1], Atsushi Kubo[2], Yasutaka Matsuo[1], and Hiroaki Misawa[1]
[1]Research Institute for Electronic Science, Hokkaido University, [2]Institute of Physics, University of Tsukuba

OMC5-2 9:30

Optical fabrication and manipulation of semiconductor nanoparticles in superfluid helium

Masaaki Ashida[1], Yosuke Minowa[1], and Hajime Ishihara[2]
[1]Osaka University, Japan, [2]Osaka Prefecture University, Japan

OMC5-3 9:45

How does the optical angular momentum of an optical vortex shape a monocrystalline silicon needle?

Honami Fujiwara[1], Fuyuto Takahashi[1], Kai Izumisawa[1], Katsuhiko Miyamoto[1,2], Ryuji Morita[3], Takashige Omatsu[1,2]
[1]Graduate School of Advanced Integration Science, Chiba University, Japan, [2]Molecular chirality research center, Chiba University, Japan, [3]Department of Applied Physics, Hokkaido University, Japan

OMC5-4 10:00

Chiral bias on circularly polarized laser-induced chiral crystallization from $NaClO_3$ solution containing plasmonic Ag nanoparticles

Hiromasa Niinomi[1], Teruki Sugiyama[2], Miho Tagawa[3], Kenta Murayama[3], Shunta Harada[3], Katsuhiko Miyamoto[1,4], Takashige Omatsu[1,4] and Toru Ujihara[3]
[1]Molecular Chirality Research Center, Chiba University, Japan, [2]National Chiao Tung University, Taiwan, [3]Nagoya University, Japan, [4]Graduate School of Advanced Integration Science, Chiba University, Japan

OMC5-5 10:15

Imprinted single-armed chiral surface relief on soda-lime silica glass

Guzhaliayi Juman[1], Itsuki Yoshida[1], Keigo Masuda[1], Shogo Nakano[1], Daisuke Sakai[2], Kenji Harada[3], Katsuhiko Miyamoto[1,4], Takashige Omatsu[1,4]
[1]Graduate School of Advanced Integration Science, Chiba University, Japan, [2]Department of System Engineering, Kitami Institute of Technology, Japan, [3]Department of Computer Science, Kitami Institute of Technology, Japan, [4]Molecular Chirality Research Center, Chiba University, Japan

OMC5-6 10:30

Using optical vortex to form the droplets filament

Fukutaro Shiraishi[1], Yuri Nakamura[1], Kai Izumisawa[1], Katsuhiko Miyamoto[1,2], Kazumi Suzuki[3], Masaki Yoshino[4], Takashige Omatsu[1,2]
[1]Graduate School of Advanced Integration Science, Chiba University, Japan, [2]Molecular chirality research center, Chiba University, Japan, [3]Chemical Technology & Products Business Group, RICOH, Japan, [4]Imaging Engine Development Division, RICOH, Japan

----- 10:45-11:00 Break -----

Oral, Friday, May 20 AM

PLD <Room 413>

[PLD7] 9:00-10:15
Poster session
<Exhibition Hall A>

Poster session program p.98

----- 10:15-10:30 Break -----

XOPT <Room 313+314>

[XOPT6] 9:00-10:30
X-ray optics (II): reflective optics & applications
Chair: R. Barrett
ESRF, France

XOPT6-1 9:00 *Invited*

Progress of mirror-based optical system for X-ray nanofocusing and imaging
K. Yamauchi
Osaka University, Japan

XOPT6-2 9:30

3D surface measurement of spherical mirror by nanoprofiler using normal vector tracing method
H. Shiraji[1], Y. Tokuta[2], T. Kitayama[1], M. Nakano[2], R. Kudo[1], K. Yamamura[1], K. Endo[1]
[1]Osaka University Research Center for Ultra-Precision Science and Technology, Japan, [2]Graduate School of Osaka University, Japan

XOPT6-3 9:45

Current status of the development of two-staged focusing system for soft x-ray lasers
H. Motoyama[1], T. Sato[1], A. Iwasaki[1], Y. Takeo[1], Y. Senba[2], H. Ohashi[2], K. Yamanouchi[1] and H. Mimura[1]
[1]The University of Tokyo, Japan, [2]JASRI/SPring-8, Japan

XOPT6-4 10:00 *Invited*

Ellipsoidal mirror for two-dimensional nanofocusing in the hard x-ray region
H. Yumoto
JASRI/SPring-8, Japan

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

Oral, Friday, May 20 AM

ALPS <Room 416+417>

[ALPS16] 11:00-12:00
Terahertz-wave imaging
Chair: C.-K. Sun
Program Committee Member
National Taiwan Univ.,Taiwan

ALPS16-1 11:00 *Invited*

Recent Advances in Terahertz Cancer Imaging
J.-H. Son
Dept. of Phys., Univ. of Seoul, Korea

ALPS16-2 11:30

THz spectroscopic imaging of concealed chemicals using is-TPG
M. Kato[1], K. Murate[1], K. Imayama[1], S. R. Tripathi[1], K. Kawase[1,2]
[1]Nagoya Univ., Japan, [2]RIKEN, Japan

ALPS16-3 11:45

THz Frequency Combs generated from Off-axis THz Parametric Oscillator at Room Temperature
Y,-C. Chiu[1], T.-D. Wang[2], P.-C. Wang[1], Y.-C. Huang[1]
[1]Inst. of Photonics Tech./Dept. of Electrical Eng., National Tsinghua Univ., Taiwan, [2]Chung-San Inst. of Sci. and Tech., Taiwan

----- 12:00-13:00 Lunch Break -----

BISC <Room 419>

[BISCp6] 10:30-12:00
Poster Session
<Exhibition Hall A>

Poster session program p.98

----- 12:00-13:00 Lunch Break -----

Oral, Friday, May 20 AM

CLES <Room 418>

[CLES12] 11:00-12:30
Electron Generation
Chair: F. Beg
Univ. of California at San Diego, USA

CLES12-1 11:00 *Invited*

Properties of Fast Electrons Emitted in Intense Laser-Solid Interaction Experiment
D. Neely[1,2]
[1]Central Laser Facility, STFC, Rutherford Appleton Laboratory, UK, [2]SUPA, Department of Physics, Univ. of Strathclyde, UK

CLES12-2 11:30 *Invited*

Optimization of Electron Energy Distribution by Reducing Preformed Plasma Generation for Fast Ignition Scheme
Y. Arikawa[1], S. Kojima[1], A. Morace[1], M. Hata[1], S. Sakata[1], S. Fujioka[1], T. Kawashima[1], Y. Hironaka[1], K. Shigemori[1], Y. Abe[1], X. Vaisseau[1], S-H. Lee[1], T. Gawa[1], K. Matsuo[1], K.-F. Law[1], Y. Kato[1], S. Matsubara[1], S. Tosaki[1], A. Yogo[1], H. Nagatomo[1], S. Tokita[1], Y. Nakata[1], T. Jitsuno[1], N. Miyanaga[1], J. Kawanaka[1], Y. Fujimoto[1], K. Yamanoi[1], T. Norimatsu[1], M. Nakai[1], H. Nishimura[1], H. Shiraga[1], FIREX Group[1], LFEX Group[1], H. Azechi[1], A. Sunahara[2], T Johzaki[3], T. Ozaki[4], H Sakagami[4] and Z. Zhang[5]
[1]Institute of Laser Engineering, Osaka Univ., Japan, [2]Institute for Laser Technology, Japan [3]Hiroshima Univ., Japan, [4]National Institute for Fusion Science, Japan, [5]Key Laboratory of Optic Physics, Institute of Physics, Chinese Academy of Sciences, China

CLES12-3 12:00

Energy Distribution of Fast Electrons Generated with Relativistic Intensity Laser Depending on Pulse Duration
S. Kojima[1], Y. Arikawa[1], A. Morace[1], S. Fujioka[1], A. Yogo[1], M. Hata[1], S. Sakata[1], S. Tosaki[1], T. Gawa[1], Y. Taguchi[1], S.-H. Lee[1], K. Matsuo[1], Y. Abe[1], H. Nagatomo[1], M. Nakai[1], H. Nishimura[1], H. Shiraga[1], A. Sunahara[2], T. Johzaki[3], T. Ozaki[4], H. Sakagami[4], H. Azechi[1], FIREX Group[1] and LFEX Group[1]
[1]Institute of Laser Engineering, Osaka Univ., Japan, [2]Institute of Laser Technology, Japan, [3]Hiroshima Univ., Japan, [4]National Institute for Fusion Science, Japan

CLES12-4 12:15

Hot Electron Behavior in Targets Observed by the Electron Spectral Meter on FIREX
T. Ozaki[1], Y. Aabe[2], M. Hata[2], K. Matsuo[2], S. Kojima[2], Y. Arikawa[2], S. Fujioka[2], S. Sakata[2], S.-H. Lee[2], H. Sakagami[2], A. Morace[2], A. Sunahara[2], H. Nagatomo[2], T. Johzaki[3], A. Yogo[2], H. Sshiraga[2], H. Nishimura[2], H. Azechi[2], FIREX Group[2] and GXII-LFEX Group[2]
[1]National Institute for Fusion Science, Japan, [2]Institute of Laser Engineering, Osaka Univ., Suita, Japan, [3]Hiroshima Univ., Japan

----- 12:30-13:30 Break -----

HEDS <Room 311+312>

[HEDS13] 11:00-12:00
Particle Acceleration IV
Chair: W. Lu
Tsinghua University, China

HEDS13-1 11:00

Recent progress on laser-plasma acceleration experiments at Shanghai Jiao Tong University
Nasr A. M. Hafz
Shanghai Jiao Tong University, China

HEDS13-2 11:20

Effect of halo-intensity distribution on the propagation of high power laser pulses in underdense plasmas
Naveen Pathak
Osaka University, Japan

HEDS13-1 11:40

Progress on Capillary Discharge Waveguide and its Pulsed-power Generator Development for Laser Wakefield Acceleration
Toru Sasaki
Nagaoka University of Technology, Japan

----- 12:00-13:00 Lunch Break -----

LEDIA <Room 411+412>

[LED6] 11:00-12:00
Nanostructures
Chair: Y. J. Kim
Program Committee Member of LEDIA '16
Yonsei Univ., Korea

LED6-1 11:00 *Invited*

Plasmonics toward High-Efficiency LEDs with Wide Wavelength Range
K. Okamoto
Kyushu Univ., Japan

LED6-2 11:30

Controlled Growth of Highly Elongated GaN Nanorod Arrays on AlN/Si Templates by Pulsed-Mode Metalorganic Vapor Deposition
S.-Y. Bae[1], K. Lekhal[1,2], B. O. Jung[1], D.-S. Lee[3], M. Deki[2], Y. Honda[2], and H. Amano[2,4]
[1]Dept. of Electrical Eng. and Computer Sci., Nagoya Univ., Japan, [2]Inst. of Materials and Systems for Sustainability, Nagoya Univ., Japan, [3]Gwangju Inst. of Sci. and Tech., Korea, [4]Akasaki Research Center, Nagoya Univ., Japan

LED6-3 11:45

Controlled Morphology of Regular GaN Microrod and Nanowire Arrays by Selective Area Growth with HVPE
K. Lekhal[1,2,3], S. Y. Bae[1], H. J. Lee[1], K. Nishi[1], K. Saitoh[1], M. Deki[2], Y. Honda[2], and H. Amano[2,3,4]
[1]Dept. of Electrical Eng. and Computer Sci., Nagoya Univ., Japan, [2]Inst. of Materials and Systems for Sustainability, Nagoya Univ., Japan, [3]VBL, Nagoya Univ., Japan, [4]Akasaki Research Center, Nagoya Univ., Japan

----- 12:00-13:15 Lunch Break -----

Oral, Friday, May 20 AM

LIC <Room 301>

[LICp] 11:00-12:00
Poster Session
<Exhibition Hall A>

Poster session program p.101

----- 12:00-13:00 Lunch Break -----

LSSE <Room 316>

LSSE8-2 11:00 *Invited*

Development of Non-Destructive Inspection Method for Concrete Elements in Tunnel Linings Using Laser Remote Sensing

N. Misaki
West Japan Railway Company, Japan

LSSE8-3 11:30 *Invited*

Development of the High Speed Inspection System of Defects Inside Concrete

K. Mikami[1], S. Kurahashi[2], T. Kitamura[2], N. Hasegawa[1], H. Okada[1], S. Kondo[1], K. Oleg[2], Y. Shimada[2], T. Kawachi[1]
[1]Japan Atomic Energy Agency, Japan, [2]Institute for Laser Technology, Japan

----- 12:00-13:00 Lunch -----

OMC <Room 414+415>

[OMC6] 11:00-12:00
Advanced Optical Manipulation
Chair: Saulius Juodkazis
Swinburne University, Australia

OMC6-1 11:00 *Invited*

Laser Assembler - Fabrication, manipulation and assembly of microstructures with optical tools

Sarah Isabelle Ksouri, Christoph Böttinger, Cemal Esen, Andreas Ostendorf
Ruhr-Universitaet Bochum, Germany

OMC6-2 11:30 *Invited*

Nanostructured optical fibres for particle trapping

Sile Nic Chormaic
OIST Graduate University, Japan

----- 12:00-13:00 Lunch Break -----

Oral, Friday, May 20 AM

PLD <Room 413>

[PLD8] 10:30-12:15
Material Damage
Chair: TBD

PLD8-1 10:30 *Invited*

Laser damage measurement of thick silica plates using a new laser injection scheme

D. Penninckx, R. Diaz, O. Bonville, R. Courchinoux, L. Lamaignère, J. LuceçCommissariat à l'Énergie Atomique, France, Macquarie Univ., Australia

PLD8-2 11:00 *Invited*

Nanosecond laser damage of optical multimode fibers

J. Krueger
BAM, Berlin, Germany

PLD8-3 11:30 *Invited*

Adaptive Laser Beam Forming for Laser Shock Micro-Forming for 3D MEMS Devices Fabrication

K. Chen
Pittsburgh Univ. USA

PLD8-4 12:00

A PHD filter for tracking mid-course group targets via space-based laser

H. Yu, W. An, W. Sheng, X. Wang
National Univ. of Defense Technology, China

----- 12:15-13:15 Lunch Break -----

XOPT <Room 313+314>

[XOPT7] 11:00-12:00
X-ray optics (III): optics for various spectroscopic methods
Chair: A. Robert
SLAC National Accelerator Laboratory, USA

XOPT7-1 11:00

Wavelength-tunable hard X-ray split-and-delay optics at SACLA

T. Osaka[1], T. Hirano[1], Y. Sano[1], Y. Inubushi[2], S. Matsuyama[1], K. Tono[2], T. Ishikawa[3], K. Yamauchi[1] and M. Yabashi[3]
[1]Osaka University, Japan, [2]JASRI, Japan, [3]RIKEN SPring-8 Center, Japan

XOPT7-2 11:15

Progress on the HIgh REsolution hard X-ray single shot spectrometer (HIREX spectrometer) for the European XFEL photon diagnostics

N. G Kujala, W. Freund, and J. Grünert
European XFEL, Germany

XOPT7-3 11:30

A Medium-resolution, non-resonant, IXS Spectrometer at BL43LXU of SPring-8

D. Ishikawa[2,1], H. Uchiyama[2,1] and A.Q.R Baron[1]
[1]RIKEN SPring-8 Center, Japan, [2]JASRI, Japan

XOPT7-4 11:45

An energy dispersive bent Laue monochromator for K-edge subtraction imaging

N. Samadi[1], M. Martinson[1], B. Bassey[1], G. Belev[2], D. Chapman[2]
[1]Univeristy of Saskatchewan, Canada, [2]Canadian Light Source, Canada

----- 12:00-13:00 Lunch Break -----

Oral, Friday, May 20 PM

ALPS <Room 416+417>

[ALPS17] 13:00-15:00
Intense lasers
Chair: H. Minamide
Program Committee Member
RIKEN, Japan
Chair: H. Nishioka
Univ. Electro-Comm., Japan

ALPS17-1 13:00

KTA-Based Optical Parametric Amplifiers at 3.4-μm for Millijoule-Class Mid-Infrared Source

F. M. Lu, T. Kanai, Y. Matsumoto, N. Ishiii, and J. Itatani
The inst. for Solid State Phys., The Univ. of Tokyo, Japan

ALPS17-2 13:15

0.6-3.2 μm broadband supercontinuum generation in step-index Germania-core fiber

K. Yin, B. Zhang, L. Yang, J. Yao, Z. Chen, and J. Hou
College of Optoelectronic Sci. and Eng., National Univ. of Defense Tech., China

ALPS17-3 13:30

Photoionization mechanisms and high-efficiency pulsed Lyman-alpha generation by resonant laser wave mixing in low pressure Kr-Ar gas

O. A. Louchev[1], N. Saito[1], Y. Oishi[3], K. Miyazaki[1], K. Okamura[1], J. Nakamura[3], M. Iwasaki[2], S. Wada[1]
[1]RIKEN Center for Adv. Photonics, Japan, [2]Adv. Meson Sci. Lab., RIKEN, Japan, [3]Muon Sci. Lab., KEK-IMSS, Japan

ALPS17-4 13:45

High-efficiency LBO-based femtosecond optical parametric oscillator

W. Tian[1,2], X. Meng[2], N. Zhang[1,2], Z. Wang[1], J. Zhu[2], and Z. Wei[1]
[1]Beijing National Lab. for Condensed Matter Phys. Inst. of Phys., Chinese Academy of Sci., China, [2]School of Phys. and Optoelectronic Eng., Xidian Univ., China

ALPS17-5 14:00

Towards an intra-cavity pulse energy of 100 μJ in an ultrafast Kerr lens mode-locked thin-disk ring oscillator

A. A. Eilanlou[1], Y. Nabekawa[1], M. K.-Gonokami[2,3], and K. Midorikawa[1,2]
[1]RIKEN Center for Adv. Photonics, Japan, [2]Inst. for Photon Sci. and Tech., The Univ. of Tokyo, Japan, [3]Grad. School of Sci., The Univ. of Tokyo, Japan

ALPS17-6 14:15 *Invited*

Toward compact and ultra-intense laser based soft x-ray lasers

S. Sebban[1], A. Depresseux[1], E. Oliva[2], J. Gautier[1], F. Tissandier[1], J. Nejdl[3], M. Kozlova[3], G. Maynard[2], J.P. Goddet[1], A. Tafzi[1], A. Lifschitz[1], H. T. Kim[4], S. Jacquemot[5], V. Malka[1], K. Ta Phuoc[1], C. Thaury[1], P. Rousseau[1], G. Iaquaniello[1], T. Lefrou[1], A. Flacco[1], B. Vodungbo[1], G. Lambert[1], P. Zeitoun[1] and A. Rousse[1]
[1]LOA, Univ. Paris-Saclay, France, [2]LPGP, CNRS-Univ., France, [3]ELI Beamlines Project, Czech Republic, [4]APRI GIST, Korea, [5]LULI, France

ALPS17-7 14:45

High Power Short Pulse CO_2 Laser for HVM EUV Lithography

H. Hamano, K. Nowak, T. Suganuma, Y. Kurosawa, Y. Kawasuji
Gigaphoton Inc., Japan

----- 15:00-15:30 Break -----

BISC <Room 419>

[BISC7] 13:00-15:00
Nano, Fluorescence, Spectral Imaging, Biosensor
Chairs: Y. Matsuura
Tohoku Univ., Japan
I. Ishimaru
Kagawa Univ., Japan

BISC7-1 13:00 *Invited*

Application of Fluorescent Nanodiamonds to Bio-imaging

Y. Harada
Kyoto Univ., Japan

BISC7-2 13:30 *Invited*

Integrated Differential Si-Ring Resonator Biosensors for Selective Detection of Antigen-Antibody Reaction

S. Yokoyama[1,2], T. Taniguchi[2,1], T. Ikeda[3,1], A. Kuroda[3,1]
[1]Res. Inst. Nanodevice and Bio Sys., Hiroshima Univ., Japan, [2]Dept. Semicon. Electr. Integ. Sci., Hiroshima Univ., Japan, [3]School of Advanced Sci. Matter, Hiroshima Univ., Japan

BISC7-3 14:00

Optical Far-field Nanoscopy with Local Probes

X. Chen, F. Sun
Univ. of Science and Technology of China, China

BISC7-4 14:15

Enhanced Imaging of Lipid in Atherosclerotic Tissue-mimicking Phantom by Multispectral Angioscope at Wavelengths around 1200 nm

D. Matsui[1], K. Ishii[1], K. Awazu[1,2,3]
[1]Graduate School of Eng., Osaka Univ., Japan, [2]Graduate School of Frontier Biosciences, Osaka Univ., Japan, [3]Global Center for Med. Eng. Informat., Osaka Univ., Japan

BISC7-5 14:30

Bayesian-based Localization of Fluorescence-encoded Images for Single Shot Super-resolution Fluorescence Imaging

H. Kimura, T. Nishimura, Y. Ogura, J. Tanida
Osaka Univ., Japan

----- 14:45-15:15 Break -----

Oral Program

Oral, Friday, May 20 PM

CLES <Room 418>

[CLES13] 13:30-14:30
Super Penetration and NIF Status and Prospects
Chair: H. Shiraga
Institute of Laser Engineering, Osaka Univ.

CLES13-1 13:30 *Invited*

Relativistic Laser Self-Focusing Approach toward Fast Ignition
K. Tanaka, Osaka Univ., Japan

CLES13-2 14:00 *Invited*

Status of the Ignition Program on the National Ignition Facility
P. Patel
Lawrence Livermore National Laboratory, USA

[CLES14] 14:30-15:30
High Intensity Laser Development
Chair: H. Shiraga

CLES14-1 14:30

The Challenge and Opportunity for High Power Laser Facility Development
J.-Q. Zhu, X. Li, B. Zhu, J. Zhu, D. Liu, C. Liu, G. Xu, X. Xie, Z. Liu, D. Zhao, X. Lu, Y. Zhang, Z. Jiao, W. Fan, J. Kang, X. Ouyang, J. Miao, Z. Lin and S. Wang
Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China

CLES14-2 14:45

Diagnostics for High Power Laser in SG II Facility
X. Ouyang[1], L. Yang[1], D. Liu[1], B. Zhu[1], J. Zhu[2], J.-Q. Zhu[1], Z. Lin[1]
[1]Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China, [2]Shanghai Institute of Laser Plasma, China Academy of Engineering Physics, China

HEDS <Room 311+312>

[HEDSp14] 13:00-15:00
Poster Session
<Exhibition Hall A>

Poster session program p.101

----- 15:00-15:30 Break -----

LEDIA <Room 411+412>

[LED7] 13:15-15:00
AlGaN & Devices
Chair: T. –C. Lu
National Chiao Tung Univ., Taiwan

LED7-1 13:15 *Invited*

AlGaN-based Deep UV LEDs - from Research to Real-World Applications
M. Kneissl[1,2], J. Enslin[1], M. Guttmann[1], C. Kuhn[1], F. Mehnke [1], C. Reich [1], L. Sulmoni [1], T. Wernicke[1], J. Glaab [2], S. Hagedorn [2], A. Knauer [2], T. Kolbe[2], M. Lapeyrade [2], N. Lobo-Ploch [2], C. Netzel[2], J. Raß[2], C. Stölmacker [2], U. Zeimer [2], S. Einfeldt [2], and M. Weyers [2]
[1]Technical Univ. Berlin, Germany, [2]Leibniz-Institut für Höchstfrequenztechnik, Germany

LED7-2 13:45 *Invited*

Preferential Outcoupling of Strong in-Plane Emission from AlGaN-based Deep-Ultraviolet Light-Emitting Diodes
J. W. Lee[1], D. Y. Kim[1], J. H. Park[1], E. F. Schubert[2], J. Kim[3], J. Lee[3], Y. Kim[3], Y. Park[3], and J. K. Kim[1]
[1]POSTECH, Korea, [2]ECES Dept. Rensselaer Polytechnic Inst., U.S.A., [3]Samsung Electronics, Korea

LED7-3 14:15

Strongly TE-Polarized Emission from Deep UV AlGaN Quantum Well LEDs
C. Reich[1], M. Feneberg[2], M. Guttmann[1], T. Wernicke[1], F. Mehnke[1], and M. Kneissl[1]
[1]Technical Univ. Berlin, Germany, [2]Otto-von-Guericke-Univ. Magdeburg, Germany

LED7-4 14:30

Polarization Induced Hole Accumulations in Nitride Semiconductor Heterostructures
T. Yasuda[1], S. Yoshida[1], T. Takeuchi[1], M. Iwaya[1], S. Kamiyama[1], I. Akasaki[1,2], and H. Amano[2,3]
[1]Meijo Univ., Japan, [2]Akasaki Research Center, Nagoya Univ., Japan, [3]Inst. of Materials and Systems for Sustainability, Nagoya Univ., Japan

LED7-5 14:45

Current Transport Mechanism of Graphene/AlGaN Schottky Barrier Diodes
B. Pandit[1], T. H. Seo[2], B. D. Ryu[1], and J. Cho[1]
[1]Chonbuk National Univ., Korea, [2]Korea Inst. of Sci. and Tech., Korea

----- 15:00-15:30 Break -----

Oral, Friday, May 20 PM

LIC <Room 301>

[LIC7] 13:00-14:00
Nonlinear optics
Chair: N. Pavel
INFLPR, Romania

LIC7-1 13:00 *Invited*

Terahertz-wave technology based on nonlinear optical effect and sub-nanosecond pulse laser
H. Minamide
Teraphotonics Lab., RIKEN Center for Advanced Photonics, RIKEN, Japan

LIC7-2 13:30

Compact passive Q-switched planar-waveguide laser at 355 nm with intra-cavity frequency conversion
K. Sakai[1], F. Shohda[1], H. Fukahori[2], and T. Yanagisawa[1]
[1]Information Technology R&D Center, Mitsubishi Electric Co., Japan, [2]Nagoya Works, Mitsubishi Electric Co., Japan

LIC7-3 13:45

Temperature stable giant-pulse green micro-laser
A. Kausas[1], P. Loiseau[2], G. Aka[2], Y. Zheng[3], and T. Taira[1]
[1]Inst. Mol. Sci., Japan, [2]PSL Research Univ., IRCP, Chimie ParisTech., France, [3]Shanghai Inst. Ceram., Chinese Acad. Sci., China

[LIC8] 14:00-16:15
Advanced ignition systems for stationary power generation
Chair: T. Saito
Meisei Univ., Japan

LIC8-1 14:00 *Invited*

Performance of SI and LI Spark Plugs and That of Spark Plugs Equipped With a Prechamber
S. Gupta[1], B. Bihari[1], M. Biruduganti[1], N. Polcyn[2], J. U. Hwang[2], and K. Kanehara[2]
[1]Argonne Nat. Lab., USA, [2]DENSO International

LIC8-2 14:30

Performance Benefits of Laser Ignition in a Natural Gas 6-cylinder Engine
S. Gupta[1], B. Bihari[1], and M. Biruduganti[1], Qing Wang[2], and R. V. Leeuwen[2]
[1]Argonne Nat. Lab., USA, [2]Princeton Optronics, USA

LIC8-3 14:45 *Invited*

Designing the Flame Kernel Structure -by the Laser Pulse Profile
S. Lorenz and D. Brüggemann
Univ. Bayreuth, Germany

----- 15:15-15:30 Break -----

LSSE <Room 316>

[LSSE9] 13:00-14:50
Maintenance of Social Infrastructure 4
Chair: H. Daido
Applied Laser Technology Institute, Japan
Atomic Energy Agency, Japan

LSSE9-1 13:00

A Mobile Laser-Based System for Remote Inspection of Shinkansen Tunnels
O. Kotyaev[1], Y. Shimada[1], N. Misaki[2]
[1]Institute for Laser Technology, Japan, [2]West Japan Railway Company, Japan

LSSE9-2 13:20

Performance of Material Removal in Pulsed Laser Irradiation on Concrete
N. P. Long[1], H. Daido[1], Y. Matsunaga[1], T. Yamada[1], A. Nishimura[2], T. Kawach[2]
[1]Applied Laser Technology Institute, Japan Atomic Energy Agency, Japan, [2]Kansai Photon Institute, Japan Atomic Energy Agency, Japan

LSSE9-3 13:40 *Invited*

Development of Nuclear Emergency Response Robots at Naraha Remote Technology Center Relevant to the Laser Technology
S. Kawatsuma, K. Kawabata
Japan Atomic Energy Agency, Japan

LSSE9-4 14:10

Development of Laser Cutting for Thick Steels up to 300 mm for Nuclear Plant Decommissioning
S. Toyama[1], R. Ishigami[1], K. Tamura[2]
[1]The Wakasa Wan Energy Res. Center, Japan, [2]Quantum Beam Science Center, Japan

LSSE9-5 14:30

Technologies of Laser Decontamination and Robotics for Nuclear Reactor Decommissioning
E. J. Minehara[1,2], R. Yamagishi[1]
[1]The Wakasa Wan Energy Res. Center, Japan, [2]LAND Corporation, Japan

[Closing] 14:50-15:00
Closing Remarks 14:50
T. Ebisuzaki
Conference Chair of LSSE 2016
Chief Scientist, Computational Astrophysics Laboratory, RIKEN, Japan

OMC <Room 414+415>

[OMCp] 13:00-14:30
Poster Session
<Exhibition Hall A>

Poster session program p.102

[OMC7] 14:45-15:45
Photon Radiation Forces
Chair: Yoshihiko Arita
University of St Andrews , U.K., MCRC Chiba University, Japan

OMC7-1 14:45

Effect of optical manipulation on the $\alpha\eta$ protocol
Vladimir V. Nikulin[1], David H. Hughes[2], John Malowicki[2]
[1]State University of New York, USA, [2]Air Force Research Laboratory, USA

OMC7-2 15:00

Dependence of radiation forces on an ellipsoidal particle on the beam polarization state
Kristine Faith J. Roque, Giovanni A. Tapang, Caesar A. Saloma
University of the Philippines, Philippines

OMC7-3 15:15

Polarization-inverted modes in optically trapped metallic nanoparticles for the excitation of forbidden states
Mamoru Tamura, Takuya Iida
Department of Physical Science, Graduate School of Science, Osaka Prefecture University, Japan

OMC7-4 15:30

Raman Microspectroscopy for determining Polymer Concentration in an Optically Trapped Poly(N-isopropylacrylamide).
Tatsuya Shoji, Kenta Ushiro, Mitsuhiro Matsumoto, Taka-aki Asoh, Yasuyuki Tsuboi
Division of Molecular Materials Science, Graduate School of Science, Osaka City University, Japan

----- 15:45-16:15 Break -----

Oral, Friday, May 20 PM

PLD <Room 413>

[PLD9] 13:15-15:15
Defect, Contamination(1)
Chair: TBD

PLD9-1 13:15 *Invited*

Refractive index change mechanisms in different glasses induced by femtosecond laser irradiation
A. Fürbach, S. Gross, D. J. Little, A. A. Martiarena, A. A. Martiarena, M. Ams, P. Dekker, M. J. Withford
Macquarie Univ., Australia

PLD9-2 13:45

Research on nondestructive evaluation of fused silica UV damage performance
H. Liu, F. Wang, X. Jiang
China Academy of Engineering Physics, China

PLD9-3 14:00

Laser-induced damage thresholds by double pulses with interval time
S. Motokoshi, Y. Takemura[1], T. Jitsuno[2], M. Yoshida[1], J. Kawanaka[2]
Institute for Laser Technology, Japan, [1]Kinki Univ., Japan, [2]Osaka Univ., Japan

PLD9-4 14:15

Enhanced internal reflection microscopy for sub-surface damage inspection
L. Xu, K. Ni[1], R. H. Zhu, S. Liu[1]
[1]Nanjing university of science and technology, China

PLD9-5 14:30

Influence of bulk defects on bulk damage performance of fused silica optics in 355nm pulse laser
J. Huang
China Academy of Engineering Physics, China

PLD9-6 14:45

Laser damage mechanisms of different-sized substrate pits in high-reflective mirrors
Y. Chai[1,2], M. Zhu[1], K. Yi[1], H. Xing[1,2], J. Sun[1], J. Shao[1]
[1]Shanghai Inst. of Opt. Fine Mech., China, [2]Graduate School of Chinese Academy of Sciences, Beijing , China

PLD9-7 15:00

Multi-modality laser scanning microscopy at 355nm for defect characterization of optical materials
J. Chen, B. Li, J. Dong, Z. Wu
ZC Optoelectronic Technologies Ltd., China

PLD9-8 15:15

Optimization Design and laser damage threshold analysis of pulse compression gratings
S. Fan, L. Bai, S. Jia
Xi'an Jiaotong Univ., China

----- 15:30-15:45 Break -----

XOPT <Room 313+314>

[XOPT8] 13:00-14:30
Poster Session
<Exhibition Hall A>

Poster session program p.103

----- 14:30-15:30 Break -----

[XOPT9] 15:30-15:45
X-ray optics for advanced light sources
Chair: K. Tono
SPring-8/SACLA, Japan

XOPT9-1 15:30

Single crystal optics at the high repetition rate European XFEL
L. Samoylova and H. Sinn
European XFEL Facility, Germany

[XOPT10] 15:45-16:00
X-ray sources
Chair: K. Tono
SPring-8/SACLA, Japan

XOPT10-1 15:45

Demonstration of Multibunch Operation from a Compact Laser-Compton x-ray Source
D. J. Gibson[1], G. G. Anderson[1], Y. Hwang[2], R. A. Marsh[1], and C. P. J. Barty[1]
[1]Lawrence Livermore National Laboratory, USA, [2]UC Irvine, USA

Oral, Friday, May 20 PM

ALPS <Room 416+417>

[ALPS18] 15:30-16:30
New sources
Chair: F. Kannari
Steering Committee Chair
Keio Univ., Japan

ALPS18-1 15:30

High-energy picosecond source based on an hybrid architecture

J. Pouysegur[1], F. Guichard[1], Y. Zaouter[1], Q. Mocae[1], M. Hanna[2], F. Druon[2], C. Hönninger[2], E. Mottay[2], and P. Georges[2]
[1]Amplitude Systèmes, France, [2]Lab. Charles Fabry, France

ALPS18-2 15:45

A cryogenically cooled Nd:YLF laser with orthogonally polarized emission

T.-L. Huang, C.-Y. Cho, Y.-F. Chen
Dept. of Electrophysics, National Chiao Tung Univ., Taiwan

ALPS18-3 16:00

Development of a 1 J Yb:YAG TRAM amplifier cooled by a closed-cycle cryocooler

K. Iyama[1,2], S. Tokita[1], T. Kawashima[2], J. Kawanaka[1]
[1]ILE, Osaka Univ., Japan, [2]Hamamatsu Photonics K.K., Japan

ALPS18-4 16:15

High-power coherent beam combining (CBC): Beam quality and coupling efficiency in CBC

H. Chosrowjan[1], T. Kitamura[1], S. Taniguchi[1], M. Fujita[1,2], K. Tsubakimoto[2], H. Yoshida[2], N. Miyanaga[2], and Y. Izawa[1]
[1]Inst. for Laser Tech., Japan, [2]Inst. of Laser Eng., Japan

[Closing] 16:30
Award Ceremony 16:30-16:40
N. Nishizawa
Program Committee Chair
Nagoya Univ., Japan
Closing Remarks 16:40-16:50
F. Kannari
Steering Committee Chair
Keio Univ., Japan

BISC <Room 419>

[BISC8] 15:15-17:30
Brain imaging, spectral imaging, image processing
Chairs: E. Okada Keio Univ., Japan
Y. Otani Utsunomiya Univ., Japan

BISC8-1 15:15 *Invited*

Visible Brain-wide Networks at Single-neuron Resolution

Q. Luo
Huazhong Univ. of Science and Technology, China

BISC8-2 15:45

A New Strategy of the Time-domain Fluorescence Imaging for a Semi-infinite Turbid Media

K. Prieto, G. Nishimura
Hokkaido Univ., Japan

BISC8-3 16:00

Determination of Anisotropy Factor Spectrum for Biological Tissue Based on Spectroscopic Measurement of Scattering Angular Distributions

M. Iwamoto[1], K. Ishii[1], D. Fukutomi[1], D. Matsui[1], K. Awazu[1,2,3]
[1]Graduate School of Eng., Osaka Univ., Japan, [2]Graduate School of Frontier Biosciences, Osaka Univ. Japan, [3]Global Center for Med. Eng. Informat., Osaka Univ. Japan

BISC8-4 16:15

***In vivo* Imaging of Hemodynamics in Liver Tissue during Ischemia- Reperfusion Based on Spectrocolorimetry**

S. Akter[1], S. Maejima[2], S. Kawauchi[3], S. Sato[3], A. Hinoki[2], S. Aosasa[2], J. Yamamoto[2], I. Nishidate[1]
[1]Graduate School of Bio-Appl. Sys. Eng., Tokyo Univ. of Agriculture and Technology, Japan, [2]Dept. of Surgery, National Defense Medical College, Japan, [3]Division of Biomedical Information Sciences, National Defense Medical College Research Institute, Japan

BISC8-5 16:30

Evaluation of Spontaneous Low-frequency Oscillations in Cerebral Intrinsic Optical Signals with a Digital Red-green-blue Camera

A. Mustari[1], Y. Aoki[1], I. Nishidate[1], S. Kawauchi[2], S. Sato[2], M. Sato[3]
[1]Graduate School of Bio-Appl. Sys. Eng., Tokyo Univ. of Agriculture and Technology, Japan, [2]Division of Biomedical Information Sciences, National Defense Medical College Research Institute, Japan, [3]Graduate School of Science and Engineering, Yamagata Univ. Japan

BISC8-6 16:45

Noncontact Image Sensing of Pulse Wave Velocity Using Digital Red-Green-Blue Images

K. Nakano[1], Y. Aoki[2], R. Satoh[2], H. Suzuki[3], I. Nishidate[2]
[1]Faculty of Sci. Division, Tokyo Univ. of Science, Japan, [2]Graduate School of Bio-appl. Sys. Eng., Tokyo Univ. of Agriculture and Technology, Japan, [3]Imaging Science and Engineering Laboratory, Tokyo Institute of Technology, Japan

BISC8-7 17:00

Proccessing Dental X-ray Images by Shearlet Transform

L. Cadena[1], N. Espinosa[1], F. Cadena[2], D. Barkova[3]
[1]Universidad de las Fuerzas Armadas ESPE, Ecuador, [2]Colegio Fiscal Eloy Alfaro, Ecuador, [3]Siberian Federal Univ., Russia

BISC8-8 17:15

Acousto-optic Enhancement of Image Contrast for Morphological Diagnostics Cancer

K. B. Yushkov[1], V. Y. Molchanov[1], S. I. Chizhikov[1], P. V. Belousov[2], A. Y. Abrosimov[3]
[1]National Univ. of Science and Technology, MISIS, Russia, [2]Faculty of Biology, Lomonosov Moscow State Univ., Russia, [3]Endocrinology Research Center, Russia

[Closing] 17:30-17:40
Closing Remark 17:30
O. Matoba Kobe Univ., Japan

Oral Program

Oral, Friday, May 20 PM

CLES <Room 418>

CLES13-3 15:00 *Invited*

Ultrahigh, Efficiency Exawatt Technology for Full-Scale Fast Ignition

C. Barty
Lawrence Livermore National Laboratory, USA

----- 15:30-16:00 Break -----

[Summary]
[Closing] 16:00-17:30
Closing Remarks 16:00
H, Azechi
Conference Chair of CLES 2016
Director, Institute of Laser Engineering, Osaka Univ., Japan

HEDS <Room 311+312>

[HEDS15] 15:30-17:10
Particle Acceleration V & Radiation Sources III
Chair: K. Koyama
KEK, University of Tokyo, Japan

HEDS15-1 15:30

On the mismatch in stimulated scattering processes in inhomogeneous plasmas

Tao Gong
Osaka University, Japan

HEDS15-2 15:50 *Invited*

Present status of the upgrade of the J-KAREN laser system and experimental results from the first light experiment

Mamiko Nishiuchi
QST, Japan

HEDS15-3 16:20

Development of Experimental Platform for High Energy Density Sciences at SACLA X-ray Free Electron Laser Facility

Toshinori Yabuuchi
RIKEN, Japan

HEDS15-4 16:40 *Special*

Hot-Electron Refluxing in Thin Foils Irradiated by Ultraintense Laser Pulses and Highly Efficient Terahertz Radiation

Zhan Jin
Osaka University, Japan

[Closing] 17:10-17:25
Closing Remarks 17:10
S.V. Bulanov
QST, Japan

LEDIA <Room 411+412>

[LED8] 15:30-17:00
Lasers
Chair: M. Kneissl
Technical Univ. Berlin, Germany

LED8-1 15:30 *Invited*

Design and Characteristics of GaN-based VCSELs

T. C. Lu, H. C. Kuo, and S. C. Wang
National Chiao Tung Univ., Taiwan

LED8-2 16:00

GaN-based VCSELs using Periodic Gain Structures

K. Matsui[1], K. Ikeyama[1], T. Furuta[1], Y. Kozuka[1], T. Akagi[1], T. Takeuchi[1], S. Kamiyama[1], M. Iwaya[1], and I. Akasaki[1,2]
[1]Meijo Univ., Japan, [2]Akasaki Research Center, Nagoya Univ., Japan

LED8-3 16:15

Suppressing the Incorporation of Carbon Impurity in AlGaN:Mg for Green LDs with Low Operation Voltage

J. Liu[1,2], A. Tian[1,2], M. Ikeda[1,2], L. Zhang[1,2], S. Zhang[1,2], D. Li[1,2], and H. Yang[1,2]
[1]Suzhou Inst. of Nano-tech and Nano-bionics, Chinese Academy of Sciences, China, [2]Key Lab. of Nanodevices and Applications, Chinese Academy of Sciences, China

LED8-4 16:30

Opto-electrical Properties of Tapered (Al,In) GaN Laser Diodes

S. Stanczyk[1], A. Kafar[1], A. Nowakowska-Siwinska[2], I. Makarowa[2], M. Sarzynski[1,2], J. Walczak[3], R. Sarzala[3], T. Suski[1], and P. Perlin[1,2]
[1]Inst. of High Pressure Physics PAS., Poland, [2]TopGaN Ltd., Poland, [3]Inst. of Physics, Lodz Univ. of Tech., Poland

LED8-5 16:45

Nitride Superluminescent Diodes with Broadband Emission Spectra Realized by Step-like Indium Content Profile

A. Kafar[1], S. Stanczyk[1], M. Sarzynski[1,2], S. Grzanka[1,2], J. Goss[1], T. Suski[1], and P. Perlin[1,2]
[1]Inst. of High Pressure Physics PAS., Poland, [2]TopGaN Ltd., Poland

[LED9] 17:00-17:30
Tutorial
Chair: B. Monemar
Advisory Member of LEDIA '16
Linköping Univ. & Lund Univ., Sweden

LED9-1 17:00 *Invited*

Integrated GaN-based Light-Emitting Diodes for Micro Displays

T. Honda, T. Yamaguchi, and T. Onuma
Kogakuin Univ., Japan

[Closing] 17:30-17:45
Closing Remarks 17:30
T. Takeuchi
Program Committee Chair of LEDIA '16
Meijo Univ., Japan

Fri, 20 May, PM

Oral, Friday, May 20 PM

LIC <Room 301>

LIC8-4 15:30

Minimum Operating Requirements for Laser Ignition in Gas Turbines

J. Griffiths, A. Kirk, and C. Dowding
School of Eng., Univ. Lincoln, UK

LIC8-5 15:45 *Invited*

Characteristics of microwave- enhanced laser ignition

J. Hayashi[1], C. Liu[1], F. Akamatsu[1], A. Nishiyama[2], A. Moon[2], and Y. Ikeda[2]
[1]Osaka Univ., Japan, [2]Imagineering, Japan

[LIC9] 16:15-17:45
Micro solid state photonics
Chair: Y. Oki
Kyushu Univ., Japan

LIC9-1 16:15 *Invited*

Magneto-optical Q-switching with magnetic garnet film

T. Goto[1], R. Morimoto[1], J. W. Pritchard[1], T. Yoshimoto[1], H. Takagi[1], Y. Nakamura[1], P. B. Lim[1], M. Mina[1], T. Taira[2], and M. Inoue[1]
[1]Toyohashi Inst. Tech., Japan, [2]Inst. Mol. Sci., Japan

LIC9-2 16:45

An energy adjustable linearly polarized passively Q-switched bulk laser with a wedged diffusion bonded Nd:YAG/Cr^{4+}:YAG crystal

H. P. Cheng, C. Y. Cho, P. H. Tuan, and Y. F. Chen
Depart. Electrophysics, Nat. Chiao Tung Univ., Taiwan

LIC9-3 17:00

Minimum air-breakdown energy using giant-pulse width tunable system based on microchip laser

H. H. Lim and T. Taira
Inst. Mol. Sci., Japan

LIC9-4 17:15 *Invited*

Laser Ceramics

H. -Yagi, K. Muramatsu, and T. Yanagitani
Konoshima Chemical Co., Ltd., Japan

[Closing] 17:45-18:00
Award and Closing remarks
T. Taira
Inst. Mol. Sci., Japan

LSSE <Room 316>

OMC <Room 414+415>

[OMC8] 16:15-17:30
Hydrodynamics & Plasmonics
Chair: Ryuji Morita
Hokkaido University, Japan

OMC8-1 16:15 *Invited*

Collective motion of hydrodynamically coupled micro-objects driven by optical force

Shogo Okubo, Shuhei Shibata, Yuriko Sassa Kawamura and Yasuyuki Kimura
Kyusyu University, Japan

OMC8-2 16:45

Phase tunable anisotropic metamaterials for nano-object detection and manipulation

Marios Sergides, Viet Giang Truong, and Síle Nic Chormaic
Light-Matter Interactions Unit, OIST Graduate University, Japan

OMC8-3 17:00

Evolution of Surface-Enhanced Raman Scattering Intensity at Metal Surface under Electrochemical Potential Control

Kei Murakoshi[1], Yumi Wakisaka[1], Mai Takase[1], Hiro Minamimoto[1], Satoshi Yasuda[1], Syoji Ito[2], Hiroshi Miyasaka[2], Tatsuya Shoji[3], Yasuyuki Tsuboi[3]
Department of Chemistry, Hokkaido University, Japan, [1]Department of Chemistry, Faculty of Science, Hokkaido University, Japan, [2]Division of Frontier Materials Science and Center for Promotion of Advanced Interdisciplinary Research, Graduate School of Engineering Science, Osaka University, Japan, [3]Division of Molecular Materials Science, Graduate School of Science, Osaka City University, Japan

OMC8-4 17:15

Plasmon-induced Photosensitization of Porous TiO2 Electrodes with Au-Ag Alloy Nanoparticles Prepared by Ionic Liquid/Metal Sputter Deposition

Tatsuya Kameyama[1], Eisaku Kumazawa[1], Susumu Kuwabata[2], Tsukasa Torimoto[1]
[1]Nagoya University, Japan, [2]Osaka University, Japan

[Closing] 17:30-
Closing Remarks
Takashige Omatsu
OMC '16 Chair, Chiba Univ., Japan.

Oral Program

Oral, Friday, May 20 PM

PLD <Room 413>

[PLD10] 15:45-17:00
Defect, Contamination(2)
Chair: TBD

PLD10-1 15:45

Effectiveness of substrate ion cleaning to improve the laser damage threshold of HfO2/SiO2 optical coatings for 527 nm and 1054 nm

E. S. Field, J. C. Bellum, D. E. Kletecka
Sandia National Labs., USA

PLD10-2 16:00

LIC and LID considerations in the design and implementation of the MEMS laser pointing mechanism for the EUSO UV laser altimeter

E. Bozzo, T. Burch[1], A. Ciapponi[2], C. Heese[2], A. Hoogerwerf, N. Lan[2], A. Neronov, V. Revol[1]
ISDC Data Ctr. for Astrophysics, Switzerland, [1]Ctr. Suisse d'Electronique et de Microtechnique SA, Switzerland, [2]European Space Research and Technology Ctr., Netherlands

PLD10-3 16:15

Source of contamination in damage-test sample and vacuum chamber

T. Jitsuno, H. Murakami, S. Motokoshi[1], T. Mikami[2], T. Kawasaki, J. Kawanaka, N. Miyanaga
Osaka Univ., [1]Instit. Laser Tech., [2]Okamoto Optical Works

PLD10-4 16:30

How much laser inferometry effective in the detection of gravitational waves used in LIGO at India and elsewhere

U. P. Verma
Patna Science College, India

[Closing Remarks]
16:45
T. Jitsuno
Steering Committee Co-Chair
ILE Osaka Univ., Japan
16:50
J. Shao
Organizing Committee Chair
SIOM Shanghai, China

XOPT <Room 313+314>

[XOPT11] 16:00-17:15
X-ray diagnostics
Chair: K. Tono
SPring-8/SACLA, Japan

XOPT11-1 16:00

Using high resolution LiF crystal X-ray detector for in situ characterization of XFEL beam intensity distribution and focusability

T. Pikuz[1-4], A. Faenov[2,3], T. Matsuoka[3], B. Albertazzi[4], N. Ozaki[1,4], N.Hartely[4], O. Muray Ricardo Arturo[1,4], T. Yabuuchi[6], H. Habara[4], S. Matsuyama[4], K. Yamauchi[4], Y. Inubushi[5], T. Togashi[5], H. Yumoto[5], Y. Tange[5], K. Tono[5], Y.Sato[4], M. Yabashi[5,6], M. Nishikino[7], T. Kawachi[7], A. Mitrofanov[2], D. Bleiner[8], A. Grum-Grzhimailo[9], N.N. Rosanov[10], N.V. Vysotina[10], M. Harmand[11], M. Koenig[4,12], K. A. Tanaka[1,4], T.Ishikawa[5,6], R.Kodama[1,3,4]
[1]Photon PioneersCenter, Osaka University, Japan, [2]Joint Institute for High Temperatures, Russian Academy of Sciences, Russia, [3]Institute for Academic Initiatives, Osaka University, Japan, [4]Graduate School of Engineering, Osaka University, Japan, [5]JASRI/SPring-8, Japan, [6]RIKEN Harima Institute, Japan, [7]Quantum Beam Science Center, Japan Atomic Energy Agency, Japan, [8]EMPA Materials Science and Technology, Switzerland, [9]Skobeltsyn Institute of Nuclear Physics, Lomonosov Moscow State University, Russia, [10]Vavilov State Optical Institute, Russia, [11]IMPMC, Université Pierre et Marie Curie, France, [12]LULI, École Polytechnique, France

XOPT11-2 16:15

Two-dimensional Coherence Measurements of FEL Radiation: the Heterodyne Speckle Approach

M. Manfredda[1,3], M.D. Alaimo[2,3], M. Potenza[3], M.Giglio[3]
[1]Elettra, Italy, [2]Politecnico di Milano, Italy, [3]Università degli studi di Milano, Italy

XOPT11-3 16:30

Wavefront Sensor based diagnostic of FERMI FEL photon beam

L. Raimondi[1], N. Mahne[1], M. Manfredda[1], C. Svetina[1,4], D. Cocco[2], F. Capotondi[1], E. Pedersoli[1], M. Kiskinova[1], and M. Zangrando[1,3]
[1]Elettra-Sincrotrone Trieste ScpA, Italy, [2]SLAC National Accelerator Laboratory, USA, [3]CNR – Consiglio Nazionale delle Ricerche Istituto Officina dei Materiali, Italy, [4]University of Trieste, Italy

XOPT11-4 16:45

Capturing ultrafast X-ray damage processes using an X-ray–X-ray pump–probe scheme

I. Inoue[1], Y. Inubushi[1,2], K. Tono[1,2], T. Hara[1], and M. Yabashi[1,2]
[1]RIKEN SPring-8 Center, Japan, [2]JASRI, Japan

XOPT11-5 17:00

First result of PSI/SACLA collaborative campaign on temporal diagnostics

P. N. Juranić[1], G. Ishkhan[1,2], C. Erny[1], R. Ischebeck[1], L. Patthey[1], C. Pradervand[1], C. Milne[1], H. Lemke[1], A. Dax[1], C. Hauri[1,2], S. Owada[3], T. Togashi[3], T. Katayama[3], and Makina Yabashi[3]
[1]Paul Scherrer Institut, Switzerland, [2]Ecole Polytechnique Federale de Lausanne, Switzerland, [3]RIKEN SPring-8 Center, Japan

[Closing] 17:15-17:20
XOPT Closing Remarks 17:15
T. Ishikawa
RIKEN SPring-8 Center

Poster Session <Exhibition Hall A>

Thursday, May 19

LSSEp5 10:30-12:00

Chair: Y. Takizawa
Computational Astrophysics Laboratory, RIKEN, Japan

LSSEp5-1

NMPC Tracking Guidance Strategy for Low Earth Orbit Based on the Laser Solutions

T. Jin, J. Cai
Institute of Microelectronics of Chinese Academy of Science, China

LSSEp5-2

Sodium Lidar Observations for Upper Atmospheric Research at Tromsø, Norway in Arctic

T. T. Tsuda[1], S. Nozawa[2], N. Saito[3], T. D. Kawahara[4], T. Kawabata[2], T. Takahashi[5], C. M. Hall[6], T. Tsukihana[3], S. Wada[3], S. Oyama[2], Y. Ogawa[7], K. Hosokawa[1]
[1]Dept. of Comm. Eng. and Informatics, Univ. Electro-Comm., Japan, [2]ISEE, Nagoya Univ., Japan, [3]RIKEN Center for Adv. Photonics, Japan, [4]Shinshu Univ., Japan, [5]SSRE, Univ. Electro-Comm., Japan, [6]The Arctic Univ. of Norway, Norway, [7]National Inst. of Polar Research, Japan

LSSEp5-3

Study on the data Matching of Ground-Based Radar and Laser Point Cloud

Q. Zhiwei[1,2], Y. Jianping[1], Y. Shun[1], X. Ying[1]
[1]Hohai Univ., Earth Sci. and Eng., China, [2]Henan Univ. Urban Construction, China

LSSEp5-4

Optimum Design and Experimental Verification of Bipod Flexures for a Remote Sensing Instrument Mirror

C. Y. Chan[1], B. K. Huang[2], Y. C. Chen[2], T. M. Huang[1]
[1]Inst. Tech. Res. Center, National Applied Res. Laboratories, Taiwan, [2]Dept. of Mechanical Eng., National Central University, Taiwan

LSSEp5-5

Stand-off Detection of Energetic Materials by Laser-Induced Breakdown Spectroscopy

Y. Ueda, K. Sugiyama, Y. Yanagida
Ammunition and Energetics Res. Section, Ballistics Res. Division, Grand Systems Res. Center, Acquisition, Tech. and Logistics Agency, Japan

LSSEp5-6

Standoff Measurement of Salt Deposition on Insulator Using Laser-induced Breakdown Spectroscopy

K. Motoki[1], T. Fujii[1,2], K. Yaji[2], S. Eto[2], E. Hotta[1]
[1]Tokyo Institute of Technology, Japan, [2]Central Res. Inst. of Electric Power, Japan

LSSEp5-7

Rapid Detection of Trace Elements Using Laser Breakdown Time-of-Flight Mass Spectrometry

A. Ikutomo[1], Y. Deguchi[1], S. Katsumori[1], T. Komatsubara[1], R. Liu[1,2], Z. Wang[2], J. Yan[2], J. Liu[2]
[1]Tokushima University, Japan, [2]Xi'an Jiaotong University, China

ALPSp14 13:00-15:00

ALPSp14-01

The Effects on the Microstructures and Photoluminescence Properties of the IGZO Films in Various Sputtering Angles

T-C Li, J.-F. Lin
National Cheng Kung Univ., Taiwan

ALPSp14-02

Mutual Influence of Silica Oxide and Calcium Oxide on Transparency of Cr^{4+}:YAG Ceramics

M. Chaika, O. Vovk, N. Dulina, A. Doroshenko, S. Parkhomenko, A. Tolmachev
Inst. for Single Crystals of National Academy of Sci. of Ukraine, Ukraine

ALPSp14-03

p-i-n Integrated Photonic Crystal Nanocavity Optical Functional Device

N. Ashikin B. Daud[1], Y. Ooka[2], T. Tanabe[3]
Faculty of Sci. and Tech., Keio Univ., Japan

ALPSp14-04

Ultrafast Plasmon Source Combined with a Dual-probe Scanning Near-filed Optical Microscopy for Ultrafast Spatiotemporal Nano-photonics

Y. Kojima, Y. Masaki, F. Kannari
Keio Univ., Japan

ALPSp14-05

Fabrication of Pr:ZBLAN Waveguides for Laser Using Refractive Index Change Induced by Ultra-fast Laser Pulses

T. Sato, Y. Yamanaka, and F. Kannari
Keio Univ., Japan

ALPSp14-06

Bismuth-Based Rational Harmonic Mode-Locked Short-Cavity Fiber Laser

Y. Fukuchi, T. Matsuura, A. Enda, H. Shirane, S. Takai
Tokyo Univ. of Sci., Japan

ALPSp14-07 *Withdraw*

ALPSp14-08

Optical Waveform Generation in a Figure-Eight SOA-Based Fiber Laser

L.-T. Gao, J.-Y. Wang, W.-H. Kuan, and K.-H. Lin
Univ. of Taipei, Taiwan

ALPSp14-09

Reflectivity of the Rotating Wedge Stimulated Brillouin Scattering Phase Conjugate Mirrors (SBS-PCMs) for High Power Laser

J. Oh, S. Cha, S. Park, and H. J. Kong
KAIST, Korea

ALPSp14-10

Development of a longitudinally excited CO_2 laser using fast high-voltage solid state switch

M. Tanaka[1], M. Tei[1], K. Uno[2], M. Tsuyama[1], H. Nakano[1]
[1]Kindai Univ., Japan, [2]Univ. of Yamanashi, Japan

ALPSp14-11

Pr^{3+}:YLF Visible Lasers Directly Pumped by InGaN Diode Lasers

K. Iijima, R. Kariyama, H. Tanaka, Y. Kiyota, F. Kannari
Keio Univ., Japan

ALPSp14-12

Analysis of fluorescence properties for exciting in Cr^{3+} $^4T_1$ level of Nd/Cr:YAG ceramics

T. Yamada[1], Y. Honda[2], S. Motokoshi[3], T. Jitsuno[2], J. Kawanaka[2], K. fujioka[2], M. Yoshida[1]
[1]Kinki Univ., Japan, [2]ILE Osaka Univ., Japan, [3]ILT, Japan

ALPSp14-13

Recyclable metal air cell using sintered Si pastes with reduced Si nanoparticles by pulse laser ablation in liquids

T. Saiki, K. Nakamura, S. Nakata, K. Nakamura, T. Uematsu, S. Masuda
Dept. of Electrical and Electronic Eng., Faculty of Eng. Sci., Kansai Univ., Japan

ALPSp14-14

Fabrication of Core Inductor Using Sintered Aluminum Nano-paste with Aluminum Nano-polycrystalline structure

T. Saiki, Y. Iida, S. Masuda
Dept. of Electrical and Electronic Eng. Faculty of Eng. Sci., Kansai Univ., Japan

ALPSp14-15

A monolithic 0.8 to 4.5 μm supercontinuum source with a low-loss fusion spliced joint between silica and fluoride fibers

K. Yin, B. Zhang, J. Yao, Z. Chen, S. Chen, and J. Hou
College of Optoelectronic Sci. and Eng., National Univ. of Defense Tech., China

ALPSp14-16

Influence of pulse delay time on material processing by double pulses of femtosecond lasers

T. Sugihara[1], S. Kubodera[1], M. Kaku[1], A. Yokotani[1], M. Katto[1,2]
[1]Grad. School of Eng., Univ. of Miyazaki, Japan, [2]CRCC, Univ. of Miyazaki, Japan

ALPSp14-17

Development of Self-Q-switched and Mode-locked Nd/Cr:YAG Ceramic Pulse Laser Using Cr^{4+}:YAG Crystal

S. KanemoriI, N. Hirota, T. Saiki
Dept. of Electrical and Electronic Eng. Faculty of Eng. Sci., Kansai Univ., Japan

ALPSp14-18

Nanoablation on Si Induced by Surface Plasmon Polaritons with an Intense Femtosecond Laser Pulse

M. Hagiya and G. Miyaji
Dept. of Applied Phys., Tokyo Univ. of Agriculture and Tech., Japan

Poster Session <Exhibition Hall A>

Thursday, May 19

ALPSp14 13:00-15:00

ALPSp14-19 *Withdraw*

ALPSp14-20

Characteristics of Laser Microphone using Self-coupling Effect of the Semiconductor Laser

D. Mizushima, N. Tsuda, and J. Yamada
Aichi Inst. of Tech., Japan

ALPSp14-21

Development of laser distance sensor by utilizing fluctuation of terminal voltage due to self-coupling effect

T. Yoshimatsu, K. Goshima, M. Aoki, N. Tsuda , and J. Yamada
Aichi Inst. of Tech., Japan

ALPSp14-22

Study on Simultaneous Measurement of Thickness and Speed of Object using Semiconductor Laser

T. Michihiro, N. Tsuda, and J. Yamada
Aichi Inst. of Tech., Japan

ALPSp14-23 *Withdraw*

ALPSp14-24

High power narrow-linewidth linearly-polarized 1610 nm Er:Yb all-fiber MOPA

E. Fujita, Y. Mashiko, and M. Tokurakawa
Inst. for Laser Sci., Univ. of Electro-Comm., Japan

ALPSp14-25 *Withdraw*

ALPSp14-26

Repetition-rate-tunable Yb-doped Fiber Chirped Pulse Amplifier Toward Waveguide Direct Writing in Transparent Materials

H. Tanaka, K. Hirosawa, F. Kannari
Dept. of Electronics and Electrical Eng., Keio Univ., Japan

ALPSp14-27

Electron Acceleration by Laser Driven Beat Wave Excited by Cross-Focused q-Gaussian Laser Beams in Thermal Quantum Plasma with Nonlinear Absorption

N. Gupta and A. Singh
National Inst. of Tech. Jalandhar, India

ALPSp14-28

Photon-stimulated desorption surface spectroscopy of polymers by VUV emissions from a laser-produced plasma

M. Kaku[1], M. Katto[1], W. Sasaki[2], S. Kubodera[1]
[1]Dept. of Electrical and Systems Eng. Univ. of Miyazaki, Japan, [2]NTP Inc., Japan

ALPSp14-29

High-efficient, high-pulse-energy Cr:ZnSe master oscillator power amplifier pumped with Tm:YAG laser

M. Yumoto, N. Saito, and S. Wada
Photonics control tech. team, RIKEN, Japan

ALPSp14-30

Nonlinear Dynamics in Radially Polarized Laser Beam with Pump Modulation

C.-P. Chiu, X.-W. Jiang, K.-C. Chang, and M.-D. Wei
Dept. of Photonics, National Cheng Kung Univ., Taiwan

ALPSp14-31

High efficient MLD-THz-TDS with super focusing effects and laser chaos

Y. Akamine[1], K. Iwao[1], M. Oi[1], S. Goda[1], T. Shirasaki[1], N. Sakaue[1], T. Kishibata[1], F. Kuwashim[1], M. Tani[2], K. Yamamoto[2], K. Kurihara[3], K. Ngashima[4], M. Nakashima[5], M. Hangyo[5]
[1]Fukui Univ. of Tech., Japan, [2]Res. Center for Development of Far-Infrared Region, Japan, [3]Faculty of Education and Regional Studies, Univ. of Fukui, Japan, [4]Setsunan Univ., Japan, [5]ILE Osaka Univ., Japan

ALPSp14-32

All-waveguide Talbot Cavity Laser with Intra-cavity Second Harmonic Generation

K. Hirosawa[1], F. Shohda[1], T. Yanagisawa[1], and F. Kannari[2]
[1]Mitsubishi Electric Co., Japan, [2]Keio Univ., Japan

ALPSp14-33

Challenge to Excitation of the Low Frequency Collective Vibrational Mode in Proteins by using Intense Coherent Terahertz-Waves

T. Notake, K. Nawata, Y. Takida, Y. Tokizane, Z. Han, M. Koyama and H. Minamide
RIKEN, Japan

ALPSp14-34

Study on Parametric Gain of Nonlinear Wavelength Conversion in a $LiNbO_3$

S. Hayashi[1,2], K. Nawata[1], H. Ishizuki[3], K. Murate[2], K. Imayama[2], Y. Takida[1], Y. Tokizane[1], T. Taira[3], K. Kawase[2,1], and H. Minamide[1]
[1]RIKEN Center for Adv. Photonics, Japan, [2]Nagoya Univ., Japan, [3]Inst. for Molecular Sci., Japan

ALPSp14-35

Generation of tunable sub-THz wave from DAST-DFG by multi-wavelength pump beam

T. Y. Tokizane, K. Nawata, Z. Han, M. Koyama, T. Notakake, Y. Takida and H. Minamide
RIKEN, Japan

ALPSp14-36

Control of Two-photon Excited Fluorescence and Photobleaching with Two-dimensional LCOS-SLM

N. Kamiyama, S. Maesako, K. Toda, and A. Suda
Tokyo Univ. Sci., Japan

ALPSp14-37

Hollow optical-fiber probe for analysis of CO_2 gas

T. Iida[1], T. Katagiri[2], Y. Matsuura[1]
[1]Grad. School of Biomedical Eng., Tohoku Univ., Japan, [2]Grad. School of Eng., Tohoku Univ., Japan

ALPSp14-38

Breath analysis by ultraviolet gas spectroscopy using hollow-optical fiber as gas cell

T. Iwata[1], T. Katagiri[2], Y. Matsuura[1]
[1]Grad. School of Biomedical Eng., Tohoku Univ., Japan, [2]Grad. School of Eng., Tohoku Univ., Japan

ALPSp14-39

Spectroscopic gas analysis using hollow-optical fiber gas cell and infrared quantum cascade laser

K. Yaegashi[2], T. Katagiri[1], Y. Matsuura[2]
[1]Grad. School of Eng., Tohoku Univ., Japan, [2]Grad. School of Biomedical Eng., Tohoku Univ., Japan

ALPSp14-40

Ultrahigh speed time-domain en face optical coherence tomography using KTN optical beam deflector

Y. Shinya[1], T. Imai[2], S. Toyoda[2], J. Kobayashi[2], T. Sakamoto[2], and M. Ohmi[1]
[1]Osaka Univ., Japan, [2]NTT Co., Japan

ALPSp14-41

Three dimensional imaging of diseased rat lung and liver using ultrahigh resolution optical coherence tomography

M. Nanbu[1], Y. Ando[1], H. Kawagoe[1], M. Yamanaka[1], M. Matsushima[2], K. Mori[3], T. Kawabe[2], H. Shoji[4], and N. Nishizawa[1]
[1]Dept. Quantum Eng., Nagoya Univ., Japan, [2]Grad. School of Medicine, Nagoya Univ., Japan, [3]Grad. School of Information Sci., Nagoya Univ., Japan, [4]Dept. Medicine, Kyoto Prefectural Univ. of Medicine, Japan

ALPSp14-42

Engineering the Photonic Band Gap for Simultaneous Multi-parametric Sensing

R. Mudachathi[1], T. Tanaka[1-3], M. M. Varma[4,5]
[1]RIKEN Metamaterials Lab., Japan, [2]RIES, Hokkaido Univ., Japan, [3]Interdisciplinary Grad. School of Sci. and Eng., Tokyo inst. of Tech., Japan, [4]Center for Nano Sci. and Eng. Indian. [5]Inst. of Sci. Bangalore, India Dept. of ECE, Indian Inst. of Sci., India

ALPSp14-43

Monitoring Microsecond Conformational Dynamics of Biomolecules Based on Realtime Detection of Fluorescence Photon Sequence

K. Kitabayashi[1,2], T. Kamimura[2], N. Hamada[1], R. Nakamura[1]
[1]Osaka Univ., Japan, [2]Osaka Inst. Tech., Japan

ALPSp14-44

High-power supercontinuum generation using 182-MHz soliton-similariton mode-locked fiber laser for ultrahigh-resolution optical coherence tomography in 1600 nm spectral band

M. Yamanaka, H. Kawagoe, and N. Nishizawa
Nagoya Univ., Japan

Poster Session <Exhibition Hall A>

Thursday, May 19

ALPSp14 13:00-15:00

ALPSp14-45

Frequency Comb Source Using a Bismuth-Based Actively Mode-Locked Laser

Y. Fukuchi, T. Matsuura, S. Takai, A. Enda, M. Yamamoto, H. Shirane
Tokyo Univ. of Sci., Japan

ALPSp14-46

Experiment on Optical Phase Locking of Two Longitudinal Modes of a Dual-Mode Microchip Laser for Millimeter-Wave Signal Generation

M. Hyodo[1], K. Sato[1], A. Kawakami[2], S. Saito[2], M.Watanabe[3], and M. Adachi[1]
[1]Faculty of Mechanical Eng., Kanazawa Univ., Japan, [2]Adv. ICT Res. Inst. National Inst. of Information and Comm. Tech., Japan, [3]Dept. of Eng. Sci., Univ. Electro-Comm., Japan

ALPSp14-47

High-Precision Spectroscopy of Molecular Iodine Using an Ultra-Compact Laser at 561 nm

K. Yoshii[1,2], Y. Hisai[1], and F.-Lei Hong[1,2]
[1]Dep. Physics, YNU, Japan, [2]JST-ERATO, Japan

ALPSp14-48

All polarization-maintaining, fiber laser-based optical frequency comb using single wall carbon nanotube

M. Togashi[1], G. Park[1], T. Nagaike[1], L. Jin[1], Y. Sakakibara[2], E. Omoda[2], H. Kataura[2], N. Nishizawa[1]
[1]Nagoya Univ., Japan, [2]AIST, Japan

ALPSp14-49

Light generation enhancement by double resonance in metal-insulator-metal structure

Soon-Hong Kwon
Dept.of Physics, Chung-Ang University, Korea

SLPCp9 13:30-15:00

Chair: T. Shinonaga
Okayama Univ., Japan

SLPCp9-1

Effective Shielding Gas Supplying Method of Wide Area in Vertical-position Laser Welding of Pure Titanium

K. Yokohara[1], Y. Okamoto[1], A. Okada[1], H. Ochiai[2], R. Kimura[2], S. Ono[2], M. Akase[2]
[1]Graduate school of Natural Science and Technology, Okayama Univ., Japan, [2]Mitsui Engineering & Shipbuilding Co., Ltd., Japan

SLPCp9-2

Laser Drilling Assisted by a Coaxial Discharged Plasma Torch

J. C. Hsu[1], Y. R. Jheng[1], C. C. Ho[1,2], Y. J. Chang[1], C. L. Kuo[1]
[1]Department of Mechanical Engineering, National Yunlin Univ. of Science and Technology, Taiwan, [2]Department of Mechanical Engineering, National Taipei Univ. of Technology, Taiwan

SLPCp9-3

Polymeric Materials Drilling by Longitudinally Excited CO_2 laser

K. Uno[1], M. Kato[1], T. Akitsu[1], T. Jitsuno[2]
[1]Univ. of Yamanashi, Japan, [2]Institute of Laser Engineering, Osaka Univ., Japan

SLPCp9-5

The Investigation of Aging in Writing Inks Using Raman Spectroscopy

K. O Gorshkova, L. A Mund, I. I. Tumkin, V. A. Kochemirovsky
Saint-Petersburg Univ., Russia

SLPCp9-6

Sintering of Silver Nanoparticle Inks on a Polymer Substrate Using a Laser with Different Polarizations

C. W. Cheng[1], W. C. Chang[1], Y. H. Chen[2]
[1]National Chiao Tung Univ., Taiwan, [2]Industrial Technology Research Institute, Taiwan

SLPCp9-7

Picosecond Laser Texturing of Multi-crystalline Silicon Wafer for Solar Cells

S. H. Ha, H. S. Kim, J. H. Kim, S. J. Park
Department of Chemical & Biological Engineering, Gachon Univ., South Korea

SLPCp9-8

Diffusion Behaviour of Nitrogen Doping in 4H-SiC by Laser Ablation of a SiNx Film on the 4H-SiC Substrate

R. Kojima, H. Ikenoue, A. Suwa, A. Ikeda, D. Nakamura, T. Asano, T. Okada
Graduate School of Information Science and Electrical Engineering, Kyushu Univ., Japan

SLPCp9-9

UV Laser-assisted Micro-porous Patterning on the Polyimide Surface

J. Y. Oh[1], S. Z. Lee[1], K. H. Oh[1], M. S. Kang[2], Y. W. Ma[2], B. S. Shin[1]
[1]Laser Advanced System Industrialization Center, Jeonnam Technopark, South Korea, [2]Department of Cogno-mechatronics Engineering, Pusan National Univ., South Korea

SLPCp9-10

A Laser-based Method for Facile Fabrication of High-quality Carbonized Polyimide Film with a Chamber

Y. W. Ma[1], J. H. Park[2], H. Kim[2], D. Yun[3], B. S. Shin[1,2,3]
[1]Engineering Research Center for Net Shape and Die Manufacturing (ERC/NSDM), Pusan National Univ., Korea, [2]Department of Cogno-Mechatronics Engineering, Pusan National Univ., Korea, [3]Department of Optics and Mechatronics Engineering, Pusan National Univ., Korea

SLPCp9-13

Single Line Multi-layered Metal Microstructures Fabricated by Selective Laser Melting

C. W. Cheng[1], S. Y. Wu[1], Y. W. Liu[1], M. C. Tsai[2]
[1]National Chiao Tung Univ., Taiwan, [2]National Cheng Kung Univ., Taiwan

SLPCp9-14

Properties of Cobalt Base Alloy Coating by Laser Cladding with Center Nozzle Powder Feeding

K. Asano[1], D. Tanigawa[1], N. Abe[2], M. Tsukamoto[2]
[1]Graduate School of Engineering, Osaka Univ., Japan, [2]Joining and Welding Research Institute, Osaka Univ., Japan

SLPCp9-15

Pulsed Laser Irradiation Used to Change in Electrical Conductivity of Indium Gallium Zinc Oxide Thin Films

Y. Ogawa[1], T. Sameshima[1], M. Hasumi[1], Y. Ando[2], S. Kishida[2], Y. Setoguchi[2]
[1]Tokyo Univ. of Agriculture and Technology, Japan, [2]Nissin Electric Co., Ltd., Japan

SLPCp9-16

Accuracy Improvement of Microparts Bending by Femtosecond Laser Peen Forming

Y. Sagisaka, K. Yamashita, H. Ueta
Hamamatsu Technical Support Center, Industrial Research Institute of Shizuoka Prefecture, Japan

SLPCp9-17

Effect of Water Flow Layer for Plasma Confinement on Laser Peening

N. Ehara[1], D Nishikawa[1], I Kitawaki[1], M. Heya[2], M. Tsuyama[1], H. Nakano[1]
[1]Faculty of Science and Engineering, Kindai Univ., Japan, [2]Faculty of Engineering, Osaka Sangyo Univ., Japan

Poster Session <Exhibition Hall A>

Thursday, May 19

SLPCp9 13:30-15:00

SLPCp9-19

Fundamental Study on Separation Method of Gallium Nitride with Internal Modified Layer by Ultrashort Pulsed Laser

M. Ota, Y. Okamoto, T. Shinonaga, A. Okada
Graduate School of Natural Science and Technology, Okayama Univ., Japan

SLPCp9-20

Insulation Characteristics and Visibility of Transparent Conductive Film Containing Silver Nanowires by Nanosecond Pulsed Laser

M. Oshita[1], N. Nishi[2], Y. Okamoto[1], T. Shinonaga[1], A. Okada[1]
[1]Graduate School of Natural Science and Technology, Okayama Univ., Japan, [2]Kataoka Corp., Japan

SLPCp9-22

Cu-based Micropatterning Using Femtosecond Laser Reduction of Copper Nitrate in a Polymer

Y. Kondo, M. Mizoshiri, J. Sakurai, S. Hata
Department of Micro-Nano Systems Engineering, Graduate School of Engineering, Nagoya Univ., Japan

SLPCp9-23

Laser Micromachining of PEDOT:PSS / Graphene Thin Films by Using Beam Shaping Technology

S. F. Tseng[1], W. T. Hsiao[1], C. K. Chung[1], D. Chiang[1], J. A. Yeh[2,3]
[1]Instrument Technology Research Center, National Applied Research Laboratories, Taiwan, [2]Institute of Nanoengineering and Microsystems, National Tsing Hua Univ., Taiwan, [3]Department of Power Mechanical Engineering, National Tsing Hua Univ., Taiwan

SLPCp9-24

Properties of AgNW-ITO Hybrid Transparent Conductive Films Ablation Using Nanosecond Laser Pulses

W. T. Hsiao[1], C. C. Yang[1], S. F. Tseng[1], C. K. Chung[1], K. C. Huang[1], K. Lin[2], M. F. Chen[3]
[1]Instrument Technology Research Center, National Applied Research Laboratories, Taiwan, R.O.C., Taiwan, [2]Department of Mechanical Engineering, Southern Taiwan University of Science and Technology, Taiwan, R.O.C., Taiwan, [3]Department of Mechatronics Engineering, National Changhua Univ. of Education, Taiwan, R.O.C., Taiwan

SLPCp9-27

Shape Evaluation of Microgrooves Fabricated with Laser-induced Etching Using the Optical Analysis

K. H. Oh[1], S. Z. Lee[1], S. H. Jeong[2]
[1]Laser Center, Jeonnam Technopark, Stiftung, Republic of Korea, [2]Department of Mechatronics, Gwangju Institute of Science and Technology, Republic of Korea

SLPCp9-28

Optical Emission Spectroscopy and Pulsed Laser Deposition of Amorphous Carbon Films in Air and Oxygen

C. H. Nee, S. S. Yap, T. Y. Tou
Multimedia Univ., Malaysia

LEDp4 15:30-17:00

Oxides & Electrodes

LEDp4-1

Enhanced Optoelectronic Properties on Ga-doped ZnO Thin Film by Intermittent Process

K.-T. Wang[1], Y.-S. Lin[1], and K.-M. Chang[2]
[1]I-Shou Univ., Taiwan, [2]Chiao Tung Univ., Taiwan

LEDp4-2

Study of Al-doped ZnO Layer Deposited on Flexible Substrate by Optimum Thermal Treatment on Buffer Layer

H.-J. Guo and Y.-S. Lin
I-Shou Univ., Taiwan

LEDp4-3

An Ni/Ga-Doped ZnO Electrode Deposited on *p*-GaN Layer using RF Magnetron Sputtering for UV-LEDs

S. Joeng[1], G.-J. Yohn[1], N.-W. Kang[1], D. Kim[1], S.-C. Shin[1], and K.-K. Kim[1,2]
[1]Dept. of Advanced convergence Tech., and Research Inst. of advanced Convergence Tech., Korea Polytechnic Univ., Korea, [2]Dept. of Nano Optical Eng., Korea Polytechnic Univ., Korea

LEDp4-4

Study of Thermal Annealing Treatment on AZO/Au-NPs/AZO Transparent Conductive Electrode

Y.-R. Wang and Y.-S. Lin
I-Shou Univ., Taiwan

LEDp4-5

Optical Properties of ZnO Films Dispersed with Ag Nanocrystals Fabricated by Molecular Precursor Method

D. Taka[1], T. Onuma[1], T. Shibukawa[1], H. Nagai[1], T. Yamaguchi[1], J.-S. Jang[2], M. Sato[1], and T. Honda[1]
[1]Kogakuin Univ., Japan, [2]Yeungnam Univ., Korea

LEDp4-6

Low Cost ZnO Wide Bandgap Semiconductors for Optoelectronic Devices

A. H. Ramelan and S. Wahyuningsih
Sebelas Maret Univ., Indonesia

LEDp4-7

Strain Relaxation of ZnO Grown on Various Silicon Substrates

J.-D. Lai[1], Y.-S. You[1], S.-W. Feng[1], C.-H. Chen[2], and L.-W. Tu[3]
[1]National Univ. of Kaohsiung, Taiwan, [2]Industrial Technology Research Inst., Taiwan, [3]National Sun Yat-Sen Univ., Taiwan

LEDp4-8

Ag-based Reflective Electrode of High Reliability using ITO Nano Particle and Ni Alloy for High Efficiency LEDs

J.-S. Kwon[1], J.-Y. Beak[1], N.-W. Kang[1], S.-H. Kang[1], S.-C. Shin[1], and K.-K. Kim[1,2]
[1]Dept. of Advanced Convergence Tech., and Research Inst. of Advanced Convergence Tech., Korea Polytechnic Univ., Korea, [2]Dept. of Nano Optical Eng., Korea Polytechnic Univ., Korea

Poster Session <Exhibition Hall A>

Thursday, May 19

LEDp4 15:30-17:00

LEDp4-9

Enhanced Output Power on GaN-based Light-Emitting Diodes by Annealing the ITO Transparent Conducting Layer

Y.-S. Lin[1], C.-L. Liu[1], K.-Y. Lin[1], C.-N. Li[2], C.-L. Tseng[2], C.-H. Shen[2]
[1]I-Shou Univ., Taiwan, [2]EPISTAR Corp., Taiwan

LEDp4-10

Wide Bandgap Transparent Electrode of FTO/Ag/FTO Multilayer Structure for UV-LEDs

G.-J. Yohn[1], J. Jeong[1], J.-S. Kwon[1], D. Kim[1], S. Jeong[1], and K.-K. Kim[1,2]
[1]Dept. of Advanced convergence Tech., and Research Inst. of advanced Convergence Tech., Korea Polytechnic Univ., Korea, [2]Dept. of Nano Optical Eng., Korea Polytechnic Univ., Korea

LEDp4-11

ITO/Ga_2O_3 Multilayer Electrodes Towards Deep UV-LEDs

N. Kuwabara[1], T. Yasuda[1], S. Katsuno[1], N. Koide[1], T. Takeuchi[1], M. Iwaya[1], S. Kamiyama[1], and I. Akasaki[1,2]
[1]Meijo Univ., Japan, [2]Akasaki Research Center, Nagoya Univ., Japan

Nanostructures

LEDp4-12

The Influence on Peak Emission Intensity Ratio between Free-Exciton Recombination and Deep Defect Recombination of ZnO Morphology Evolution from Nanorods to Nanotubes

W.-H. Tsai and S.-S. Lo
Feng-Chia Univ., Taiwan,

LEDp4-13

The Effect of ZnO Seed Layer Prepared by Sputtering and Hydrothermal Method for Light Extraction Structure using ZnO Nanorods

S.-H. Kang[1], H. Cho[1], G.-J. Yohn[1], J.-S. Kwon[1], S. Kim[1], and K.-K. Kim[1,2]
[1]Dept. of Advanced convergence Tech., and Research Inst. of advanced Convergence Tech., Korea Polytechnic Univ., Korea, [2]Dept. of Nano Optical Eng., Korea Polytechnic Univ., Korea

LEDp4-14

Etching to Lead the Uniform Distribution of CuO Nano-Wires on the Surface of ZnO Seed Layers

Y.- C. Chang and Y.-S. Lin
I-Shou Univ., Taiwan

LEDp4-15

Microtube Light-Emitting Diode Arrays with Metal Cores

Y. Tchoe[1], C.-H. Lee[2], J. Park[1], H. Baek[1], K. Chung[1], J. Jo[3], M. Kim[3], and G.-C. Yi[1]
[1]Dept. of Physics and Astronomy, Inst. of Applied Physics, and Research Inst. of Advanced Materials, Seoul National Univ., Korea, [2]Dept. of Nano-Bio-Information-Technology, KU-KIST Grad. School of Converging Sci. and Tech., Korea Univ., Korea, [3]Dept. of Material Sci. and Eng. and Research Inst. of Advanced Materials, Seoul National Univ., Korea

LEDp4-16

Monitoring Thicknesses and Aggregation of Thin Layers during Fabrication of Plasmonic Devices using White LEDs

K. Murai[1], C. Heck[1], S. Mochizuki[1], K. Hattori[2], M. Shiraishi[2], T. Nakashio[2], Y. Oshikane[2], and M. Nakano[2]
[1]AIST, Japan, [2]Osaka Univ., Japan

Bulk & Epitaxy

LEDp4-17

Transparent GaN Crystals Grown by Na-Flux Method with High Temperature

M. Hayashi, T. Sato, S. Ogawa, M. Imanishi, K. Murakami, M. Maruyama, M. Imade, M. Yoshimura, and Y. Mori
Osaka Univ., Japan

LEDp4-18 *Withdraw*

LEDp4-19

Origin of Green Band in Photoluminescence Spectra of Heavily Doped $Al_xGa_{1-x}N$:Si Layers

I. Osinnykh[1,3], T. Malin[1], V. Plyusnin[2,3], A. Suranov[1], A. Gilinsky[1], and K. Zhuravlev[1,3]
[1]Rzhanov Inst. of Semiconductor Physics of the Siberian Branch of the Russian Academy of Sciences, Russia, [2]Voevodsky Inst. of Chemical Kinetics and Combustion of the Siberian Branch of the Russian Academy of Sciences, Russia, [3]Novosibirsk State Univ., Russia

LEDp4-20

Mist CVD Growth of In_2O_3 Films on (0001) α-Al_2O_3 Substrates and (0001)GaN Templates

T. Kobayashi[1], K. Tanuma[1], T. Yamaguchi[1,2], T. Onuma[1,2], and T. Honda[1,2]
[1]Electrical Eng. and Electronics, Grad. School of Eng., Kogakuin Univ., Japan, [2]Dept. of Applied Physics, Kogakuin University, Japan

LEDs

LEDp4-21

Enhanced Light Efficiency of GaN-based High Voltage LEDs Fabricated by Muti-Chip Array with Double Electrode

N.-W. Kang[1], S.-H. Kang[1], S. Jeong[1], H. Cho[1], S. Kim[1], and K.-K. Kim[1,2]
[1]Dept. of Advanced convergence Tech., and Research Inst. of advanced Convergence Tech., Korea Polytechnic Univ., Korea, [2]Dept. of Nano Optical Eng., Korea Polytechnic Univ., Korea

LEDp4-22

Enhanced Optoelectronic Properties on the High-Voltage Light-Emitting Diode by Reducing the Stacking Fault Density of GaN Surface

Y.-S. Lin[1], C.-L. Liu[1], S.-Y. Hsiao[2], C.-L. Tseng[2], C.-H. Shen [2]
[1]I-Shou Univ., Taiwan, [2]EPISTAR Corp., Taiwan

LEDp4-23

Mitigation of Quantum-Confined Stark Effect by Enlarging Post-Duty Cycle of Patterned-Sapphire Substrates

H.-A. Liu[1], V.-C. Su[1], P.-H. Chen[1,2], Y.-P. Chen[1], Y.-H. You[1,2], H.-S. Wu[1], and C.-H. Kuan[1]
[1]National Taiwan Univ., Taiwan, [2]Kingwave Corp., Taiwan

LEDp4-24

Improved Internal-Quantum Efficiency of GaN-Based Light-Emitting Diodes by Patterned-Sapphire Substrates with Larger Post-Duty Cycles

H.-S. Wu[1], V.-C. Su[1], P.-H. Chen[1,2], Y.-P. Chen[1], Y.-H. You[1,2], H.-A. Liu[1], and C.-H. Kuan[1]
[1]National Taiwan Univ., Taiwan, [2]Kingwave Corp., Taiwan

LEDp4-25

Patterned-Sapphire Substrates-Based Stress-Induced Bandgap Widening of GaN-Based Light-Emitting Diodes

Y.-C. Liu[1], V.-C. Su[1], Y.-P. Chen[1], P.-H. Chen[1,2], Y.-H. You[1,2], H.-S. Wu[1], H.-A. Liu[1], and C.-H. Kuan[1]
[1]National Taiwan Univ., Taiwan, [2]Kingwave Corp., Taiwan

LEDp4-26

Temperature Dependence of the Nitride-based HFET Structure Photosensors

S. Ushida[1], A. Yoshikawa[1,3], M. Iwaya[1], T. Takeuchi[1], S. Kamiyama[1], and I. Akasaki[1,2]
[1]Meijo Univ., Japan, [2]Akasaki Research Center, Nagoya Univ., Japan, [3]Asahi-Kasei, Japan

Novel Materials

LEDp4-27

Effects of Dwell Durations and Inter-Dot Spacings on Deposited Nano-Silver Droplets on Glass Substrates

C. Y. Chan[1], K. C. Shih[1], and T. M. Huang[2]
[1]Instrument Technology Research Center, National Applied Research Laboratories, Taiwan, [2]Kingley Rubber Industrial Co., Ltd., Taiwan

LEDp4-28

Photophysical and Electroluminescence Properties of Polyfluorene Derivatives

D. J. Liaw[1], Q. Zhang[1], S. H. Tan[2], Z. W. Tan[2], Y. H. Hii[2], Y. L. Wong[2], K. S. Cheah[2], C. H. Nee[2], and S. S. Yap[2]
[1]National Taiwan Univ. of Sci. and Tech., Taiwan, [2]Multimedia Univ., Malaysia

LEDp4-29

Band-Engineering of the TiO_2 Wide Bandgap Semiconductor Using Organic Chromophore Dye

S. Wahyuningsih[1] and A. H. Ramelan[2]
[1]Inorganic Material Research Group, Sebelas Maret Univ., Indonesia, [2]Electronic Materials and Energy Research Group, Sebelas Maret Univ., Indonesia

Poster Session <Exhibition Hall A>

Thursday, May 19

LEDp4 15:30-17:00

Industrial Appications

LEDp4-30

High Power Blue Laser Based Ceramic Phosphor for Automotive Application

E. K. Ji[1], Y. H. Song[2], C. W. Lee[2], and D. H. Yoon[1,2]
[1]SAINT, Sungkyunkwan Univ., Korea, [2]School of Advanced Materials Sci. & Eng., Sungkyunkwan Univ., Korea

LEDp4-31

Optimization of Local Illumination in Indoor Visible Light Communication Based on Simulated Annealing Hybrid Genetic Algorithm

M. Gao, T. Lan, X. Chen, and G. Ni
Beijing Inst. of Tech., China

LEDp4-32

LED Reliability Test Method Based on Precise Real-Time Junction Temperature Monitoring

B. Ma and K. Lee
Korea Electronics Technology Inst., Korea

LEDp4-33

Ambient-Light Influenced Photometric Properties of a Curved AMOLED Display by Directional Imaging Luminance Measurements

T.-Y. Chung and S.-W. Hsu
Industrial Technology Research Inst., Taiwan

Poster Session <Exhibition Hall A>

Friday, May 20

PLD7 9:00-10:15

PLDp7-1

Improvement of resist stripping efficiency without causing laser-induced surface damage

K. Nuno, Y.Kuroki, S. Takagi[1], T. Yamashiro, S. Tuzimoto, R. Nakamura[2], T. Nishiyama[1], T. Kamimura, H. Horibe[1]
Osaka Institute of Technology, Japan, [1]Osaka City Univ., Japan, [2]Osaka Univ., Japan

PLDp7-2

Laser beam holographic patterning for thin film epitaxial growth monitoring with rheed for using as mev laser compound nuclear cavity material

M. M. Anwar
Asiatic Society of Bangladesh, Bangladesh

PLDp7-3

Effect of laser beam parameters on melt mobilization and LIBS analysis of a special Aluminum Alloy containing Zeolite

O. M. Khalil, A. Nakimana[1]
Cairo Univ., Egypt, [1]Changchun Univ., China

PLDp7-4

Ultrashort pulse laser slicing of semiconductor crystal

E. Kim, Y. Shimotsuma, M. Sakakura, K. Miura
Kyoto Univ., Japan

PLDp7-5

Synthesis of fluorescent nanocarbons by femtosecond laser induced plasma in liquid

N. Agatsuma, Y. Fujimatsu, Y. Shimotsuma, M. Sakakura, K. Miura
Kyoto Univ., Japan

PLDp7-6

Mitigation of BSG damage caused by upstream flaw in the final optics assembly

Z. Jiao, M. Sun, D. Zhao, J. Zhu
Shanghai Inst. of Opt. Fine Mech., China

PLDp7-7

Design and fabrication of random antireflective nanostructures on fused silica in the ultraviolet

W.Zhang, J.Zhao, H.Wang, F.Tu, X.Liu, M. Zhu
Shanghai Inst. of Opt. Fine Mech., China

PLDp7-8

Damage analysis of CMOS electro-optical imaging system by a continuous wave laser

S. Yoon, K. Y. Jhang, W. S. Shin[1]
Hanyang Univ., Korea, [1]Agency for Defense Development, Korea

PLDp7-9

Study on the data matching of Ground-based Radar and laser point cloud

Z. Qiu, C. Wang
Hohai Univ, China

PLDp7-10

Substrate material dependence of the thin film stress and its control

H. Omatsu, M. Akimoto, T. Murakami, S. Tujimoto, T. Yasasiro, R. Nakamura[1], T. Kamimura
Osaka Institute of Technology, Japan, [1]Osaka University, Japan

BISC6 10:30-12:00

Chair: Y. Awatsuji
Kyoto Inst. Tech., Japan

BISCp6-1

Unstained Biological Cell Imaging Using a Phase-Contrast Scanning Optical Microscope with Annular illumination

Y. Miyake[1], M. Hisaka[2], T. Ikuta[3]
[1]Graduate School of Biomed. Eng., Osaka Electro-Communication Univ., Japan, [2]Dept. of Biomed. Eng., Osaka Electro-Communication Univ., Japan, [3]Dept. of Elect. and Electron. Eng., Osaka Electro-Communication Univ., Japan

BISCp6-2

Non-scanning *in-vivo* Three-dimensional Structured Illumination Microscopy

C.Y. Lin[1,2], W.-H. Lin[2,3], J.-H. Chien[2], Y. Luo[2,4]
[1]Dept. of Electr. Eng. and Graduate Institute of Photonics and Optoelectronics, National Taiwan Univ., Taiwan ROC, [2]Institue of Medical Device and Imaging, National Taiwan Univ., Taiwan R.O.C, [3]School of Medicine, National Taiwan University, Taiwan R.O.C, [4]Molecular Imaging Center, National Taiwan Univ., Taiwan

BISCp6-3

Real-time Phase Analysis by Differential Interference Contrast Microscope Using Pixelated Polarization Camera

S. Shibata[1], H. Ishiwata[2], Y. Otani[1], T. Yatagai[1]
[1]Utsunomiya Univ., Japan, [2]Olympus Corp., Japan

BISCp6-4

Object Recovery from Diffused Light

Vinu R. V, R.K. Singh
Department of Physics, Indian Institute of Space Science and Technology (IIST), India

BISCp6-5

Interference of Coherence Waves

R.K. Singh[1], S. Vyas[2], Y. Miyamoto[2]
[1]Department of Physics, Indian Institute of Space Science and Technology (IIST), India, [2]Department of Engineering Sciences, The Univ. of Electro-Communications, Japan.

BISCp6-6

Measuring Temporal Fluctuations of Optical Field Scattered from Cell-aggregate by Heterodyne Mach-Zehnder Interferometer

S. Wang[1,2], H. Yamada[1], T. Yamauchi[1], K. Goto[1], Y. Ueda[1], H. Zhang[2]
[1]Hamamatsu Photonics K.K., Japan, [2]State Key Laboratory of Modern Optical Instrumentation, Zhejiang Univ., China

BISCp6-7

Phase Sensitive CT Measurement Using a Pixelated Polarizing Shearing Interferometer

D. I. Serrano-Garcia[1], Y. Otani[1,2]
[1]Center of Optical Research and Education, Utsunomiya Univ., Japan, [2]Department of Optical Engineering, Utsunomiya Univ., Japan

Poster Session <Exhibition Hall A>

Friday, May 20

BISC6 10:30-12:00

BISCp6-8

Holographic Fluorescence Mapping Using Space-division Matching

R. Abe[1], M. Iwanaga[2], H. Miyakawa[3], Y. Hayasaki[1]
[1]Center for Optical Research & Education (CORE), Utsunomiya Univ., Japan, [2]Faculty of Agriculture, Utsunomiya Univ., Japan, [3]Center for Bioscience Research and Education (CBRE), Utsunomiya Univ., Japan

BISCp6-9

Algorithm for Removing the Limitation of Intensity Ratio in Four-step Dual-wavelength Digital Holography Based on Phase-division Multiplexing

T. Tahara[1], K. Omae[1], R. Otani[2], Y. Arai[1], Y. Takaki[3]
[1]Faculty of Engineering Science, Kansai University, Japan, [2]Sigmakoki Co., Ltd., Japan, [3]Institute of Engineering, Tokyo Univ. of Agriculture and Technology, Japan

BISCp6-10

Color Digital Holographic Microscopy Using Speckle Illuminations for Removing Twin Image

H. Funamizu, T. Q. Chen, Y. Aizu
Division of Mechanical Systems and Materials Engineering, Muroran Institute of Technology, Japan

BISCp6-11

Magnification and Wavelet Processing in Digital Inline Holographic Microscopy

J.C. Aguilar[1], M. Misawa[1], K. Matsuda[1], L. R. Berriel-Valdos[2]
[1]Human Technology Research Institute, AIST, Japan, [2]Instituto Nacional de Astrofísica, Óptica y Electrónica, México

BISCp6-12

Phase Measurement by Parallel Phase-Shifting Digital Holographic Microscopy

T. Fukuda[1], P. Xia[2], K. Nishio[1], Y. Awatsuji[1], O. Matoba[2]
[1]Kyoto Institute of Technology, Japan, [2]Kobe Univ., Japan

BISCp6-13

Quantitative Imaging of Refractive Index of Transparent Object by Parallel Phase-shifting Digital Holography

Y. Wang[1], P. Xia[2], Y. Awatsuji[3], K. Nishio[4], O. Matoba[2]
[1]Graduate School of Science and Technology, Kyoto Institute of Technology, Japan, [2]Graduate School of System Informatics, Kobe Univ., Japan, [3]Faculty of Electrical Engineering and Electronics, Kyoto Institute of Technology, Japan, [4]Advanced Technology Center, Kyoto Institute of Technology, Japan

BISCp6-14

Numerical Simulation of Parallel Phase-shifting Digital Holographic Tomography

M. Shinomura[1], P. Xia[2], Y. Awatsuji[1], K. Nishio[1], O. Matoba[2]
[1]Kyoto Institute of Technology, Japan, [2]Kobe Univ., Japan

BISCp6-15

Miniaturization of Low-cost Portable Digital Holographic Microscopy

S. Abiru, M. Sano, T. Shimobaba, T. Kakue, T. Ito
Graduate School of Engineering, Chiba Univ. Japan

BISCp6-16

***In vivo* Swept Source Optical Coherence Tomography Monitoring of Plant Seeds Treated with Different NaCl Concentrations**

N.K. Ravichandran[1], R.E. Wijesinghe[1], S.-Y. Lee[2], M.F. Shirazi[1], K. Park[1], H.-Y. Jung[2], M. Jeon[1], J. Kim[1]
[1]School of Electronics Engineering, College of IT Engineering, Kyungpook National Univ., Korea, [2]School of Applied Biosciences, Kyungpook National Univ., Korea

BISCp6-17

Bio-optical Measurement for the Morphological Analysis of Anthracnose Infected *Diospyros Kaki*

R.E. Wijesinghe[1], S.-Y. Lee[2], R.N. Kumar[1], R.K. Jha[1], H.-Y. Jung[2], M. Jeon[1], J. Kim[1]
[1]School of Electronics Engineering, College of IT Engineering, Kyungpook National Univ., Korea, [2]School of Applied Biosciences, Kyungpook National Univ., Korea

BISCp6-18

Spectral Domain Optical coherence tomography Using Wavelet Transform

T. Serizawa[1], T. Suzuki[1], S. Choi[2], O. Sasaki[2]
[1]Niigata Univ., Graduate School of Science and Technology, Japan, [2]Niigata University, Faculty of Engineering, Japan

BISCp6-19

Dual Path Handheld System for Cornea and Retina Imaging Using Optical Coherence Tomography

M.F. Shirazi, K. Kim, R.E. Wijesinghe, K. Park, M. Jeon, J. Kim
School of Electronics Engineering, College of IT Engineering, Kyungpook National Univ., Korea

BISCp6-20

Monte Carlo Study for Traumatic Brain Edema Treatment Based on Near-infrared Spectrum

Z. Qian, Y. Liu, W. Li
Department of Biomedical Engineering, Nanjing Univ. of Aeronautics and Astronautics, China

BISCp6-21

Real-Time Spectroscopic Monitoring of Thermal Damage in Laser Induced Thermotherapy of Porcine Liver

L. Dai, A. Qian, G. Hua
Department of Mechanical Engineering, Nantong University, China

BISCp6-22

Experimental Estimation of Influence of Cosmetic Foundation on Optical Path Length in the Skin

R. Sato, M. Kato, E. Okada
Department of Electronics and Electrical Engineering, Keio Univ., Japan

BISCp6-23

Theoretical and Numerical Analysis of Light Reflection from the Human Skin Based on Wave Optics

R. Sakai[1], T. Igarashi[2], M. Takabayashi[1], T. Okamoto[1]
[1]Graduate School of Computer Science and Systems Engineering, Kyushu Institute of Technology, Japan, [2]Kao Corporation, Japan

BISCp6-24

Simulation of Spectral Reflectance Image in Human Skin Model Having a Measured Surface Texture by Ray Tracing

T. Yuasa[1], K. Mizunuma[1], R. Goto[1], T. Maeda[2], H. Funamizu[1], Y. Aizu[1]
[1]Muroran Institute of Technology, Japan, [2]Kushiro National College of Technology, Japan

BISCp6-25

Near-Infrared Reflectance Spectroscopy System for Noninvasive Estimation of Skin Hydration

I. Saknite[1], A. Zavorins[2], J. Spigulis[1], J. Kisis[2]
[1]Institute of Atomic Physics and Spectroscopy, University of Latvia, Latvia, [2]Department of Infectology and Dermatology, Riga Stradins Univ., Latvia

BISCp6-26

Non-contact Measurement of Heart Rate Variability Using Time Series Color Images of Human Skin

Y. Aoki[1], A. Hoshi[1], K. Nakano[2], K. Niizeki[3], Y. Aizu[4], I. Nishidate[1]
[1]Graduate School of Bio-Applications & Systems Engineering, Tokyo Univ. of Agriculture and Technology, Japan, [2]Faculty of Science, Tokyo Univ. of Science, Japan, [3]Graduate School of Science and Engineering Yamagata Univ., Japan, [4]Graduate School of Mechanical Systems and Materials Engineering, Muroran Institute of Technology, Japan

BISCp6-27

Optical Spectroscopy of Ketone Bodies for Blood Screening of Diabetes

C.H. Lin[1], M. Iigo[2], M. Ogawa[3], N. Anzai[4], T. Yatagai[1]
[1]Center for Optical Research and Education, Utsunomiya Univ., Japan, [2]Center for Bioscience Research and Education, Utsunomiya Univ., Japan, [3]Faculty of Science and Engineering, Teikyo Univ., Japan, [4]Department of Pharmacology and Toxicology, Dokkyo Medical Univ., Japan

BISCp6-28

Extensive Pelagic Spectroscopic Measurement Using an Ultrasonically Assisted Unit Based on a Traveling Wave

K. Mori[1], K. Nogo[1], M. Yoshida[1], P.K.W. Abeygunawardhana[1], S. Suzuki[1], A. Nishiyama[2], K. Wada[2], I. Ishimaru[1]
[1]Faculty of Engineering Kagawa Univ., Japan, [2]Faculty of Medicine Kagawa Univ., Japan

Poster Session <Exhibition Hall A>

Friday, May 20

BISC6 10:30-12:00

BISCp6-29

***In vivo* Photoacoustic Imaging of Rehabilitation Process of Mouse after Traumatic Brain Injury**

W. Li[1], H. Wang[1,2], L. Nie[2], Z. Qian[1]
[1]Department of Biomedical Engineering, Nanjing Univ. of Aeronautics and Astronautics, China, [2]School of Public Health, Xiamen Univ., China

BISCp6-30

High Sensitivity Terahertz Electron Paramagnetic Resonance Spectroscopy

M. Grosmann[1], A. Larkin[2]
[1]Universite Louis Pasteur de Strasbourg, France, [2]National Research Nuclear University MEPHI, Russia

BISCp6-31

Estimation of Stress Condition Based on Autonomic Nervous Function by Bio-Speckle Imaging

N. Yokoi[1], Y. Shimatani[2], M. Kyoso[2], H. Funamizu[3], Y. Aizu[3]
[1]Department of Mechanical Systems Engineering, Asahikawa National College of Technology, Japan, [2]Biomedical Engineering Department, Tokyo City University, Japan, [3]Division of Science for Composite Functions, Muroran Institute of Technology, Japan

BISCp6-32

Simultaneous Imaging of Blood Flow and Blood Concentration Change Using Laser Speckle in Fiber Illumination

T. Shinohara[1], N. Yokoi[2], H. Funamizu[1], T. Yuasa[1], Y. Aizu[1]
[1]Muroran Institute of Technology, Japan, [2]Asahikawa National College of Technology, Japan

BISCp6-33

Visual Evoked Potential of Stereoscopic Vision in Brain Networks

L. Xing, X. Wang, Z. Qian, D. Fang
Department of Biomedical Engineering, Nanjing Univ. of Aeronautics and Astronautics, China

BISCp6-34

Imaging of Tissue Oxygen Saturation in Ocular Fundus of Rat Using a Digital RGB Camera

R. Hirofuji, I. Nishidate
Graduate School of Bio-Applications & Systems Engineering, Tokyo Univ. of Agriculture and Technology, Japan

BISCp6-35

Imaging of Regional Cerebral Oxygen Saturation of Rat with a Digital Red-green-blue Camera

Y. Harasaki[1], I. Nishidate[1], S. Kawauchi[2], S. Sato[2], M. Sato[3], Y. Kokubo[4]
[1]Graduate School of Bio-Applications & Systems Engineering, Tokyo Univ. of Agriculture and Technology, Japan, [2]Division of Biomedical Information Sciences, National Defense Medical College Research Institute, Japan, [3]Graduate School of Science and Engineering, [4]Yamagata Univ., Japan

BISCp6-36

Improvement of Source-collector Geometries in Single Reflectance Fiber Probe System for *in vivo* Estimation of Optical Properties in Brain Tissue

T. Tanabe[1], I. Nishidate[1], S. Kawauchi[2], S. Sato[2], M. Sato[3]
[1]Graduate School of Bio-Applications & Systems Engineering, Tokyo Univ. of Agriculture and Technology, Japan, [2]Division of Biomedical Information Sciences, National Defense Medical College Research Institute, Japan, [3]Graduate School of Science and Engineering, Yamagata Univ., Japan

BISCp6-37

Estimation of Scattering Characteristics of Artificial Scattering Medium by Lamination Technique with Shifted Structure

N. Nakatani[1,2], W. Yan[1], O. Matoba[1]
[1]Graduate school of System Informatics, Kobe Univ., Japan, [2]SCREEN Holdings Co., Ltd., Japan

BISCp6-38

Experimental Verification of Optical Power Ratio Distribution to Extract Absorbers in Scattering Media

T. Yamaoki, Y. Hamada, O. Matoba
Graduate School of System Informatics, Kobe Univ. Japan

BISCp6-39

Infrared Thermal Imaging by Bundled Tube-leaky Hollow Optical Fibers

T. Kobayashi[1], T. Katagiri[2], Y. Matsuura[1]
[1]Graduate School of Biomedical Engineering, Tohoku Univ., Japan, [2]Graduate School of Engineering, Tohoku Univ., Japan

BISCp6-40

Long-period Fiber Grating Biomedical Sensor Based on Dual-peak Resonance near PMTP

Z. Gu, Q. Ling
College of Science, Univ. of Shanghai for Sci. and Tech., China

BISCp6-41

Application of CVD-diamonds Films for Sensing Selected Blood Component

D. Milewska[1], M. Ficek[1], K. Karpienko[1], M. Wąsowicz[2], P. Niedziałkowski[3], T. Ossowski[3], M. Jędrzejewska-Szczerska[1]
[1]Department of Metrology and Optoelectronics, Faculty of Electronics, Telecommunications and Informatics, Gdańsk Univ. of Technology, Poland, [2]Department of Morphological Sciences, Faculty of Veterinary Medicine, Warsaw Univ. of Life Sciences, Poland, [3]Faculty of Chemistry, Univ. of Gdansk, Poland

BISCp6-42

Lipid Nanoparticles Encapsulating Near-infrared Dye as a Non-targeted Exogenous Contrast Agent to Improve the Resolution for Angiography

Jia-You Fang[1], C.-J. Wen[2], Y.-H. Huang[1]
[1]Pharmaceutics Laboratory, Graduate Institute of Natural Products, Chang Gung Univ., Taiwan, [2]Center for Vascularized Composite Allotransplantation, Chang Gung Memorial Hospital, Taiwan

BISCp6-43

Choosing the Right Video Interface for Medical Imaging Systems

J. Phillips
Pleora Technologies, Canada

BISCp6-44

Compressive Sensing for an Imaging Method with One Dimensional Hadamard Patterns Illumination

K. Morimoto, S. Hayashi, K. Nitta, O. Matoba
Graduate of System Informatics, Kobe Univ. Japan

BISCp6-45

Experimental Verification for a Method for Computational Ghost Imaging with Laser Array Modulation

C. Kitada, K. Nitta, O. Matoba
Graduate of System Informatics, Kobe Univ. Japan

Poster Session <Exhibition Hall A>

Friday, May 20

LICp 11:00-12:00

Chair: S. Lorenz
Univ. Bayreuth, Germany

LICp-1

Passively Q-switched Nd:YAG/Cr^{4+}:YAG laser with multiple-beam output
G. Croitoru (Salamu), O. V. Grigore, T. Dascalu, and N. Pavel
Nat. Inst. Laser, Plasma and Radiation Phys., Lab. Solid-State Quant. Electron., Romania

LICp-2

Cryo-cooled Ho:CaF_2 laser pumped by Tm:fiber laser
M. Jelínek[1], J. Cvrček[1], V. Kubeček[1], L. Su[2], D. Jiang[2], and W. Ma[2]
[1]Faculty of Nuclear Sci. Phys. Eng., Czech Technical University in Prague, Czech, [2]Key Lab. Transparent and Opto-functional Inorganic Materials, Shanghai Inst. Ceramics, Chinese Academy of Sci., China

LICp-3

Surface Morphology Study of Some Cu-Ni reference alloys using Laser Induced Breakdown Spectroscopy
S. A. Sheta[1], G. Di Carlo[2], G. M. Ingo[2], M. A. Harith[1]
[1]NILES, Cairo Univ., Egypt, [2]ISMN-CNR, Italy

LICp-4

Suppression of amplitude modulation based on nonlinear absorption effect
K. Cheng, H. Dong , J. Shen, H. Yu, B. Xu, and M. Xin
Shandong Inst. Spacecraft Electrical Tech., China

LICp-5

1 kHz repetition rate, giant-UV-pulse generation in [100] Nd:YAG / [110] Cr:YAG micro-laser under intensive pulse pumping
L. Zheng and T. Taira
Inst. Mol. Sci., Japan

LICp-6

Polarization dependence of saturable absorption in Cr:YAG
Y. Sato and T. Taira
Inst. Mol. Sci.

HEDSp14 13:00-15:00

Chair: H. Nakamura
Osaka University, Japan

HEDSp14-1

High-quality electron beam generation by self-truncated ionization injection (STII)
Song Li
Shanghai Jiao Tong University, China

HEDSp14-2

Characteristics of radiation from the interaction between haevy element plasma and high intensity laser
Daiki Kawahito
Kyoto university, Japan

HEDSp14-3

Generating Surface Plasmon Resonance by interacting Laser with Ag Grating
Takafumi Otsuki
Osaka University, Japan

HEDSp14-4

Construction of 1D and 2D array detectors for high-energy X-ray measurement
Yukio Hayashi
QST Kansai Photon Science Institute, Japan

HEDSp14-5

Study of Betatron x-ray enhancement and quasi-monoenergetic electron beam generation from ionization injection based on LWFA
Huang Kai
QST Kansai Photon Science Institute, Japan

HEDSp14-6

Conical Forward THz Emission From Ultra-short Pulse Laser Created Plasma
Tadashi Shimizu
Utsunomiya University, Japan

HEDSp14-7

Terahertz Radiation from Laser-Induced Plasma by Applying a Transverse Static Electric Field
Takuya Fukuda
Utsunomiya University, Japan

HEDSp14-8

Development of Capillary Discharge Waveguide with Segmented Electrodes for Laser Wakefield Acceleration
Yuki Ohashi
Nagaoka University of Technology, Japan

HEDSp14-9

Development of an optically synchronized stable pump source for OPCPA
Yasuhiro Miyasaka
QST, Japan

HEDSp14-10

Neutron angular and energy distribution of Lithium Target Reaction with Laser Driven Protons
Koichi Ogura
QST, Japan

HEDSp14-11

Soliton Formation in Strongly Magnetized Plasmas
Wu Feng
Kyoto University, Japan

HEDSp14-12

Numerical Analysis for MHD Dynamics produced by Capillary Discharge for Plasma Wave Guide
Takashi Kikuchi
Nagaoka University of Technology, Japan

HEDSp14-13

Development of a high repetition rate proton transverse beam profile diagnostic for laser-plasma ion sources
Nicholas P. Dover
QST, Japan

HEDSp14-14

Coherent Cherenkov Terahertz Generation by Laser-plasma Accelerated Electron Beam
Satoshi Wakamatsu
Osaka University, Japan

HEDSp14-15

Development of a few-cycle laser system for efficient electron self-injection in laser-driven acceleration
Keiichi Sueda
Osaka University, Japan

HEDSp14-16

Development of a high temporal and spatial resolution plasma diagnostics system for laser wakefield acceleration
Junpei Ogino
Osaka University, Japan

HEDSp14-17

Transition of Molecular Mixture between Molecular Fluid and Ionic Fluid
Yohei Fujimoto
Osaka University, Japan

HEDSp14-18

Study and design of electron source based on laser wakefield acceleration and ultrashort electron beam transport for compact free electron laser
Shinichi Masuda
Osaka University, Japan

Poster Session <Exhibition Hall A>

Friday, May 20

HEDSp14 13:00-15:00

HEDSp14-19

Recent progress on laser plasma accelerator and Platform laser system for multistage laser wakefield acceleration at Osaka university

Takamitsu Otsuka
Osaka University, Japan

HEDSp14-20

Higher order dispersion control by using assist pulse compression for the steepness laser pulse generation

Michiaki Mori
Kansai Photon Science Institute, Japan Atomic Energy Agency, Japan

HEDSp14-21

Laser-shock exploration of phase transformation of silicates system in the high-pressure melt

Toyohito Nishikawa
Osaka University, Japan

HEDSp14-22

Spectroscopic Observation of Molecular Mixture System under Laser-driven Shock Compression

Ryo Hazama
Osaka University, Japan

HEDSp14-23

Improvement of electron transport beamline with magnetic shield

Koki Osako
Osaka University, Japan

HEDSp14-24

Characterization of proton beams for medical applications

Dmitri Zhidkov
Institute for Theoretical and Experimental Physics, Russia

HEDSp14-25

Development of soft X-ray spectrometer in water window for LAPLACIAN project

Yuki Taguchi
Osaka University, Japan

HEDSp14-26

Upgrading of X-ray measurement system for P-cube laser experiment on LAPLACIAN project

Hirotaka Nakamura
Osaka University, Japan

HEDSp14-27

Staging laser wakefield acceleration with single gasjet target and two laser pulses

Nobuhiko Nakanii
QST Kansai Photon Science Institute, Japan

HEDSp14-28

Indirect monitoring shock waves generation stability during visible laser pump and XFEL probe in high energy density physics experiments

Tatiana Pikuz
Osaka University, Japan

HEDSp14-29

Experimental system developments for in situ observation of laser-shock compression dynamics using the high power laser and SACLA-XFEL

Kenjiro Takahashi
Osaka University, Japan

HEDSp14-30

Development of Fiber Laser for Dielectric Laser Accelerator

Hayato Okamoto
University of Tokyo, Japan

OMCp 13:00-14:30

OMCp-1

Optical gradient force in photonic crystal dual beam

Chien-Chang Chiu, Fu-Li Hsiao
Institute of Photonics, National Changhua University of Education, Taiwan

OMCp-2

Holographic mapping of gold nanoparticles based on twilight-field holographic microscopy

Siti Nabilah Hassan, Kazufumi Goto, and Yoshio Hayasaki
Center for Optical Research & Education (CORE), Utsunomiya University, Japan

OMCp-3

Highly flexible plasmon-assisted manipulation based on optical nonlinearity

Masayuki Hoshina, Nobuhiko Yokoshi and Hajime Ishihara
Department of Physics and Electronics, Osaka Prefecture University, Japan

OMCp-4

LC microlens array without disclination lines by controlling pretilt angle

Che-Ju Hsu[1], Bao-Long Chen[2], and Chi-Yen Huang[1,2]
[1]Graduate Institute of Photonics, National Changhua University of Education, Taiwan, [2]Department of physics, National Changhua University of Education, Taiwan

OMCp-5

Positive-negative switchable liquid crystal lens with dual hole-patterned electrode

Yung-Hsiang Hsu[1], Chia-Rong Sheu[1]
[1]Department of Photonics, National Cheng Kung University, Taiwan, [2]Advanced Optoelectronic Technology Center, National Cheng Kung University, Taiwan

OMCp-6

Theoretical investigation of lateral resolution given by annular super-resolution phase plate

Yoshinori Iketaki[1,2], Hiroshi Kumagai[2], Kumei Nagai[3] and Nandor Bokor[4]
[1]Olympus Corporation, Japan, [2]School of Allied Health Sciences Physics, Kitasato University, Japan, [3]NTT-AT, Japan, [4]Department of Physics, Budapest University of Technology and Economics, Hungary

OMCp-7

Low Voltage Liquid Crystal Lens with addition of a Ring Floating Electrode

Jyun-Jia Jhang[1], Che-Ju Hsu[1], Chi-Yen Huang[1,2]
[1]Graduate Institute of Photonics, National Changhua University of Education, Taiwan, [2]Department of physics, National Changhua University of Education, Taiwan

OMCp-8

Selective excitation towards optical size-separation for CdSe quantum dots

Mitsutaka Kumakura, Asuka Kinan
University of Fukui, Japan

Poster Session <Exhibition Hall A>

Friday, May 20

OMCp 13:00-14:30

OMCp-9

Prism Compressor for dispersion compensation

Hongying Liu, Tian Lan, Zhenmin Shen, Xiaomei Chen, Guoqiang Ni
Beijing Institute of Technology, China

OMCp-10

Monocycle THz vortex generation by using a Tsurupica spiral phase plate

Katsuhiko Miyamoto[1,2], Bong Joo Kang[3], Yuta Sasaki[1], Won Tae Kim[3], Takayoshi Yano[1], Kazuki Sano[1], Tomohito Yamasaki[1], Fabian Rotermund[3] and Takashige Omatsu[1,2]
[1]Graduate School of Advanced Integration Science, Chiba University, Japan, [2]Molecular chirality research center, Chiba University, Japan, [3]Department of Physics and Division of Energy Systems Research, Ajou University, Korea

OMCp-11

Selective plasmonic optical trapping of nano sized fluorescence dye aggregates

Ayaka Mototsuji[1], Tatsuya Shoji[1], Hiroshi Yao[2], Takahiro Yoshii[3], Kei Murakoshi[3], Yasuyuki Tsuboi[1]
[1]Graduate School of Science, Osaka City University, Japan, [2]Graduate School of Material Science, University of Hyogo, Japan, [3]Graduate School of Chemical Sciences, and Engineering, Hokkaido University, Japan

OMCp-12

Kinetics simulation of nano-particle two-color trapping using resonant nonlinear optical effect

Tatsuya Nakai and Hajime Ishihara
Osaka Prefecture University, Japan

OMCp-13

Magnetic Trapping of Superconductor Micro-Particles Produced by Laser Ablation in Liquid Helium

Y. Takahashi[1], J. Suzuki[1], N. Yoneyama[1], Y. Tohkawa[1], N. Suzuki[1], M. Kumakura[2], M. Ashida[3], F. Matsushima[1], and Y. Moriwaki[1]
[1]University of Toyama, Japan, [2]University of Fukui, Japan, [3]Osaka University, Japan

OMCp-14

High fidelity detection of single atoms trapped in holographic microtrap arrays

Hikaru Tamura[1], Tomoyuki Unakami[1], Jun He[2], Yoko Miyamoto[3], and Ken'ichi Nakagawa[1]
[1]Institute for Laser Science, University of Electro-Communications, Japan, [2]State Key Laboratory of Quantum Optics and Quantum Optics Devices, and Institute of OptoElectronics, Shanxi University, China, [3]Department of Information and Communication Engineering, University of Electro-Communications, Japan

OMCp-15

Topological properties of superposition of two scalar Laguerre-Gaussian beams

Sunil Vyas, and Yoko Miyamoto
Department of Engineering Sciences, The University of Electro-Communications, Japan

OMCp-16

Ultrafast molecular dynamics by femtosecond CARS and hybrid FS/PS CARS spectroscopy

Yuanqin Xia[1], Zhibin Zhang[1], Yang Zhao[1], Sheng Zhang[2]
[1]National Key Laboratory of Science and Technology on Tunable Laser, Harbin Institute of Technology, China, [2]Department of Physics, Harbin Institute of Technology, China

OMCp-17

Numerical study on isotope separation of radioactive cesium by light-induced drift

Kenta Yuki, Leo Matsuoka, Shinichi Namba
Hiroshima University, Japan

XOPTp8 13:00-14:30

XOPTp8-1

Multilayer-based X-ray optics for advanced light source applications

Q. Huang[1], Z. Zhang[1], Z. Wang[1], F. Bijkerk[2], E. Louis[2], R. Kruijs[2], F. Senf [3], A. Erko[3]
[1]Tongji University, Shanghai, China, [2]University of Twente, Netherlands, [3]Institut für Nanometeroptik und Technologie, Germany

XOPTp8-2

Metrology of the parabolic profile of X-ray refractive lens

A. Narikovich[1], I. Lyatun[1], D. Zverev[1], S. Savelyev[1], I. Snigireva[2], A. Snigirev[1,2]
[1]Immanuel Kant Baltic Federal University, Russia, [2]ESRF, France

XOPTp8-3

Optimization of the optical performance of compound refractive X-ray lens

D.A. Serebrennikov[1], E.S. Clementyev[1,2], A. A. Snigirev[1]
[1]I .Kant Baltic Federal University, Russia, [2]Institute for Nuclear Research RAS, Russia

XOPTp8-4

Wavefront measurement of sub-10-nm XFEL nanobeam produced by multilayer focusing mirrors

S. Kawai[1], S. Matsuyama[1], A. Nishihara[1], H. Yumoto[2], Y. Inubushi[2], T. Koyama[2], K. Tono[2], H. Ohashi[2], T. Katayama[3], S. Goto[2], T. Ishikawa[3], M. Yabashi[3], K. Yamauchi[1]
[1]Osaka University, Japan, [2]JASRI, Japan, [3]RIKEN SPring-8 Center, Japan

XOPTp8-5

A variable-numerical-aperture x-ray focusing system using a two-stage adaptive Kirkpatrick-Baez mirrors based on piezo electric deformable mirrors

H. Hayashi[1], T. Goto[1], H. Nakamori[1,2], S. Matsuyama[1], T. Kimura[3], K. P. Khakure[1], Y. Sano[1], Y. Kohmura[4], M. Yabashi[4], Y. Nishino[3], T. Ishikawa[4], K. Yamauchi [1]
[1]Osaka University, Japan, [2]JTEC Corporation, Japan, [3]Hokkaido University, Japan, [4]RIKEN SPring-8 Center, Japan

XOPTp8-6

Size-controllable X-ray beam collimation using a two-stage adaptive Kirkpatrick-Baez mirror system based on piezoelectric deformable mirrors

T. Goto[1], H. Nakamori[1,2], S. Matsuyama[1], H. Hayashi[1], Y. Sano[1], Y. Kohmura[3], M. Yabashi[3], T. Ishikawa[3], K. Yamauchi[1]
[1]Osaka University, Japan, [2]JTEC Corporation, Japan, [3]RIKEN Spring-8 Center, Japan

Poster Session <Exhibition Hall A>

Friday, May 20

XOPTp8 13:00-14:30

XOPTp8-7

High-resolution imaging XAFS using advanced Kirkpatrick-Baez mirror optics

S. Yasuda[1], S. Matsuyama[1], H. Okada[2], Y. Sano[1], Y. Kohmura[3], M. Yabashi[3], T. Ishikawa[3], K. Yamauchi[1]
[1]Osaka University, Japan, [2]JTEC Corporation, Japan, [3]RIKEN SPring-8 Center, Japan

XOPTp8-8

Fabrication of Strain-Free Crystal Optics for a Hard X-ray Split-and-Delay Optical System

T. Hirano[1], T. Osaka[1], Y. Sano[1], Y. Inubushi[2], S. Matsuyama[1], K. Tono[2], T. Ishikawa[3], M. Yabashi[3], K. Yamauchi[1]
[1]Osaka University, Japan, [2]JASRI, Japan, [3]RIKEN SPring-8 Center, Japan

XOPTp8-9

Electroforming process specialized for fabrication of x-ray ellipsoidal mirror

T. Kume, S. Egawa, Y. Takeo, H. Mimura
The University of Tokyo, Japan

XOPTp8-10

Development of figure correction system for master mandrel of ellipsoidal x-ray mirror

Y. Takei, T. Higashi and H. Mimura
The University of Tokyo, Japan

XOPTp8-11

Development of differential deposition system with a spatial resolution better than 100μm

M. Nagayama, H. Motoyama, H. Mimura
The University of Tokyo, Japan

XOPTp8-12

Current status of development of ultraprecise Wolter mirror for soft X-ray microscopy

S. Egawa, T. Kume, Y. Takei, Y. Takeo, H. Motoyama, H. Mimura
The University of Tokyo, Japan

XOPTp8-13

Evaluation of degree of spatial coherence at a soft X-ray beamline of SPring-8

Y. Takeo[1], H. Motoyama[1], Y Senba[2], H. Kishimoto[2], H. Ohashi[2], H. Mimura[1]
[1]The University of Tokyo, Japan, [2]JASRI, Japan

XOPTp8-14

Wavefront measurement using ptychographic phase retrieval for evaluating figure and alignment errors of ellipsoidal mirror

Y. Takeo, T. Saito, H. Mimura
The University of Tokyo, Japan

XOPTp8-15

X-ray Transmission Gratings Fabricated by Metallic Glass Imprinting Technique

W. Yashiro[1], K. Kato[1], S. Maryam[1], A. Momose[1,2], T. Shinohara[3], H. Kato[1]
[1]Tohoku University, Japan, [2]ERATO-JST, Japan, [3]JAEA, Japan

XOPTp8-16

Measurement of the Modulation Transfer Function of X-ray scintillator via scattering from random-media

M. Manfredda[1], M.D. Alaimo[2], M. Potenza[3], M.Giglio[3]
[1]Elettra, Sincrotrone Trieste, Italy, [2]Politecnico di Milano, Italy, [3]Università degli studi di Milano, Italy

XOPTp8-17

X-ray high resolution diffractometry based on refractive optics

P. Ershov[1], S. Kuznetsov[2], I. Snigireva[3], V. Yunkin[2], A. Snigirev[1]
[1]IKBFU, Russia, [2]IMT RAS, Russia, [3]ESRF, France

XOPTp8-18

Damage on EUV multilayer optics caused by irradiation of focused pico-second soft x-ray laser pulses

M. Ishino[1], S. Ichimaru[2], M. Nishikino[1], N. Hasegawa[1], M. Hatayama[2], T. Kawachi[1], S. Oku[2]
[1]JAEA, Japan, [2]NTT Advanced Technology Corporation, Japan

XOPTp8-19

Hard X-ray in-line interferometers fabricated by Si planar technologies

M. Lyubomirskiy[1], I. Snigireva[1], S. Kuznetsov[2], V. Yunkin[2], V. Kohn[3], A. Snigirev[4]
[1]ESRF, France, [2]Institute of Microelectronics and High purity Materials RAS, Russia, [3]National Research Centre "Kurchatov Institute", Russia, [4]Baltic Federal University, Russia

XOPTp8-20

Ultra-fast single X-ray photon detector based on tungsten silicide

X. Zhang
Universität Zürich, Switzerland

XOPTp8-21

Focus study measuring phase effects of a double bent Laue beam expanding monochromator

M. Martinson[1], N. Samadi[1], A. Gomez[2], D. Chapman[2]
[1]University of Saskatchewan, Canada, [2]Canadian Light Source, Canada

XOPTp8-22

A Phase Space Beam Position Monitor for Synchrotron Radiation

N. Samadi[1], B. Bassey[1], M. Martinson[1], G. Belev[2], L. Dallin[2], M. Jong[2], D. Chapman[2]
[1]University of Saskatchewan, Canada, [2]Canadian Light Source, Canada

XOPTp8-23

A Bent Laue Energy Dispersive Monochromator: An Example Application of Speciation Imaging at the Selenium K-edge

P. Qi[1], N. Samadi[1], M. Martinson[1], B. Bassey[1], D. Chapman[2]
[1]University of Saskatchewan, Canada, [2]Canadian Light Source, Canada

XOPTp8-24

Ultraviolet photodetector based on a-IGO thin film

C. Hsu [1], H. Lu [1], C. Yang [1], Y. Su [1,2],
[1]National Cheng Kung University, Taiwan, [2]Kun-Shan University, Taiwan

XOPTp8-25

Ultraviolet photodetectors with Ag Nanoparticle-Decorated ZnO Nanorods

C. Yang[1], Z. Wang[1], and Y. Su[1,2]
[1]National Cheng Kung University, Taiwan, [2]Kun-Shan University, Taiwan

XOPTp8-26

X-ray microscopy and microtomography at imaging beamline of SPring-8

A. Takeuchi, K. Uesugi
JASRI, Japan

XOPTp8-27

Spatial Oscillations of High Harmonics Generated in Noble Gas Interacting with Two-Color Laser Field

S. Y. Stremoukhov[1,2], A. A. Pudov[1], A. V. Andreev[1]
[1]Moscow State University, Russia, [2]National Research Centre "Kurchatov Institute", Russia

XOPTp8-28

The influence of beryllium microstructure on the compound refractive lenses optical properties in X-ray microscopy

I. Lyatun[1], P. Ershov[1], A. Goikhman[1], I. Snigireva[2], A. Snigirev[1]
[1]Immanuel Kant Baltic Federal University, Russia, [2]ESRF, France

XOPTp8-29

Formation and interferometric measurements of X-ray vortices

Y. Kohmura[1], D. Takei[1], Y Suzuki[2]
[1]RIKEN SPring-8 Center, Japan, [2]The University of Tokyo, Japan

XOPTp8-30

Development of high spatial resolution X-ray micro-tomography system at SPring-8

K. Uesugi, A. Takeuchi, M. Hoshino
JASRI, Japan

XOPTp8-31

Development of a new method of analyzing molecular orientation by soft X-ray absorption spectroscopy (XAS)

E. Takahashi[1], K. Imanishi[1], S. Suehiro[1], Y. Suzuri[2], Y. Muramatsu[3], E M. Gullikson[4]
[1]Sumika Chemical Analysis Service, Ltd., Japan, [2]Yamagata University, Japan, [3]University of Hyogo, Japan, [4]Lawrence Berkeley National Laboratory, USA

Poster Session <Exhibition Hall A>

Friday, May 20

XOPTp8 13:00-14:30

XOPTp8-32

4D X-ray phase-tomography using spectrum tuned synchrotron radiation

H. Takano[1,2], Y. Wu[1,2], T. Umemoto[1], M. Hoshino[3], W. Yashiro[1,2], A. Momose[1,2,3]
[1]Tohoku University, Japan, [2]JST-ERATO, Japan, [3]JASRI, Japan

XOPTp8-33

Coherent diffraction imaging of non-isolated objects with apodized illumination

K. P. Khakurel[1], T. Kimura[1], H. Nakamori[2,3], T. Goto[3], S. Matsuyama[3], K. Yamauchi[3], Y. Nishino[1]
[1]Hokkaido University, Japan, [2]JTEC Corporation, Japan, [3]Osaka University, Japan

XOPTp8-34

Total-electron-yield measurements in the soft X-ray region of insulating organic films using conductive substrates

Y. Muramatsu[1], T. Ouch[1], E. M. Gullikson[2]
[1]University of Hyogo, Japan, [2]Lawrence Berkeley, National Laboratory, USA

XOPTp8-35

Ablation of Si and Cu with capillary discharged 46.9nm x-ray laser focused by a cylinder mirror and a toroidal mirror

H. Cui, Y. Zhao, W. Zhang, W. Li, S. Jiang, L. Li
Harbin Institute of Technology, China

What's Happening in the Exhibition Hall?

OPTICS & PHOTONICS International Exhibition 2016 (OPIE '16)

In 1994, The Laser Society of Japan initiated Laser EXPO, which now consists of seven optics-related EXPOs; Lens Design & Manufacturing Expo, Optical Measurement & Positioning Expo, IR + UV EXPO, Medical & Imaging EXPO, Space & Astronomical Optics EXPO and Micro & Nano EXPO.

This is now the leading Asian event for advancing optical solutions.

Make time in your day to visit the exhibit hall, which features a diverse group of companies, representing every facet of the optics and photonics industries.

Learn about new products, find technical and business solutions and gain the most up-to-date perspective of the laser-related business environment. Review the extensive list of exhibitors below to see who you'll meet at OPIE '16.

There is no charge to attend the exhibit for conference registrants and exhibit-pass only visitors.

Highlights

May 18 10:15-11:25 at Stage B

Measuring the Size of the Global Optics and Photonics Market

Peter F. Hallett, Director, Marketing and Industry Relations, SPIE

May 18 14:00-15:30 at Stage A

Frontiers and Opportunities in Biophotonics

Dr. Thomas Baer, Executive Director, Stanford Photonics Research Center

May 18-20 at Booth No. G-25

BLUE DIODE LASER COATING SYSTEM

SIP Cross-ministerial Strategic Innovation Promotion Program

(Research and development of the laser coating technology to realize high value-added design and fabrication)

ALCTION D Advanced Laser Coating Technology for Innovation to Delight

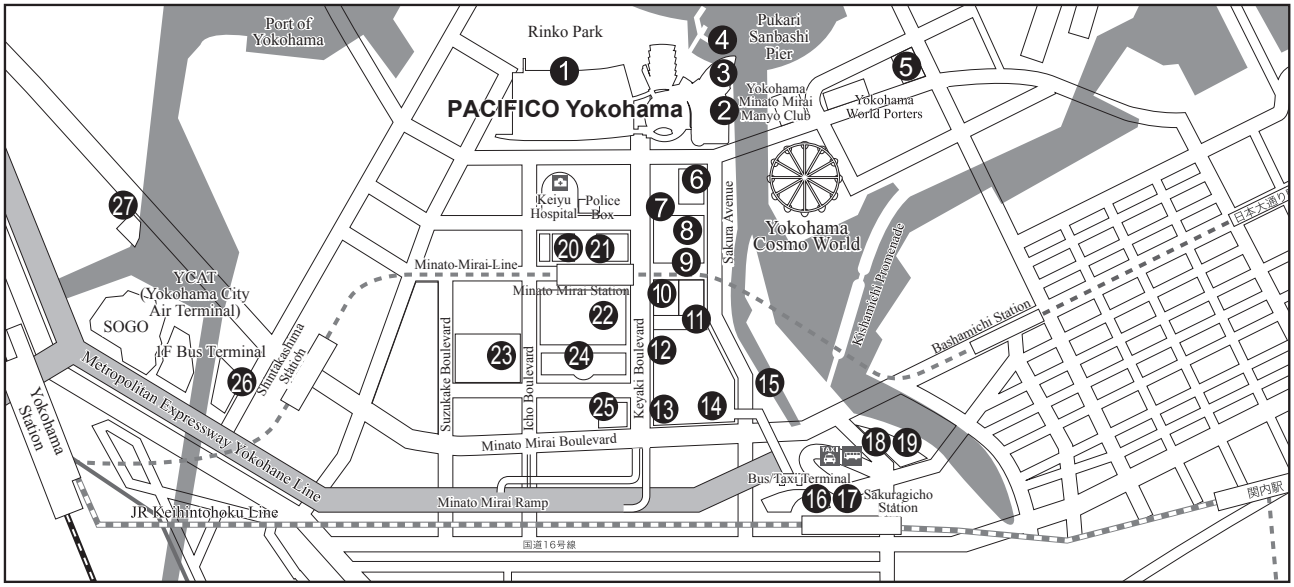
Exhibitor List

3D Innovation Co., Ltd.
ABILITY OPTO-ELECTRONICS TECHNOLOGY CO., LTD.
Actes Kyosan
AD Science Inc.
Advanced Communicatison Media Co., LTD.
Aerotech
AGC TECHNO GLASS Co., Ltd.
AIC, Inc.
AIM. CORPORATION
AISAY Corporation
Aiso Corp.
AkiTech LEO inc.
ALPHA-ONE ELECTRONICS LTD.
Altechna
AMAKUSA OPTICAL CO., LTD.
AMETEK Co., Ltd.
AMPLITUDE JAPAN G.K.
Angewandte Physik & Elektronik (APE) GmbH
Archer OpTx, Inc.
ARTRAY CO., LTD.
Asahi Glass Co., Ltd.
ASAHI KASEI ENGINEERING CORPORATION
ASAHI PRECISION Co., Ltd.
ASO Corporation
Autex, Inc.
AVAL DATA CORPORATION
AYASE Co., Ltd.
BASO Precision Optics Ltd.
BKtel Pacific Rim (Japan) Inc.
Buhler K.K.
Bunkoukeiki Co., Ltd.
BWT JAPAN Inc.
Canare Electric Co., Ltd.
Canon Marketing Japan Inc.
CBC Optics Co., LTD.
CCS Inc.
CDGM GLASS CO., LTD.
CERATECH JAPAN Co., Ltd.
Chroma Technology Japan
CHUO PRECISION INDUSTRIAL CO., LTD.
CIOE - China International Optoelectronic Exposition
Circle&Square Co., Ltd.
CLEO:2016 The Conference on Lasers and Electro-Optics
Coherent Japan, Inc.
COMMONWEALTH OF PENNSYLVANIA JAPAN OFFICE
Consortium of Visible Laser Diode Applications
Cornes Technologies Ltd.
Craft Center SAWAKI Inc.
DA Tec. Inc.
DAICO MFG CO., LTD.
Delta Optics Inc.
Dongguan Lambda Optics Technology Co., Ltd.
EBA JAPAN CO., LTD.
EDMUND OPTICS JAPAN CO., LTD.
Enable K.K.
Eterge Opto-Electronics Co., LTD.
EURESYS s.a.
FANUC CORPORATION
FEIRA Co., Ltd.
Finger Lakes Instrumentation
First Light, Inc.
FIT Corporation
FIT Leadintex, Inc.
Five Lab Co., Ltd.
FLIR Systems Japan K.K.
FM YOKOHAMA
Fuji High Frequency Co., Ltd.
FUJII OPTICAL CO., LTD.
FUJITOK CORPORATION
FURUKAWA ELECTRIC CO., LTD.
GEE
Go!Foton, Inc.
GRAVITON
GUANGZHOU SAT INFRARED TECHNOLOGY CO., LTD.
HAMAMATSU PHOTONICS K.K.
Hanamura Optics Corp.
HAYASHI WATCH-WORKS CO., LTD.
Hellma Materials GmbH
HERZ CO., LTD.
HighFinesse Japan Co., Ltd.
HIGH-TECH CORPORATION
HIKARI GLASS CO., LTD.
HIKARI INC.
Hongjing Optical Technology Co., Ltd.
HORIBA, Ltd.
HOTTA LENS CO., LTD.
HOTTA Optical Co., Ltd.
IDIL Fibres Optiques
IEICE Technical Committee on System NanoTechnology
IIDA LIGHTING CORPORATION
IIYAMA PRECISION GLASS CO., LTD.
Ikuta seimitsu Co., Ltd.
ImPACT
IMRA America, Inc.
Industrial Research Institute of Ishikawa
Infinitegra, Inc.
Innovation Research Corporation
Institute for Laser Technology
Institute of Laser Engineering, Osaka University
IR System co., ltd.
ISUZU GLASS LTD.
Itabashi Industrial Promotion Public Corporation
Japan Aerospace Exploration Agency (JAXA)
Japan Atomic Energy Agency
Japan Cell Co., Ltd.
Japan DEVICE Ltd.
JAPAN IMPOTERS ASSOCIATION OF LASERS & ELECTRO-OPTICS
Japan Industrial Imaging Association
Japan Intense Light Field Science Society
Japan Laser Corporation
Japan Optical Glass Manufacturers' Association
JAPAN OPTICAL MEASURING INSTRUMENTS MANUFACTURERS
JAPAN OPTOMECHATRONICS ASSOCIATION
Japan Photonics Council
JAPAN PRECISION MEASURING INSTRUMENTS MANUFACTURERS ASSOCIATION
Jiangsu Yudi Optical Co., Ltd.
JobsOhio
Joining and Welding Research Institute Osaka University
JTEC CORPORATION
KADOMI OPTICAL INDUSTRY CO., LTD.
Kanagawa Academy of Science and Technology
Kanagawa Industrial Technology Center

Kanagawa Shimbun
KANTUM ELECTRONICS
KAPID
Keysight Technologies Japan G.K.
Keystone International Co., Ltd.
KIMMON KOHA CO., LTD.
Kinoshita Optical Research Institute Co., Ltd.
Kiyohara Optics Inc.
KLV Co., Ltd.
KOA COMMERCIAL CO., LTD.
KOA OPTEC CO., LTD.
Kogakugiken Corp.
KOJIMA ENGINEERING CO., LTD.
KOKUSAI SHOJI CO., LTD.
Kokyo, Inc.
KSP, Inc.
KYOCERA OPTEC Co., Ltd.
Kyokko Trading Co., Ltd.
KYOKUEI KENMAKAKOU Co., ltd.
Kyosei Factory Co., Ltd.
Laser Concierge, Inc.
Laser Focus World Japan
LASER PLATFORM ASSOCIATION
Laser Society of Japan
LASER World of Photonics (Messe Muenchen)
LEONI Fiber Optics GmbH
LIDA OPTICAL AND ELECTRONIC CO., LTD.
Light Conversion Ltd.
Lighten Corp
LikuanWill Co., LTD.
Linkers Corporation
LUCEO Co., Ltd.
Luminex Trading, Inc.
LxRay Co., Ltd.
MARUBUN Corporation
Medical Imaging Consortium
Melles Griot KK
Merck Ltd.
MESS-TEK., LTD.
Metal Coating Lab Co., Ltd.
Micromachine Center
Microoptics Group, The Japan Society of Applied Physics
MicroVision, Inc.
Mita Giken Co., Ltd.
MURAKI LTD.
Muratani Machine Inc.
MUSASHI OPTICAL SYSTEM CO., LTD.
NAGOYA Univ. Hata Lab.
Nalux CO., LTD.
NANO CONTROL CO., LTD.
Nanoimprint Technology Study Group, The Japan Society of Applied Physics
Nantong Ruisen Optical Element Technology Co., LTD.
National Astronomical Observatory of Japan
National Institute of Advanced Industrial Science and Technology
Natsume Optical Corp.
NEOARK Corporation
NEOTRON CO., LTD.
Next generation Space system Technology Research Association (Nestra)
NIDEK CO., LTD.
Nihon Kessho Kogaku CO., LTD.
NIHONMARUKO
Nikon Corporation
NIPPO Co., Ltd.
NIPPON P·I CO., LTD.
Nitride Semiconductors Co., Ltd.
NITTO JUSHI KOGYO CO., LTD.
NITTO OPTICAL CO., LTD.
Noughts And Crosses, Ltd.
NPS, INC.
NTKJ Co., Ltd.
NTT Advanced Technology Corporation
Ocean Photonics, Inc.
OHARA
OHARA INC.
OHYO KOKEN KOGYO CO., LTD.(OKEN)
Oinu Vision Co., Ltd.
OKAMOTO OPTICS WORKS, INC.
OMRON Corporation
OPCell Co., Ltd.
OPHIR JAPAN LTD.
Optical Solutions Corporation
OptMax, Inc.
OPTO SCIENCE, INC.
Opto Taiwan 2016 (PIDA)
Optical Coatings Japan
Optoelectronics Industry and Technology Development Association
OPTO-LINE, Inc.
OPTOMECHATRONIX. INC.
Optopia Co., Ltd.
OptoSirius corporation
Opto-Works Co., Ltd.
ORSA Corporation
OSA - The Optical Society
Osada Photonics International
OSAKA FUJI Corporation
OSHIMA Prototype Engineering Co., Ltd.
OXIDE Corporation
Panasonic Factory Solutions Sales & Engineering Japan Co., Ltd.
PCL Co., Ltd.
Phenix Optical Company Limited
Phoseon Technology Japan
PHOTON ENGINEERING LLC
PHOTON R&D, INC.
PHOTONIC SENSING CONSORTIUM
Photonics division, The Japan Society of Applied Physics
PHOTONICS MEDIA
PHOTOTECHNICA CORP.
PI Japan Co., Ltd.
Pi Photonics,Inc.
Plastic Optical Co., LTD.
PNEUM
Polytec Japan
ProLight Opto
Prolinx Corporation
QD Laser, Inc.
QED Technologies
Rayture Systems Co., Ltd.
RENISHAW
REOSC
REVOX Inc.
Ryokosha Co., Ltd.
SAN-EI ELECTRIC CO., LTD.
SANEI Precision Manufacturing Co., Ltd.
Sanekeisha & Co., Ltd.
SAN-ES TRADING CO., LTD.
Sango Metal Industrial Co., Ltd.
SANRITSU SEIKI
santec
SCANSOL Inc.
SEA FORCE CO.
Seiwa Optical Co., Ltd.
Sensofar Japan LTD.
SETSUYO ASTEC/HighPowerLighting
Shibuya Optical Co., Ltd.
SHIMADZU CORPORATION
shinano seimitsu Co., Ltd.
SHINKOH ELECTRONICS/FAULHABER
SHONAN OPTICAL MACHINE CO., LTD.
Showa Optronics Co., Ltd.
SIGMA TECH. CO., LTD.
Single-Nanometer Figuration and the Structure-Induced Property, The Japan Society of Applied Physics
SIP
Society for Chemistry and Micro-Nano Systems (CHEMINAS)
Spectra Quest Lab. Inc.
Spectral Application Research Laboratory Inc.
Spectra-Physics K.K.
SPIE
State of Colorado
State of North Carolina Japan Office
SUMITOMO ELECTRIC INDUSTRIES, LTD.
SUMITOMO ELECTRIC INDUSTRIES, LTD. Hard Metal
Sun Instruments, Inc.
Sunex Inc.
Sunny Japan Co., Ltd.
Sunplus Trading, Inc.
Super-3D Fabrication technology Network
Suzuki Optical
T.E.M. Incorporated
TACHIBANA OPTICAL LENS CO., LTD.
Taisyou Optical Inc.
TAKESHO CO., LTD.
Tatsuno Optics Co., Ltd.
Technical Co., Ltd.
Technical Group on Silicon Photonics, IEICE/ES
Technohands Co., Ltd.
Technology Link
Techscience Ltd.
Thales Japan KK.
The Graduate School for the Creation of New Photonics Industries
The Institute of Electronics, Information and Communication Engineers
The Institute of Image Information and Television Engineers
The Institution of Professional Engineers, Japan
The Japan Society for Precision Engineering
The Japan Society of Applied Physics
The Japan Society of Infrared Science and Technology
The Optical Society of Japan
The Optical Thin-Film Science and Engineering group
The Optronics Co., Ltd.
The Robotics Society of Japan
The Spectroscopical Society of Japan
The University of Electro-Communications Shoji Lab.
Thorlabs Japan Inc.
Tieway Technology (zhongshan) INC.
Tokai Engineering Service Co., Ltd.
Tokyo Dylec Corp.
TOKYO INSTRUMENTS, INC.
Toyo Seikan Group Holdings, Ltd.
TOYOTEC CO., LTD.
Trioptics Japan Co., Ltd.
TRUMPF CORP.
TSURUMARU LTD.
UNION OPTICAL CO., LTD.
UNISTARS CORPORATION
USHIO INC.
U-TECHNOLOGY Co., Ltd.
Utsunomiya University Center for Optical Research & Education
U-VIX CORPORATION
Vision Sensing Co., Ltd.
wako optical co., LTD.
WAVE OPTO, Inc.
Wavelength Opto-Electronic (S) Pte., Ltd.
Wexx Co., Ltd.
Wuhan Industrial Institute for Optoelectronics
Wuhan National Laboratory for Optoelectronics
Xspectra Co., LTD.
YAMAMOTO KOGAKU CO., LTD.
YAMAMURA PHOTONICS CO., LTD.
Yamashita Materials Corporation
YE DATA INC.
YOKOHAMA National Univ. Maruo Lab.
Yucaly Optical Laboratory, Inc.
Zeus

PACIFICO Yokohama RESTAURANT MAP

As of Apr. 2016
198 restaurants



① PACIFICO Yokohama Exhibition Hall

2F	Restaurant & Bar **DANZERO**	045-633-3563
2F	Italian Restaurant **Ristorante ATTIMO**	045-640-1270
2F	Japanese Noodle "UDON" **Inaniwaya Seibe**	045-662-9565
2F	Fast food **DONBURI Kitchen** **(Yokohama Milk Hall)**	045-221-1239
2F	Convenience Store **7 - Eleven**	045-227-5610
1F	Convenience Store **Daily YAMAZAKI**	045-662-4085

② PACIFICO Yokohama Conference Center

6F	Cafeteria **BAYBRIDGE CAFETERIA**	045-223-2222
2F	Tearoom **PACIFICO YOKOHAMA TEA ROOM**	045-223-2222

③ InterContinental Yokohama Grand

31F	Chinese Restaurant **Karyu**	045-223-2267
4F	Japanese Cuisine **Nadaman**	045-223-3344
2F	French Restaurant **Azur**	045-223-2267
2F	Italian Restaurant **La Vela**	045-223-2267
2F	Lounge & Bar **Marine Blue**	045-223-2332
1F	Buffet Dining **Ocean Terrace**	045-223-2267

④ Pukari-sanbashi Pier

2F	Seafood Bistro **Pier 21**	045-223-2267
	Cruising Bar (＊Passenger cruiser) **Cruising Bar Yokohama Paradise**	045-263-9360

⑤ JICA Yokohama

2F	Cafe & Restaurant **Port Terrace Cafe**	045-641-1498

⑥ The Yokohama Bay Hotel Tokyu

3F	French Cuisine **Queen Alice**	045-682-2216
3F	Chinese Cuisine **Turandot**	045-682-0361
2F	Allday Dining **Cafe Tosca**	045-682-2218
2F	Lounge **Somerhouse**	045-682-2219
2F	Bar **Jack's**	045-682-2220
1F	Japanese Traditional Cuisine **Oshima**	045-274-8080

⑦ Queen's Tower C

6F	Cafeteria **Queen's Tower Cafeteria**	045-682-4100
1F	Cafe **Queen's Tower Cafe Fresca**	045-682-4102

⑧ Queen's Square Yokohama

1F	Cafe **CAFÉ de CRIÉ**	045-640-5128

⑨ Queen's Square Yokohama [at!]

【1st】

2F	a speciality store in SPAGHETTI **J PASTA**	045-641-6336
2F	Tea Salon & Restaurant **LE SALON DE NINA'S**	045-682-2740
2F	Standing bar **WINE STAND BASIL**	045-263-8638
1F	Coffee Store **Starbucks Coffee**	045-682-2755

【2nd】

5F	Korean Restaurant **Ifu**	045-228-5037
4F	Japanese Cuisine **daidaiya**	045-228-5035
3F	Yakitori (Japanese Restaurant) **Sakaeya**	045-682-2700
3F	Café Restaurant **Twenty four seven restaurant**	045-222-6522
2F	Pasta & Grill **Grill, Dining Roselait**	045-682-2801
2F	Buffet Restaurant **PREMIUM BUFFET**	045-228-2706
1F	Hamburg & Steak **American House**	045-682-2860
1F	Mexican fast food **CARNITAS**	045-682-2860
1F	Fried Chiken **KENTUCKY FRIED CHIKEN**	045-650-1012
1F	Sandwiches & Coffee **SUBWAY**	045-682-2813
1F	Hamburger **McDonald's**	045-228-3158

【3rd】

1F	Bakery **Pompadour**	045-682-2868

【STATION CORE】

B1F	Indian Restaurant **Khazana**	045-682-2873
B1F	Barbecue Restaurant **Kangen**	045-682-2882
B1F	Garlic Cuisine **Garlic Jo's**	045-682-2870
B1F	SUSHI **Shimotakaido Asahizushi Sohonten**	045-682-2877
B1F	Chinese Restaurant **CHENMAPODOUFU**	045-682-2866
B1F	Pork cutlet speciality Restaurant **Saboten**	045-683-6104
B1F	Soba (Japanese Noodle Restaurant) **Sarashina Ikkyu**	045-682-2886
B3F	Beer Dining **NEW YORK GRAND KITCHEN**	045-226-0733

⑩ QUEEN'S EAST

2F	Restaurant **KIHACHI**	045-222-2861
B1F	Cafe **KEYUCA CAFE**	045-640-1366
B1F	Korea pan Sundub **TOKYO SUNDUB**	045-640-1077
B1F	Hakata Ramen Noodle **HAKATA IPPŪDŌ**	045-227-6305
B1F	Tantan noodles/Dim Sum/Hong Kong Sweets **KO YA**	045-228-7358

⑩ QUEEN'S EAST

B1F Coffee and Pancake (＊Take out)
58 Cafe 045-664-5859

B1F Conveyor-belt sushi bar
YOKOHAMA NUMAZU-Kou 045-232-4027

B1F Japanese Style Fried Chicken
TORIMARU 045-651-9010

B1F Thai Casual Restaurant
Keawjai 045-682-2679

B1F Dining / Cafe
Kamakura Bowls 045-651-5450

⑪ Queen's Tower A Shops & Restaurants

2F Yougurteria
ARROWS PALETTE 045-682-5501

2F Doughnuts Coffee
Krispy Kreme Doughnuts 045-227-2330

1F Café
CAFFE VELOCE 045-682-0550

1F Korean Home Cooked Food
Korean Kitchen Shijan 045-682-5645

1F Italian restaurant
Pesce d'oro 045-682-5635

1F American restaurant & bar
Hard Rock CAFE YOKOHAMA 045-682-5626

⑫ CROSS PATIO

1F Cafe & Bar, Pasta
PRONTO Minatomirai 045-223-2628

⑬ LANDMARK TOWER

【TOWER DINING】

5F Pasta & Deli
Café Rdente 045-651-7757

5F Buffet restaurant
KEKE 045-225-6311

5F Italian fresh restaurant
Chef 's V 045-225-6188

5F Chinese Cuisine Taiwan Family Style
A-li Mountain's City 045-228-9008

5F Italian restaurant
MANGIA MANGIA 045-227-0369

【LANDMARK PLAZA】

5F Pizza・Pasta・Grill
TRATTORIA VENTO 045-222-5570

5F Sushi
Uogashi-zushi 045-222-5550

5F Restaurant BAR
JO'S BAR 045-222-5616

5F Japanese restaurant
Kissho 045-222-5522

5F Pork restaurant
Yamato 045-225-6451

5F Meat bar
DOURAKU CORRIDA 045-323-9029

4F Japanese restaurant
Minokichi 045-222-5420

3F Italian gelato
Gelato Firenze 045-222-5304

3F CAFFÉ
ANTICO CAFFE AL AVIS 045-263-6969

3F Fresh Cake & Café
HARBS 045-263-9027

3F Specialty Coffee store
Tully's Coffee 045-226-1181

2F Hamburgers
McDonald's 045-222-5318

2F Café
Mauka Meadows 045-222-5225

1F Ma-po Dou-fu
Ma-po Dou-fu Chen Kenichi 045-222-5111

1F Create bowl of rice and soup
Komeraku 045-640-5088

1F Noodle
noodle shop KOOKAÏ 045-222-5125

1F Cock food
Tori Sanwa 045-263-8180

1F Noodle
Tsukemen TETSU 045-670-7877

1F Beef tongue barbecue house
KISUKE 045-228-7835

1F Udon noodle
Konaya 045-228-6221

1F Deli
Soup Stock Tokyo 045-224-6855

1F Ice cream shop
COLD STONE CREAMERY 045-222-5126

1F Drink stand・character goods
moomin stand 045-227-6326

1F Spaghetti
Goemon 045-222-5197

1F American restaurant
Sizzler 045-222-5316

1F Curry
Olive House 045-222-5222

1F Pork cutlet
Wako 045-222-5124

1F Okonomiyaki
Botejyu 045-222-5122

1F Buckwheat noodles
Nagasaka Sarashina 045-222-5120

1F Restaurant
Aji sanpo Yokohama bunmei kaikan 045-222-5118

1F Bakery Café
VIE DE FRANCE 045-222-5116

1F French Café & restaurant
BRASSERIE LA CLASSE par AUX BACCHANALES 045-227-7585

1F Muffins
Mrs.Elizabeth Muffin 045-222-5115

1F Café & restaurant
La Maison ensoleillé table 045-226-5839

1F American cafe & restaurant
Bubby's 045-681-0306

1F Coffee store
Starbucks Coffee 045-225-0317

【DOCKYARD GARDEN (Mirai Yokocho)】

B1F BBQ restaurant
Dragon Kalbi 045-222-5529

B1F Beef organ meat hotpot
Hakata Motsu-nabe Ooyama 045-228-8488

B2F Italian
Bd26 045-222-5670

B2F Charcoal Flame Grill, Yakitori & Chicken Specialties
Yakitori Aburi Sumiyaki Odori 045-650-1261

B2F udon izakaya
Miyatake Udon 045-227-6200

B2F Meat dishes and Wine
Yorozutei 045-319-4824

B2F robata
Nakame no Teppen 045-319-6625

B2F Spanish People's Bar
SPANISH ROCKY 045-319-4631

B2F KAISEN SHOKUDOU & YOUSHOKU
Seafood Market Marukami Dining 045-263-9303

B2F World Beer bar & restaurant
World Beer Museum 045-664-2988

B2F Oyster & Wine
Piatto Bianco 045-227-8577

B2F THAILAND FOODS
TINUN 045-228-7407

⑭ Yokohama Royal Park Hotel

70F Sky Lounge
SIRIUS 045-221-1155

68F Chinese Restaurant
KOH-EN 045-221-1155

68F French Restaurant
LE CIEL 045-221-1155

68F Japanese Restaurant
SHIKITEI 045-221-1155

2F Main Bar
ROYAL ASCOT 045-221-1155

B1F Cafe
CAFÈ FLORA 045-221-1155

B1F Teppan-yaki
YOKOHAMA 045-221-1155

⑮ Nippon Maru Memorial Park

Pizza & grill
Yokohama Paradise 045-319-4555

⑯ New Otani Inn Yokohama

3F Dining & Cafe
Shitamachi DINING & CAFE THE sea 045-210-0781

⑰ CIAL Sakuragicho

【MOMIJIZAKA GALLERY】

1F Deli
Soup Stock Tokyo 045-232-4539

1F Korean Town Food
Pocha 045-662-2577

1F Café
CAFÉ LEXCEL 045-662-0677

1F Bakery Cafe
ANDERSEN 045-228-9410

1F STEAK・PIZZA・WINE
WINE HALL MOTOMACHI CLUB 045-263-6070

1F Beer Restaurant
KIRIN CITY 045-227-5216

【TEISHABA BUFFET】

1F Conveyor belt sushi bar
Nidaime-Gurumetei 045-228-7787

1F Chinese Restaurant
CHUNGKING Szechwan Chinese Restaurant 045-228-9361

1F Restaurant
KITCHEN JO'S 045-228-9925

1F Cafe & Bar, Pasta
PRONTO 045-227-1305

【YOKOHAMA BAZAR】

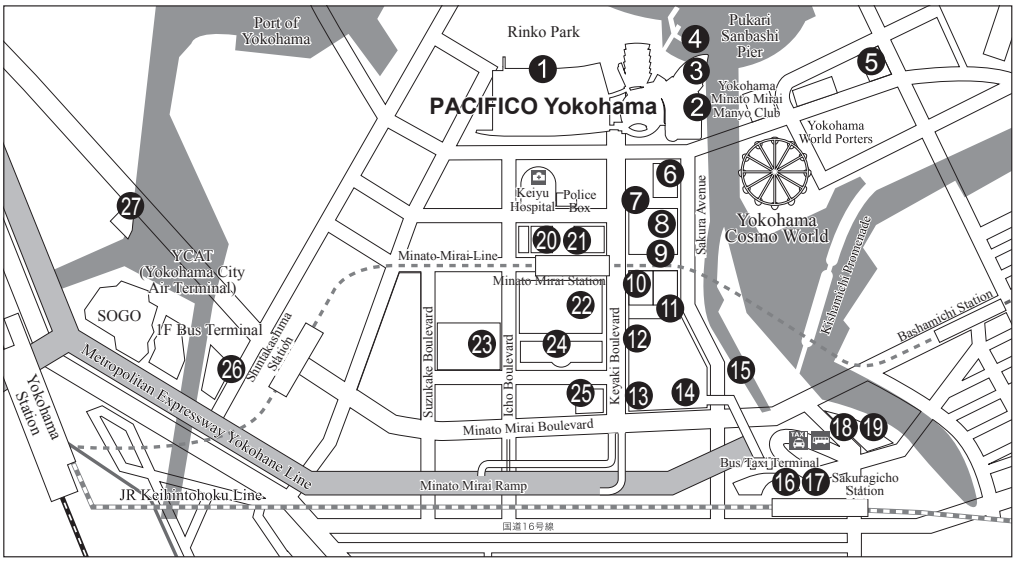
1F FRESH FRUIT & VEGETABLE
YOKOHAMA MIZUNOBU 045-228-9297

1F Coffee store
Starbucks Coffee 045-227-9130

⑱ CROSS GATE

3F Yakitori, Kamameshi
YOKOHAMA TORIGIN 045-210-0311

3F Italian Restaurant
La Pausa Minatomirai 045-222-0785



⑲ Yokohama Sakuragicho Washington Hotel

24F Chinese
TOH-TEN-KOH 045-681-1015

5F DINING & BAR
BAYSIDE 045-683-3166

⑳ MM Park Building

1F Izakaya
Sangendo Minatomirai 045-228-3144

1F Taiwan Small Dish Cuisine & Dining BAR
A-LI-CASTLE 045-641-0178

㉑ MINATOMIRAI CENTER BUILDING

3F Chaina food
SEIREN Minatomirai ten 045-681-7334

㉒ MARK IS minatomirai

4F Cafe
Tully's Coffee 045-228-2050

4F Ramen
Hakata Daruma JAPAN 045-651-2422

4F Fresh fruit juice
karin 045-319-6200

4F Ice cream
Baskin Robbins 045-681-3120

4F Deep-fried skewer buffet
Kagura Shokudo "KUSHIYA" 045-641-5760

4F Seafood, Bar
Tsukiji Shokudo Genchan 045-319-6320

4F Chinese
CHAO 045-319-6755

4F Tonkatsu pork cutlet
Kamakura Katsu-tei Aratama 045-319-6711

4F Conveyor-belt sushi
Maguro-donya Megumi Suisan 045-319-6250

4F French
La Mere Poulard 045-319-6733

4F Hamburger steak specialty restaurant
ishigamaya 045-222-3767

4F Okonomiyaki
Yokohama Kotegaeshi 045-680-1180

4F SHABU SHABU KITCHEN
Shabukichi 045-228-8520

4F Fresh pasta specialty restaurant
Kamakura pasta 045-650-1781

4F Takoyaki
Negidako-Genten 045-319-6277

4F Okinawa cuisine
Nankurunaisa~ 045-319-6720

4F Chinese Cuisine
Yokohama Chinatown Fukumanen 045-319-6188

4F Deep-fried chicken plates
RANG MANG SHOKUDO 045-319-6717

4F Udon noodles
MARUGAME SEIMEN 045-681-2610

4F Ramen
KAMUKURA 045-319-6522

4F Set meals & Cafe
Obon de Gohan 045-319-6796

4F Cafe
HONOLULU COFFEE 045-641-5786

4F Western cuisine
Asakusa Kitchen Omiya 045-641-0888

4F Italian
Mano-e-Mano 045-319-6605

4F Asian ethnic
Asian Dining Kuu 045-319-6900

4F Soba noodles
Stone Mill Ground Soba Ishiraku 045-319-6101

3F Café
Cocktail-Do Coffee 045-319-6557

2F Café
Afternoon Tea TEAROOM 045-319-6270

1F Cafe & dining
AMALFI CAFFÉ 045-319-4711

1F Café
RH CAFE 045-319-6702

1F Café
j.s. pancake cafe 045-228-2105

B1F Indian curry
Indian Restaurant Mumbai 045-650-8011

B1F Dairy products, Ice cream
MACHIMURA FARM 045-640-5763

B1F Korean deli
Hanbije DELI 045-681-8286

B1F Bakery, Café
DONQ 045-323-9912

B4F Pretzels & Café
Auntie Anne's 0120-600-159

B4F Cafe
UESHIMA COFFEE SHOP 045-319-6377

B4F Cafe & Bar, Pasta
PRONTO IL BAR 045-680-0166

㉓ M/M GRAND CENTRAL TERRACE

2F Tempura
TEMPURA FUKUNISHI 045-641-2924

2F Korean BBQ
YAKINIKU DOURAKU 045-232-4129

2F Wine dining
Rotisserie T's RAY 045-650-1450

2F Italian Restaurant
Ristorante UMIRIA 045-232-4919

2F Chinese Restaurant
Tenpujo 045-664-5888

1F Italian Ber & Dining
LEONE MARCIANO 045-232-4080

1F Thai Restaurant
mm THAI 045-228-8010

㉔ Yokohama Museum of Art

2F French
BRASSERIE T's Musée 045-664-5686

㉕ Mitsubishi Heavy Industries Yokohama Building

2F Izakaya
AMATARO Minatomirai 045-225-0903

2F Japanese Restaurant
GANKI MINATOMIRAI BLANCH 045-225-0943

㉖ Yokohama Mitsui Building

1F Cafe & Bar, Pasta
PRONTO Yokohama Mitsui Bld. 045-227-8707

㉗ BAY QUARTER YOKOHAMA

5F Izakaya
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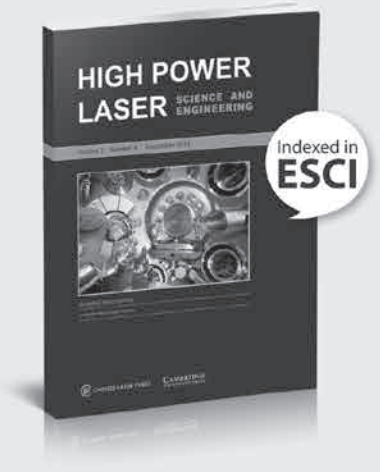

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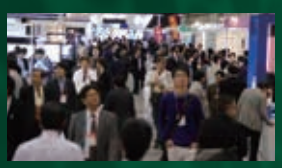

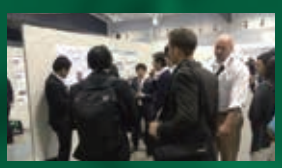
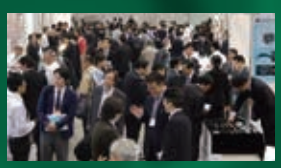

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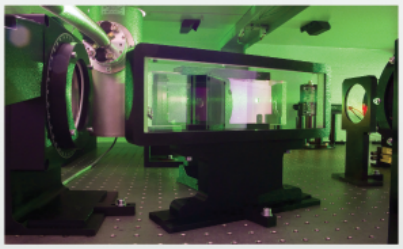

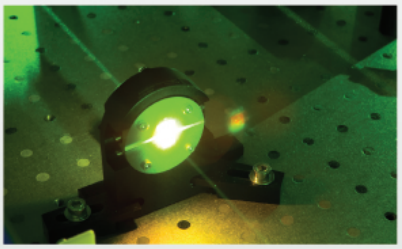

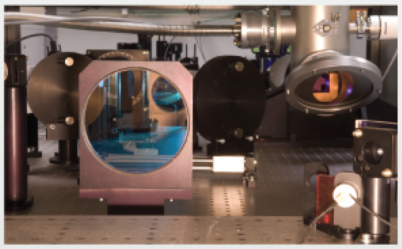

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