OPTICS & PHOTONICS International Congress

OPIC 2017

18-21 April 2017

PACIFICO YOKOHAMA | Yokohama, Japan

Congress Program

Plenary Session

Joint Sessions

Specialized International Conferences

- ALPS '17 : The 6th Advanced Lasers and Photon Sources
- BISC '17 : Biomedical Imaging and Sensing Conference 2017
- CLES/LANSA '17 : Conference on Laser Energy Science / Laser and Accelerator Neutron Sources and Applications 2017
- HEDS 2017 : International Conference on High Energy Density Science 2017
- ICNN 2017 : International Conference on Nano-photonics and Nano-optoelectronics
- IP '17 : Information Photonics 2017
- LDC '17 : Laser Display and Lighting Conference 2017
- LEDIA '17 : The 5th International Conference on Light-Emitting Devices and Their Industrial Applications
- LNPC '17 : Light driven Nuclear-Particle physics and Cosmology 2017
- LSSE 2017 : Laser Solution for Space and the Earth 2017
- OMC '17 : The 4th Optical Manipulation Conference 2017
- XOPT '17 : International Conference on X-ray Optics and Applications 2017

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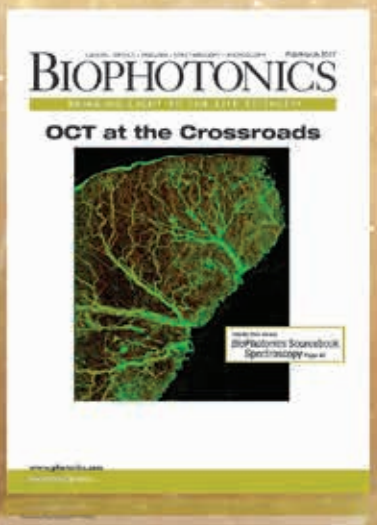

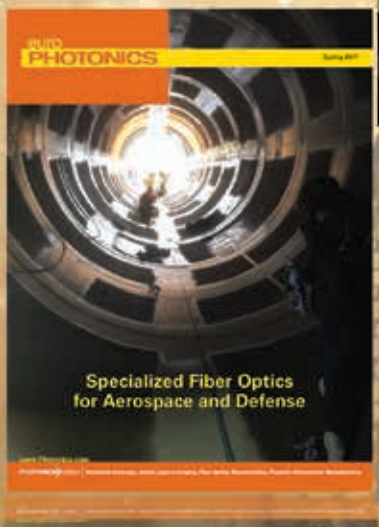

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OPTICS & PHOTONICS International Congress 2017

Date: Tuesday 18 - Friday 21 April, 2017

Organized by OPTICS & PHOTONICS International Council

Specialized International Conference Organized by

The Laser Society of Japan
The Optical Society of Japan
IFE Forum, Institute of Laser Engineering, Osaka University
The Graduate School for the Creation of New Photonics Industries
Akasaki Research Center (ARC), Nagoya University
SPIE – The International Society for Optics and Photonics
Institute for Nano Quantum Information Electronics, The University of Tokyo
Hiroshima University
The Executive Committee of Laser Solution for Space and the Earth
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Research Center for Ultra-Precision Science & Technology, Osaka University

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Ministry of Health, Labour and Welfare
Ministry of Land, Infrastructure, Transport and Tourism
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Institute for Laser Technology
Japan Photonics Council
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JST - Japan Science and Technology Agency
NEDO - New Energy and Industrial Technology Development Organization
OITDA - Optoelectronic Industry and Technology Development Association
OSJ - The Optical Society of Japan
QST - National Institutes for Quantum and Radiological Science and Technology
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Photonics Media
PIDA - The Photonics Industry & Technology Development Association
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Welcome to OPIC 2017

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President, The Laser Society of Japan

Shuji Sakabe

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Professor, Kyoto University

OPIC (OPTICS and PHOTONICS International Congress) and OPIE (OPTICS and PHOTONICS International Exhibition) are the international forums to present and discuss the most up-to-date R&D and industrial activities in optics and photonics in the world and to exchange thoughts on the role of optics and photonics in our future society. OPIC/OPIE was started in 2012 under organization of the OPTICS and PHOTONICS International Council (OPI Council). Since then, OPIC/OPIE has been held every year at Yokohama.

The OPI Council is glad to organize OPIC/OPIE 2017 in the special year of the 100-th anniversary for the theoretical prediction of the "stimulated emission of radiation" by Albert Einstein in 1917.

At the plenary session of OPIC 2017, four distinguished speakers will present on the following hot topics; Optical technologies for vehicle safety systems, Ultra-precision fiber-based frequency comb, Breaking limits in the space-time focusing technologies for biology, and Detection of the gravitational waves.

OPIC 2017 is composed of 11 professional conferences, thanks to joining of the three new Conferences; International Conference on Nanophotonics and Nanooptoelectronics (ICNN 2017), Information Photonics 2017 (IP '17), and Light driven Nuclear-Particle physics and Cosmology (LNPC '17). We are pleased that the fields covered at OPIC have been increasing since the first OPIC.

The OPI Council sincerely appreciates the authorized support 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 Keidanren (Japan Business Federation). We appreciate cooperation with the societies and agencies in Japan, USA, Germany, Taiwan and Korea. Also we would like to thank the funding organizations and the companies for their strong support of OPIC 2017.

Program at a Glance

Plenary Joint Parallel Poster

Date	Time	Room 301 LDC '17	Room 302 ALPS '17	Room 511+512 ALPS '17	Room 311+312 HEDS 2017	Room 313+314 XOPT '17	Room 316 LSSE 2017	Room 317 LNPC '17
Tue 18 Apr.	9:00 -		**Opening ALPS1** Optical frequency comb technology and applications		**Opening HEDS1** Plenary (ImPACT Session I)		**Opening LSSE1** Lasers for Space Development and Earth Sciences	
	10:00 -		Coffee Break		Coffee Break			
	11:00 -		**ALPS2** Dual-comb spectroscopy	**ALPS3** High energy laser systems and technology	**HEDS2** Beams (Ion) (ImPACT Session II)			
	12:00 -		Lunch		Lunch		Lunch	
	13:00 -		**ALPS4** Fiber Lasers and Ultrafast Lasers	**ALPS5** Ultra-high intensity lasers and technology			**LSSE2** Laser-Induced Breakdown Spectroscopy	
	14:00 -			Coffee Break	**HEDS3** ImPACT (ImPACT Session III)			
	15:00 -		**ALPS6** Advanced Laser Technologies	**ALPS7** Novel laser control, diagnostics and applications				
	16:00 -				**HEDS4** Application / High-Field Physics			
	17:00 -							
	18:00 -							
Wed 19 Apr.	ROOM 501+502 9:00 - 12:10	**Plenary session** 9:00 - 9:15 **Greetings** Chris Barty, Lawrence Livermore Notional Laboratory; Kenichi IGA, Chair, International Advisory Board 9:15 - 9:55 **Optical Technologies Required for Vehicle Safety System** Kazuoki Matsugatani, Director, ADAS Business and Technology Development Division, DENSO Corp.						
	12:10 -	Lunch						
	13:00 -	**Opening LDC & LEDIA Joint Session**	**ALPS, HEDS, XOPT Joint Session 1**	**ALPS8** Novel optical devices, materials, nanostructure and applications	**ALPS, HEDS, XOPT Joint Session 1 Joint Session 2** [Room 302]	**ALPS, HEDS, XOPT Joint Session 1 Joint Session 2** [Room 302]	**LSSE3** Decommissioning and Monitoring for Power Reactors	**Opening LNPC-1** Fundamental physics in the extremely early universe
	14:00 -						Coffee Break	
	15:00 -		Coffee Break					
	16:00 -	**LDC & LEDIA Joint Session**	**ALPS, HEDS, XOPT Joint Session 2**	**ALPS9** Biomedical Imaging			**LSSE4** Social Infrastructure	**LNPC-1** Fundamental physics in the extremely early universe
	17:00 -							
	18:00 -	**18:00 - 20:00 OPIC 2017 Reception (ROOM 501+502)**						
Thu 20 Apr.	9:00 -	**LDC1** Plenary Session	**ALPS10** High power lasers	**ALPS11** New Materials for Laser Control	**HEDS5** Plenary (ImPACT Session IV)	**Opening XOPT1** Imaging, microscopy & ptychography (I)		**LNPC2** New gamma-ray sources
	10:00 -		Coffee Break					
	11:00 -	**LDC2** Projection Technology	**ALPS12** New lasers	**ALPS13** Physics and Materials for Photo Emission Control	**HEDS6** Beams / Rad. Source (ImPACT Session V)	**XOPT2** Imaging, microscopy & ptychography (II)		**LNPC3** Physics in intense fields
	12:00 -				Lunch			
	13:00 -	**LDCp3** Poster Session [Exhibition Hall A]	**ALPSp14** Poster Session [Exhibition Hall A]		**HEDSp7** Poster Session [Exhibition Hall A]	**XOPT3** Optical components & systems (I)	**LSSE5** Space High Intensity Laser	**LNPC4** Vacuum birefringence
	14:00 -							
	15:00 -	Coffee Break			**HEDS8** High-Field Physics / Rad. Source	Coffee Break		**LNPC4** Vacuum birefringence
	16:00 -	**LDC4** Laser Diode & LED				**XOPT4** Inelastic scattering & spectroscopy		**LNPC5** Laser-driven fundamental physics and technology
	17:00 -				**HEDS9** Business / Products			
	18:00 -							
Fri 21 Apr.	9:00 -	**LDC5** Color Speckle & Management		**ALPS15** Terahertz Technology 1	**HEDS10** Beams (ImPACT Session VI)	**XOPT5** XFEL facilities **XOPT6** Optical components & systems (II)	**LSSE6** Natural Energy Production [Room 302]	**LNPC6** Physics with combined light sources
	10:00 -			Coffee Break		Coffee Break		
	11:00 -	**LDC6** Speckle Reduction		**ALPS16** Terahertz Technology 2	**HEDS11** Beams (ImPACT Session VII)	**XOPT7** Photon diagnostic & new techniques	**LSSE6** Natural Energy Production [Room 302]	**LNPC6** Physics with combined light sources
	12:00 -	Lunch			Lunch			
	13:00 -	**LDC7** Advanced Laser & Lighting		**ALPS17** Short wavelength	**HEDS12** Beams / Rad. Source (ImPACT Session VIII)	**XOPTp8** Poster Session [Exhibition Hall A]	**LSSE6** Natural Energy Production **LSSE7** Remote Sensing	**LNPC7** Radiations in intense field
	14:00 -							**LNPC8**
	15:00 -				Coffee Break	**XOPT9** Optical components & systems (III)	Coffee Break	
	16:00 -	**LDC8** Postdeadline Session **Closing**		**Closing**	**HEDS13** Beams / R Rad. Source **Closing**		**LSSE7** Remote Sensing	**LNPC8** Laser driven nuclear physics
	17:00 -					**XOPT10** Optical components & systems (IV) **Closing**		
	18:00 -							

Program at a Glance

Room 411+412 LEDIA '17	Room 413 IP '17	Room 414+415 ICNN 2017	Room 416+417 CLES/LANSA '17	Room 418 OMC '17	Room 419 BISC '17	Exhibition Hall A, B	Room / Time
			PLE CLES/LANSA Plenary				9:00 -
			Lunch				10:00 -
			CN1 Compact Neutron Sources-1				11:00 -
							12:00 -
			CN1 Compact Neutron Sources-1				13:00 -
			LN1 Laser Neutron Sources-1				14:00 -
							15:00 -
							16:00 -
							17:00 -
							18:00 -

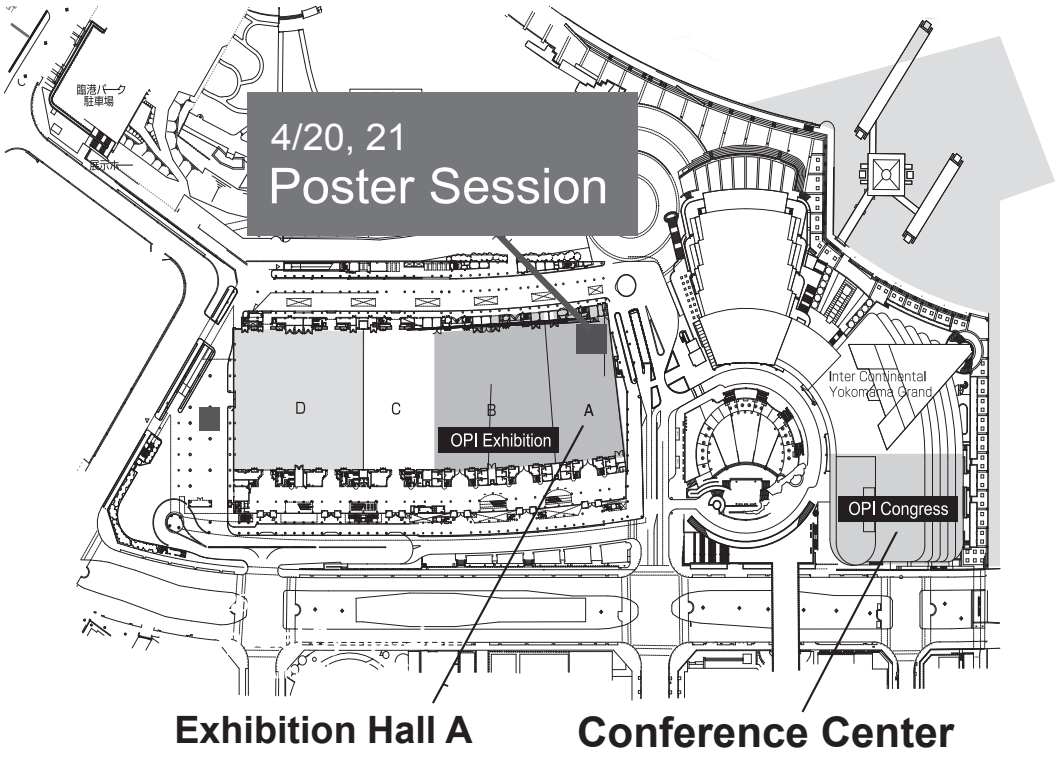
9:55 - 10:35 **Ultra-precision control of optical waves by use of fiber-based frequency combs and its metrology application** Kaoru Minoshima, The University of Electro-Communications **10:50 - 11:30** **Breaking limits: space-time focusing technologies for imaging and manipulating biological systems** Jeff Squier, Colorado School of Mines, Head of the Physics Department **11:30 - 12:10** **Gravitational Wave Detection: Laser Interferometer Technologies in Advanced LIGO** Koji Arai, Caltech, LIGO Senior Scientist							ROOM 501+502 9:00 - 12:10
Lunch							12:10 -
Opening LDC & LEDIA Joint Session [Room 301]	**IP-19PM-1** Photonic Intelligence	**Opening ICNN1** QDs and photonic crystals	**LN2** Laser Neutron Sources-2	**OMC & BISC Joint Symposium I**	**OMC & BISC Joint Symposium I Joint Symposium II** [Room 418]	**10:00 - 17:00 OPIE '17 Exhibition**	13:00 -
		Coffee Break					14:00 -
	IP-19PM-2 Optical Signal Processing I	**ICNN2** Photonic nanostructures	**AP1** Applications 1	**OMC & BISC Joint Symposium II**			15:00 -
							16:00 -
							17:00 -
18:00 - 20:00 OPIC 2017 Reception (ROOM 501+502)							18:00 -

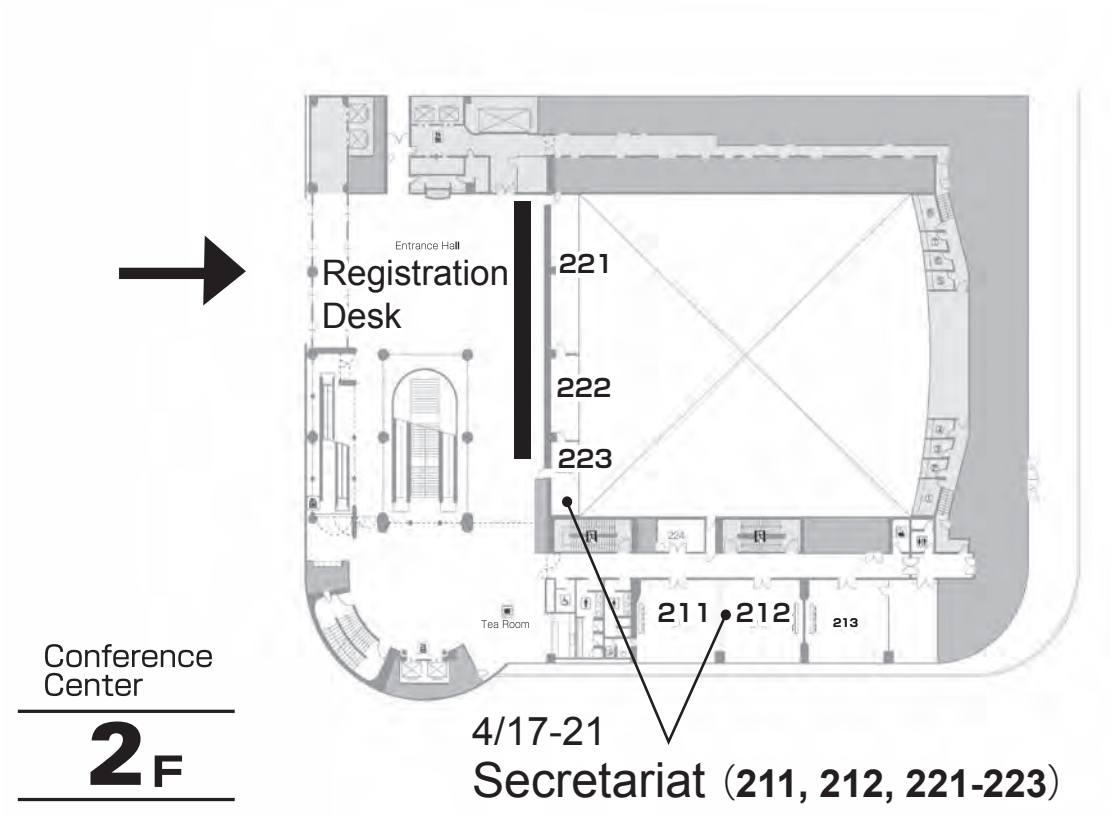
LED1 Characterizations	**IP-20AM-1** Optical Signal Processing II	**ICNN3** Quantum light	**FAC1-3** Facilities	**Opening OMC1** Optical Manipulation I	**Opening BISC3** Brain Imaging and Raman Microscopy		9:00 -
LEDp2	Coffee Break						10:00 -
LEDp2 Short Presentations for Poster Session	**IP-20AM-2** Information Photonics Tutorial	**ICNN4** CQED and superconductors	**FAC4-5** Facilities	**OMC2** Optical Manipulation II	**BISC4** Imaging in Turbid Media	**10:00 - 17:00 OPIE '17 Exhibition OPIC 2017 Poster Session**	11:00 -
			Lunch				12:00 -
LEDp2 Poster Session [Exhibition Hall A]	**IP-20PM-1** Imaging and Holography	**ICNN-P** Poster Session [Exhibition Hall A]	**CLES/LANSA-POS** Poster Session [Exhibition Hall A]	**OMC3** Optical Manipulation III	**BISC5** Digital Holography and Microscopy		13:00 -
			Coffee Break				14:00 -
LED3 Light Emitting Diodes-1		**ICNN5** Plasmonic nanostructures	**ND1** Neutron Diagnostics-1				15:00 -
	IP-20PM-2 Computational complexamptude imaging		**PHS** Physics / Control Technologies	**OMC4** Optical Manipulation IV	**BISC6** Beyond the Disturbance: High-Resolution Imaging Through Turbid Living Cells and Tissues		16:00 -
LED4 Light Emitting Diodes-2							17:00 -
							18:00 -

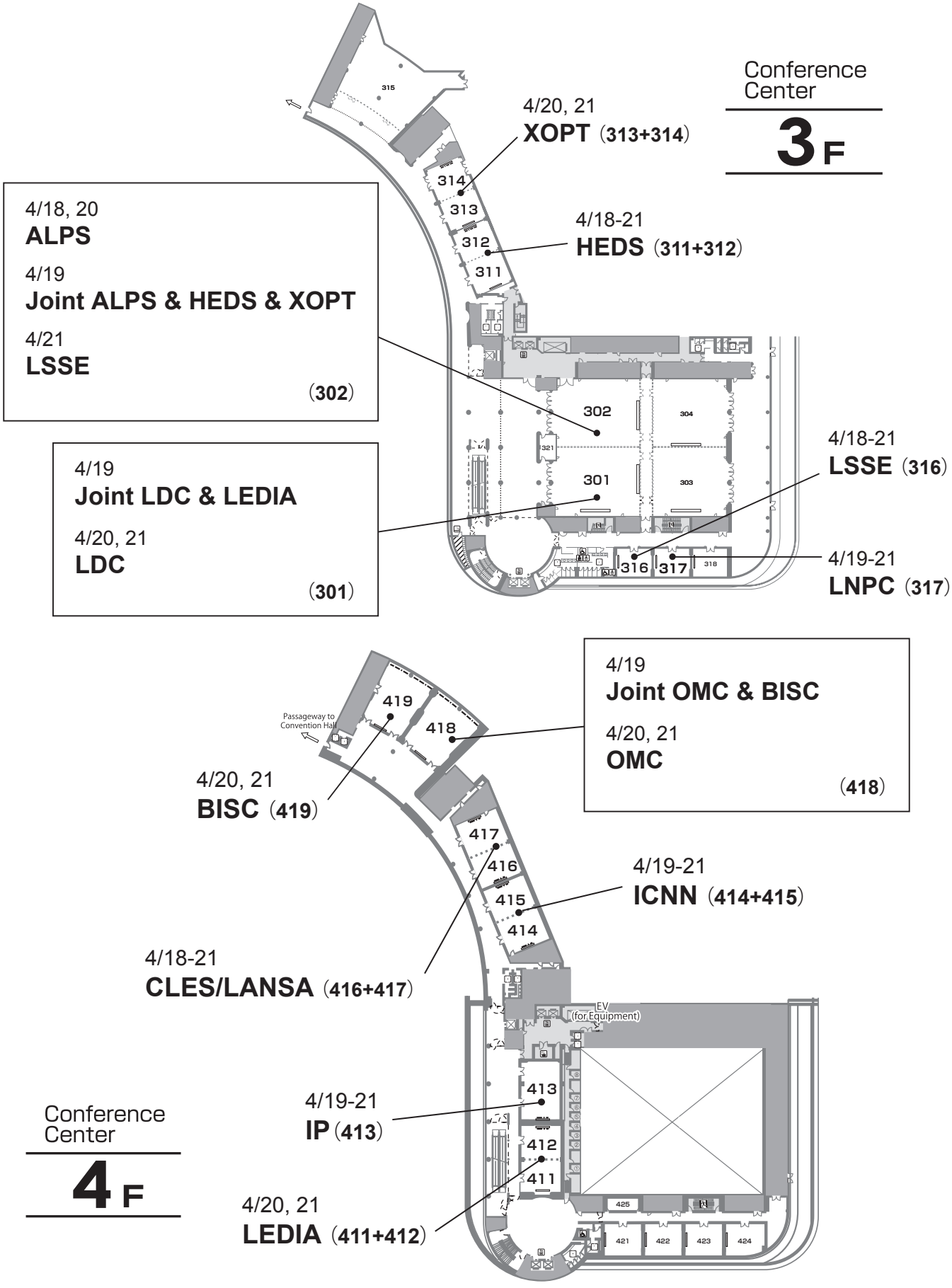
LED5 Growths	**IP-21AM-1** Holography	**ICNN6** Nanowires and optoelectronics	**ND2** Neutron Diagnostics-2	**OMC5** Optical Manipulation V	**BISC7** Interdisciplinary Biomedical Imaging		9:00 -
	Coffee Break		Coffee Break				10:00 -
LED6 Laser Diodes	**IP-21AM-2** Holography	**ICNN7** Low dimensional nanophotonics	**AP2** Applications-2 **Closing**	**OMC6** Optical Manipulation VI	**BISC7** Interdisciplinary Biomedical Imaging		11:00 -
	Lunch			Lunch		**10:00 - 17:00 OPIE '17 Exhibition OPIC 2017 Poster Session**	12:00 -
LED7 Nanostructures	**IP-21PM-1** Poster Session [Exhibition Hall A]	**ICNN8** Devices and materials **Closing**		**OMCp7** Poster Session	**BISCp8** Poster Session		13:00 -
	Coffee Break			**OMC8** Optical Manipulation VII	**BISC9** Optical Coherence Tomography		14:00 -
LED8 Multicolor & White LEDs	**IP-21PM-2** Imaging and Display			Coffee Break			15:00 -
LED9 Tutorial Session **Closing**	**IP-21PM-3** Closing			**OMC9** Optical Manipulation VIII **Closing**	**BISC10** Computational Imaging **Closing**		16:00 -
							17:00 -
							18:00 -

Floor Plan

Pacifico Yokohama



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Conference Center
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EV (for Equipment)

Conference Center

5F

4/19

9:00-12:10

Plenary Session

18:00-20:00

Reception

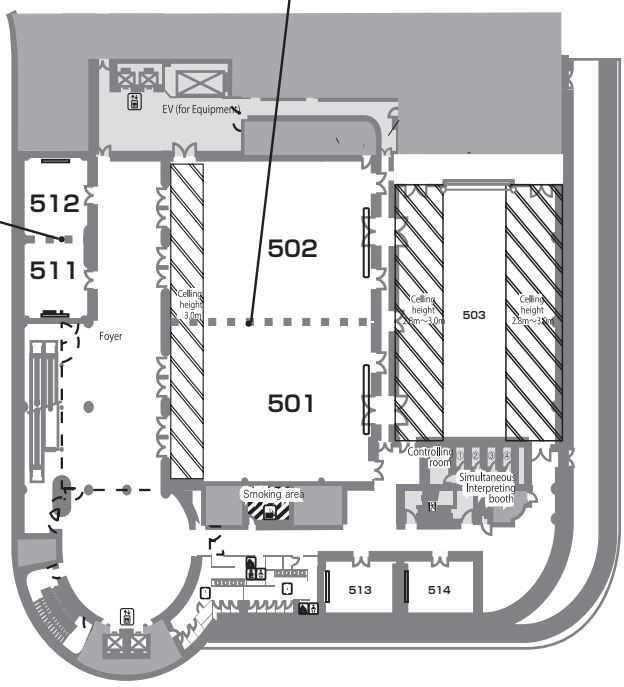
（**501+502**）

4/18-21

ALPS

Pararell Session

（**511+512**）



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Registration

Pacifico Yokohama, Conference Center 2F Lobby

Registration Hours

Monday, 17 April	15:00 - 17:00
Tuesday, 18 April	8:15 - 17:00
Wednesday, 19 April	8:10 - 17:00
Thursday, 20 April	8:30 - 17:00
Friday, 21 April	8:30 - 12:00

Exhibition

Exhibition Hall A, B

The OPI Exhibition is open to all registered attendees. Schedule plenty of time to roam the halls, visit with the hundreds of companies represented and see the latest products and technologies. For more information about what's happening on the exhibit floor, see pages 112-113.

Exhibition Hours

Wednesday, 19 April	10:00 - 17:00
Thursday, 20 April	10:00 - 17:00
Friday, 21 April	10:00 - 17:00

Congress Reception

Conference Room 501 + 502

Wednesday, 19 April	18:00 - 20:00

Information Desk

Providing information on facilities, events, sight-seeing, etc.

Conference Center 2F

TEL: +81-45-221-2155 (8:30 to 18:00)

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Central Disaster Control Center

Report a lost/found item to the Central Disaster Control Center.

Exhibition Hall B1F

TEL: +81-45-221-2127 (24 hours open)

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Conference Center 1F and Exhibition Hall 2F

Open Hours 9:00 - 18:00

Services : Printing (Digital/Offset), book-binding, Large panels, PC services, Internet services, Fast business card printing, Copying machines, FAX machines, PC peripheral devices, Rental equipment, Cell-phone Rental, Laminating, Translation

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Providing bed rest

Conference Center 1F and Exhibition Hall 1F

Equipment: Wheelchairs, beds, AED, stretchers

Hospital

Medical institutions are available in the Minato Mirai district.

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An AED is used to treat ventricular fibrillation.

AEDs are available in the following locations.

Conference Center: In front of First Aid Room (1F) and at Security Office

National Convention Hall of Yokohama: Entrance (1F)

Exhibition Hall: In front of First Aid Room (1F) and at Security Office

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Cell phones are allowed to be used in the common spaces including the foyer, the lobby, the concourse and the shops.

Cell Phone Rental Service is available at Business Center

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*Wheelchairs are limited in number. (No reservations)

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Minato Mirai Public Parking Lot has "wheelchair-users-only" parking spaces.

When entering the parking lot, call a staff person over the intercom.

The staff will take you to the parking space.

*There is no discount for the disabled.

Wheelchair-accessible toilets

Conference Center 1F, 2F, 3F, 4F, 5F

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Coin Lockers

Conference Center 1F, 2F

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Yokohama Station West Exit

TEL: +81-45-314-0716 *ATMs available 24 hours

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Internet Service is available in Business Centers.

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OPIC 2017 Plenary Session

Wednesday, April 19, 2017
Pacifico Yokohama Congress Center, Fifth Floor (Room 501+502)

9:00 - 9:15

Greetings by Congress and IAB Chairs

Chris. Barty, Congress Chair, Lawrence Livermore National Laboratory

Kenichi IGA, IAB Chair, Tokyo Institute of Technology Professor Emeritus/Former President

Plenary Speech

9:15 - 10:35

< First session >

Chair, Sadao Nakai, Congress Chair, Professor Emeritus, Osaka University, Japan

1) **Optical Technologies Required for Vehicle Safety System**
   Kazuoki Matsugatani, Director, ADAS Buisiness & Technology Development Div.
   DENSO CORPORATION, JAPAN
2) **Ultra-precision control of optical waves by use of fiber-based frequency combs and its metrology application**
   Kaoru Minoshima, The University of Electro-Communications (UEC), Japan
   JST, ERATO MINOSHIMA Intelligent Optical Synthesizer (IOS), Japan

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

10:50 - 12:10

< Second session >

Chair, Reinhart Poprawe, Congress Chair, Director, Fraunhofer Institute for Laser Technology, Germany

1) **Breaking limits: space-time focusing technologies for imaging and manipulating biological systems**
   Jeff A. Squier, Department of Physics Colorado School of Mines Golden, CO USA 80401
2) **Gravitational Wave Detection: Laser Interferometer Technologies in Advanced LIGO**
   Koji Arai, Caltech, LIGO Senior Scientist

18:00 – 20:00

OPIC 2017 Reception

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

Plenary Session

Opening Remarks of OPIC 2017

9:00 - 9:15

Greetings

Dr. C. P. J. Barty
Lawrence Livermore National Laboratory

This year marks the 6th anniversary of the Optics and Photonics International Congress. In only a few years, the OPIC meeting series has has grown to involve ~1000 scientists. With the co-located Optics and Photonics International Exhibition, OPIC and OPIE will bring more than 5000 participants to Yokohama. Together these events now represent one of the leading photonics gatherings for both the Asian and the international optics and photonics communities. As in previous years, a hallmark of this year's OPIC will be its diverse collection of high-quality, topical conferences ranging in coverage from fundamental optical science to cutting-edge commercial photonics to novel future applications of lasers and optics. Also as in previous years, this year's congress will include a stellar collection of plenary talks representing the forefront of optical science and applications. Plenary attendees will hear how lasers have enabled the first detection of gravitational waves, how photonics are enabling the autonomous vehicle revolution, how new femtosecond laser microscopes can see beyond classical limits and how optical fibers are being utilized to enable a new generation of precision metrology. It is my hope that you will find OPIC to be an extremely stimulating intellectual event that both broadens your own interests and enables you to establish new collaborations with your fellow participants. On behalf of the committees and conferences of OPIC, I welcome you with enthusiasm to this year's congress.

First Session

Greetings

Kenichi IGA
Chair, International Advisory Board
Tokyo Institute of Technology
Professor Emeritus/Former President

Welcome to OPIC2017 !

The world activity in the field of Optics, Photonics, and Laser-Engineering is meeting a drastic growth in recent years. It is changing the science and technology, industry, our daily life and future society.

The fundamental issues that are essential f or human society include the supply of food, medicine and health care, manufacturing, information technology, the supply of clean energy, and keeping the clean environment. The Optics and Photonics Technologies should have the key to open a new era of those fields.

The purpose of OPIC is to promote the science, technology, and industry related to optics and photonics, and lasers. The OPIC started in 2012 at the same place here in Yokohama. It has grown up every year and in 2017 we meet the 6th OPIC. We expect over 1000 participants from all over the world. Your contribution is very much important for the exchange of information and friendship to open up a new world of optics and photonics.

Please enjoy the OPIC and the stay in Yokohama.

Plenary Speech

9:15 - 9:55

Optical Technologies Required for Vehicle Safety System

Dr. Kazuoki Matsugatani.
Director, ADAS Buisiness &
Technology Development Div.
DENSO CORPORATION, JAPAN
kazuoki_matsugatani@denso.co.jp

Abstract

One of the biggest problems with vehicles is traffic accidents. To make vehicles safer, ADAS and AD applications are being developed actively.

Key technologies to realize ADAS/AD and safety applications are sensing and HMI. Vehicles with those technologies continuously sense their surroundings by utilizing sensors. When the vehicle detects potential danger, it notifies to the driver via HMI. For the sensing and HMI devices, optical technologies play an important role.

In my presentation, firstly, the current development status of ADAS/AD is introduced. And then, I focus on surround sensors used for perception. Typical sensors such as cameras, radar and LIDAR are introduced, and their functions are explained. Next, I introduce HMI devices, DSM and HUD. Finally, expectations about optical technologies to improve the performance of the devices are presented as a summary.

Content

In a modern vehicle, various wireless devices are

installed. These devices mainly support safe and comfortable driving. Figure 1 illustrates typical wireless devices. By utilizing these devices, vehicles sense surroundings and get information outside the vehicle.

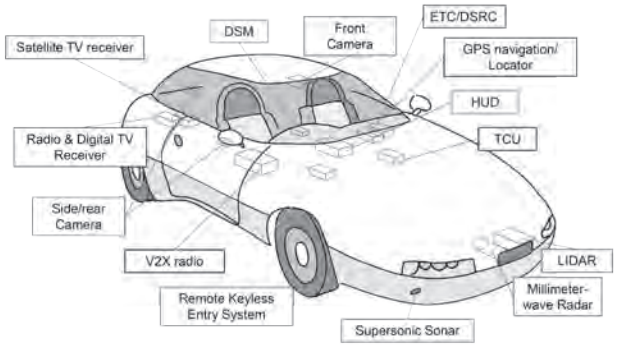

Figure 1. Wireless devices installed on a vehicle

Figure 2 categorizes these devices into functions. Around 100-m range, within the line of sight, driving safety devices are used. Beyond that range where no line of sight is available, information and communication devices based on wireless technology are used. And inside the vehicle, HMI devices interact with the driver and passengers.

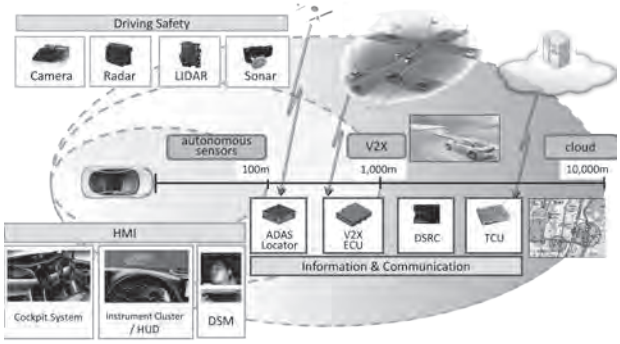

Figure 2. Sensing and HMI devices for ADAS/AD

Figure 3 introduces our products of driving safety devices. These are examples of devices that detect the forward area of the vehicle. Millimeter-wave radar sends and receives radio waves and measures objects' position. LIDAR utilizes infrared light instead of radio waves. And the camera detects visible light and classifies objects based on the image recognition.

These devices have their pros and cons. Radar operates constantly even under bad weather conditions, but its sensing resolution is slightly poor. On the other hand, LIDAR and camera show fine resolution and detect objects clearly. But under the heavy rain or foggy weather, sensing performance degrades. In order to realize reliable perception, these sensing devices should be combined in a complementary way. This combination is called 'sensor fusion' technique.

Figure 3. Sensors for surround observation

Figure 4 shows DSM and its function. DSM is a camera based device that monitors the driver's face and analyzes his/her expression. It is attached at the top of meter cluster. By calculating the relative position of the eyes, nose and mouth from the expression, drowsiness level of the driver is estimated. In case the driver loses focus, the vehicle gives warning and recommends taking a rest. For DSM, infrared camera and infrared LED light are used in order to monitor driver's face clearly even at night.

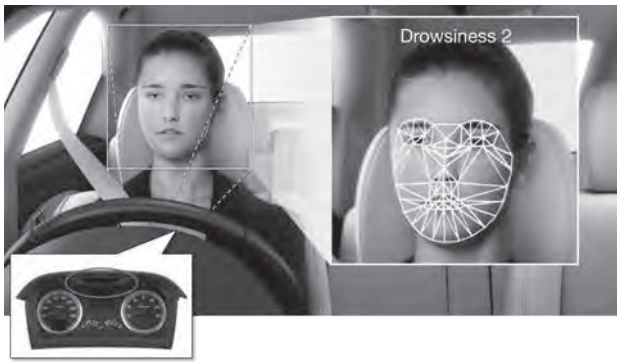

Figure 4. Driver Status Monitor (DSM)

Figure 5 shows HUD and its example image. HUD is a projector that displays information on the front windshield. It helps the driver see the display safely because the driver can recognize the projected image without moving his/her gaze from the front scene.

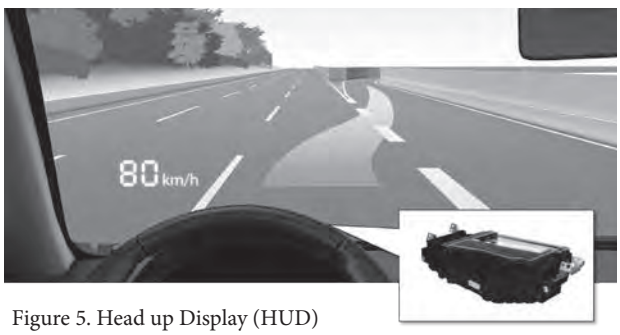

Figure 5. Head up Display (HUD)

HUD is installed between the steering wheel and the windshield. Current HUD utilizes a small and bright LCD panel as an image source. An optical system magnifies images and projects them onto the glass. For the next generation HUD, the combination of laser and micro scanner will be utilized instead of the LCD panel. This type of image source will make the display screen wider and brighter.

For these sensing and HMI devices introduced in the previous paragraphs, miniaturization is an essential requirement because the smaller the devices are, the less impact is given to the vehicle interior and exterior designs. From the performance point of view, brighter LED/Laser and sensitive photo detectors are required. These semiconductor devices extend the detection range of sensing with improved accuracy, and result in ADAS/AD function improvement. Further development of these technologies will surely contribute to make vehicles safer by providing the vehicle with reliable control.

List of Abbreviations

ACC: Adaptive Cruise Control
ADAS: Advanced Driver Assistance System
AD: Automated Driving
AEB: Autonomous Emergency Braking
DSM: Driver Status Monitor
DSRC: Dedicated Short Range Communication
HMI: Human Machine Interface
HUD: Head up Display
LCD: Liquid Cristal Display
LIDAR: Light Detection And Ranging
V2X: Vehicle to X (something)

Dr. Kazuoki Matsugatani received B. Eng. and M. Eng. degrees from Kyoto University in 1987 and 1989, respectively, and he joined DENSO CORPORATION in 1989. He has more than 25 years' experience of R&D activities in electronic engineering, including semiconductor physics, microwave and millimeter-wave circuits, wireless communications and ADAS. In 2010, he received Ph.D. from Nagoya Institute of Technology, and was appointed as Director of Corporate R&D Division 3. Then in 2015, he was moved to R&D Division 1. In 2016, when ADAS Business and Technology Development Division was established at DENSO, he was assigned as Director and has been vigorously promoting ADAS and AD development.

Plenary Speech

9:55 - 10:35

Ultra-precision control of optical waves by use of fiber-based frequency combs and its metrology application

Prof. Kaoru Minoshima
The University of Electro-Communications (UEC), Japan
JST, ERATO MINOSHIMA Intelligent Optical Synthesizer (IOS), Japan
k.minoshima@uec.ac.jp

Abstract

Optical frequency combs have opened up several new application fields not only in frequency metrology as "ultraprecise frequency ruler" but also in broad area by use of its capability for fully controlling the phase, time, and frequency information of light waves, i.e., "optical synthesizer", with an extreme precision and wide dynamic range. In this talk, development of fiber-based frequency combs, which are the key for practical application is presented. Moreover, some of the applications of frequency combs, including precision spectroscopy for material characterization and three-dimensional imaging are presented.

Content

Optical Frequency combs have opened up new application fields not only in frequency metrology as "ultraprecise frequency ruler" but also in broad area, such as distance measurement [1], sensing, communications, astronomy, space technology, and so on. Since optical frequency comb provides a tool for full control of the amplitude, phase, and polarization of light waves in time, frequency, and space domains, i.e., "optical synthesizer", light can be used to its full extent with an extremely high precision and wide dynamic range, together with versatility (Fig. 1). Recent development of fiber-based optical frequency comb technique [2,3] is particularly beneficial to various applications because of its compactness, robustness, long-term stability, and capability of remote measurements. In this talk, I will report some of the examples of our recent achievements on the development and application of fiber-based frequency combs including rapid spectroscopy for material characterization [4,5] and non-scanning 3D imaging [6].

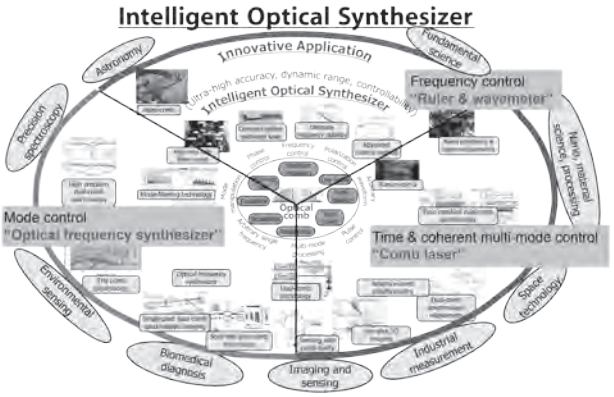

Fig.1. Overview of various application area of optical frequency comb as "Intelligent Optical Synthesizer".

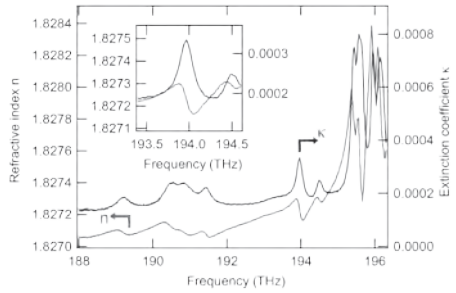

Fig. 2. Direct spectroscopy of complex optical properties of Er:YAG ceramics by use of optical frequency combs.

Rapid, broadband, and high-precision spectroscopy has been demanded in various application fields such as gas sensing and material characterization. Among them, dual-comb spectroscopy is one of the most promising techniques, which provides rapid and mode-resolved spectroscopy. Recently, we have extended the applicability of the technique by applying it to the studies of solid-state physics [3] and ultrafast phenomena [4]. By using the technique, we could achieve direct measurements of complex optical properties of solid materials such as laser materials and semiconductors (Fig. 2). Moreover, rapid two-dimensional spectroscopy of transient complex optical properties is achieved with

femtosecond time resolution and GHz frequency resolution. Such new technique provides a powerful and versatile tool in material study and chatracterization.

Three-dimensional (3D) imaging technique is required in various applications such as industrial measurements, sensing for IoT, and biomedical imaging. We propose a new method for one-shot 3D shape measurements using a pulse-to-pulse spectral interferometry with a chirped optical frequency comb [6] which realizes high-precision, long range, and ultrafast time-resolution simultaneously (Fig. 3). Simultaneous times-of-flight from multiple positions to a target can be obtained using an ultrafast conversion between space, time, and frequency information encoded in precisely aligned chirped ultrashort pulse train [7]. We experimentally demonstrated a one-shot profile measurement of a known step height with μm-level accuracy with good agreement with the nominal value. Furthermore, using the accurate pulse-to-pulse separation of the optical frequency comb, the measurement range was extended without losing the uncertainty, allowing for the measurement of a large step height of m-order with μm uncertainty without scanning the delay or beam position. The proposed method with great dynamic range and versatility of the measurements can naturally be extended to broad range of applications including microscopic structures, objects with large aspect ratio, and ultrafast time-resolved imaging.

In conclusion, we developed various application technologies with phase-stabilized and accurately controlled fiber-based optical frequency comb. Here we propose an unexplored extension of the optical frequency comb technology more than simple precision metrologies.

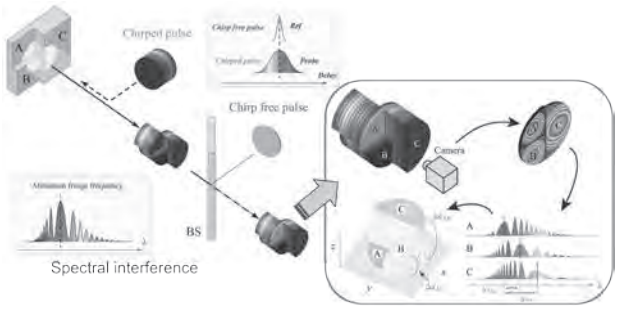

Fig. 3. Principle of the one-shot three-dimensional imaging method using chirped frequency comb.

The studies mentioned here were conducted with A. Asahara, T. Kato, A. Nishiyama, Y. Nakajima, M. Uchida, K. Kondo, and S. Yoshida. This work was supported by the Japan Science and Technology Agency (JST) through the ERATO MINOSHIMA Intelligent Optical Synthesizer Project (IOS).

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Kaoru Minoshima is a Professor at the University of Electro-Communications (UEC), and the Research Director of JST, ERATO MINOSHIMA Intelligent Optical Synthesizer Project (IOS) since 2013. After receiving Ph.D. degrees from the University of Tokyo (1993), she has been with the National Institute of Advanced Industrial Science and Technology (AIST), and also worked at the University of Bordeaux I, the Massachusetts Institute of Technology, and a guest professor at the Tokyo University of Science.

Her areas of research are ultrafast optical science and technology, frequency combs, and optical metrology.

She received various prizes including the Prize for Science and Technology by MEXT, Japan (2008). She has served on many technical and organizing committees for international and domestic conferences including the General Co-Chair of the Conference on Lasers and Electro-Optics (CLEO), and is a member of the Science Council of Japan and a Fellow of OSA and JSAP.

Second Session

Plenary Speech

10:50 - 11:30

Breaking limits: space-time focusing technologies for imaging and manipulating biological systems

Jeff A. Squier
Department of Physics
Colorado School of Mines
USA

Abstract

Imaging and manipulating biological systems with optical sources is desirable from the perspective of providing selective, noninvasive methods that enable quantitative assessment and the ability to potentially alter the system of interest with minimal perturbation. There are inherent challenges to optical tools that can achieve optimal application given the constraints of the biological system: scattering, tissue differences, time scales of the event relative to the procedure being performed, to name a few. Significantly, the ultrafast optical community has made tremendous strides in advancing the application of femtosecond laser sources to meet these challenges. Here, we will show how large focal volumes which translates to large working distances, convenient for biology, can lead to gains in both imaging and manipulation without sacrificing resolution, and can be made compatible with scattering media. This is achieved through careful simultaneous spatial and temporal control of the focal volume (four-dimensional focusing) and spatial amplitude and/or phase modulation of the excitation source. Significantly,

these methods that enable enhanced resolution past classical limits are straightforward to implement. Indeed, pragmatic application of these methods is an important consideration and will be presented.

Content

Emerging applications and biological studies pushing the forefront in understanding structure and function will increasingly benefit from optical systems capable of manipulating and imaging over vast spatial and temporal scales. In terms of nonlinear imaging these boundaries are being pushed by exploiting a novel characteristic that arises when a femtosecond laser is used as the excitation source: namely spatial chirp. Historically spatially chirped beams had been considered detrimental and were to be avoided. Recently however, the characteristics of a spatially chirped beam have shown to be advantageous and can provide substantive gains in optical imaging and manipulation.

What is spatial chirp and how is it produced systematically to ensure the most desirable characteristics relative to the application? One of the most useful geometries is to simply single pass a classic two-grating Treacy compressor (multiple geometries are described in [1], see Fig. 1). The broad bandwidth of the femtosecond pulse results in an elliptical, collimated output: a continuum of beamlets (spectral components) that are spatially separated along the dispersive direction of the grating pair. Interesting characteristics follow if we focus this spatially chirped beam. The resultant angular spatial chirp has a second-order spectral phase that is changing along the direction of propagation. This leads to temporal focusing. Since the beam is also focusing spatially, this is known as simultaneous spatial and temporal focusing (SSTF). Outside of focus, the beam is defocused in space and time, at the focal plane of the optic however, a spatially diffraction limited focal spot that is also transform limited in time results.

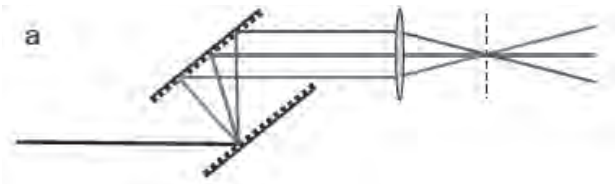

Figure 1: Example of a simultaneous spatial and temporal focusing geometry from [1].

Nonlinear microscopy is an excellent candidate that benefits from this unusual space-time behavior of the focused light beam. For example, Oron et al [2] and Zhu et al [3] demonstrated that an extended excitation source could be used in nonlinear microscopy quite effectively. They show that as a result of SSTF the axial resolution no longer need be compromised when a low numerical aperture beam is used to achieve a large field of view (100's of μm). The sub-micrometer lateral spatial resolution is retained as well. In addition, with an extended SSTF excitation source pixel dwell times can be increased, which can in turn improve signal-to-noise making it possible to track dynamic events with high temporal resolution for extensive periods. In short, SSTF nonlinear microscopy opens a window to recording events over large spatial (with high axial and lateral resolution) and temporal time scales.

Following on the success of these imaging applications came the realization that SSTF made targeted, high-intensity interactions with femtosecond laser pulses possible under conditions that were previously prohibitive. For example, a modest spatial chirp can reduce the cumulative nonlinear effects so detrimental to achieving an optimal focus with low numerical aperture beams by an order of magnitude. A broad range of micromachining applications have followed including lithography [4], tissue ablation [5], photodynamic therapy [6], and synthesis of gold nanoparticles [7] to name only a few.

Another unique aspect of SSTF is the resultant pulse front tilt (PFT) can manifest itself in interesting ways. PFT has resulted in "quill" effects that produce a

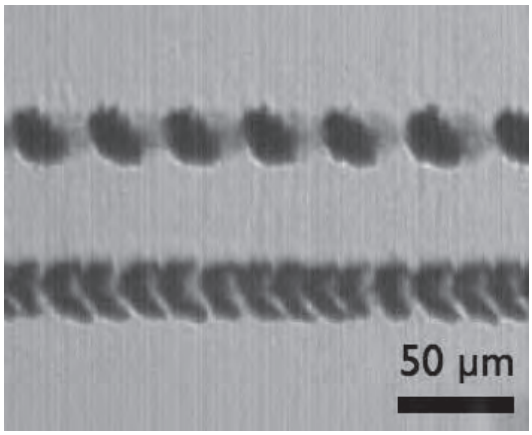

Figure 2: Example of the "quill" effect when writing with an SSTF beam. Scanning the sample relative to the intrinsic pulsefront tilt results in the creation of two different structures – holes in one direction, "chevron" shapes in the other.

variety of nonreciprocal writing effects within or on the surface of materials [8,9] (Fig 2). In each case, the material modification is strongly dependent on the direction the beam is scanned across the material relative to the PFT. The tilted pulse is really providing an entirely new degree of freedom in terms of a parameter that can be used to create a novel material modification.

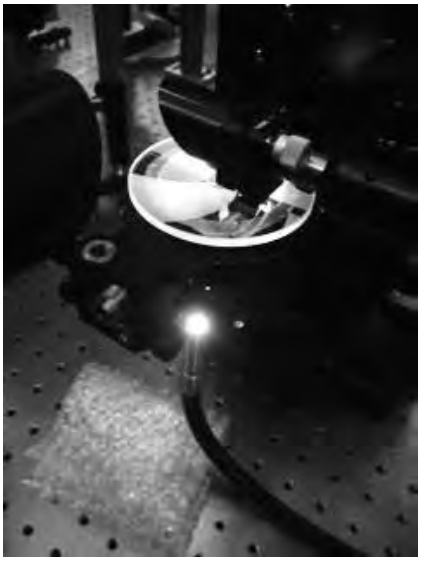

Figure 3 : Femtosecond micromachining a mask for a high-resolution imaging system.

Finally, these aspects can be combined to create laser platforms that are capable of using low numerical aperture, energetic femtosecond pulses for large scale manipulation, with the ability to perform in-situ process monitoring. Ironically, SSTF can be used to fabricate masks (Fig. 3) that in turn, can be deployed in the laser system to provide a novel imaging system that can monitor the manufacturing process through linear or nonlinear methods with enhanced resolution [10]. These masks, placed in the pathway of the laser being used to visualize the machining process, create structured sheets of light that interrogate the laser interaction region. Significantly, only single element detection is required. For example a simple photodiode or photomultiplier tube. This means the visualization process is compatible with scattering environments. The combination of enhanced resolution imaging providing real-time feedback on a femtosecond laser micromachining platform may provide entirely new opportunities in terms of delicate surgeries in biological specimens, or 3D additive and subtractive processes performed with these systems.

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Biography

Jeff Squier received his BS degree in Engineering Physics, and MS in Applied Physics from the Colorado School of Mines. He received his PhD from the University of Rochester, Institute of Optics. He is presently Department Head of Physics, Colorado School of Mines, and maintains an active research group in ultrafast optics mainly focusing on nonlinear microscopy and machining and manipulating materials with femtosecond laser pulses. He is a Fellow of the Optical Society of America and a past recipient of the SPIE Harold Edgerton award.

Plenary Speech

11:30 - 12:10

Gravitational Wave Detection: Laser Interferometer Technologies in Advanced LIGO

Koji Arai
Caltech, LIGO Senior Scientist
USA

Abstract

On September 14, 2015, the two detectors of the LIGO (Laser Interferometer Gravitational-Wave Observatory) simultaneously observed a transient gravitational-wave (GW) signal. The waveform analysis indicated that the source was the inspiral and merger of two binary black holes 1.3 billion light years from the earth. This was the first direct detection of GWs and the first observation of a binary black hole merger [1]. LIGO detected another binary black hole merger in December 2015 [2]. Here, GW detection using high precision laser interferometry is reviewed. Technological approaches in the current LIGO detectors will be introduced, as well as challenges for the future generation detectors.

Contents

GWs are ripples in the curvature of spacetime generated by the acceleration of massive objects. Their existence was predicted by Einstein's general theory of relativity in 1916. GWs are radiated from astronomical sources such as accelerating massive compact stars (e.g. black holes, neutron stars, white dwarfs), supernovae, and primordial density fluctuation in the early universe. Detection of the GWs opens a new window to explore the universe that is complementary to conventional optical astronomy. The spacetime strain caused by GWs can be detected by optical distance measurement of two distant points. It is, however, not straightforward because the effect of GWs is extremely small.

The LIGO project constructed identical laser interferometer GW detectors in the U.S., called Advanced LIGO, at two observatories located in Washington State and Louisiana State (Figure 1).

Figure 1 Aerial view of LIGO Livingston Observatory

Observation with the two detectors allows us to pick up only coincident events and to estimate the direction of the sources with triangulation using the time delay of the events between the sites separated by 3000-km.

Each Advanced LIGO detector is an L-shaped Michelson-type laser interferometer (Figure 2). Optical path length fluctuations of the 4-km arms cause a change of the interference fringe at the output port. Even with this long arm length, the effect of GWs is on the order of 10-18 m. The fluctuation of the signal induced by instrument noises conceal the tiny signs of GWs in the output signal stream. Therefore, the detector must have various high-performance subsystems for proper signal enhancement and noise reduction [4].

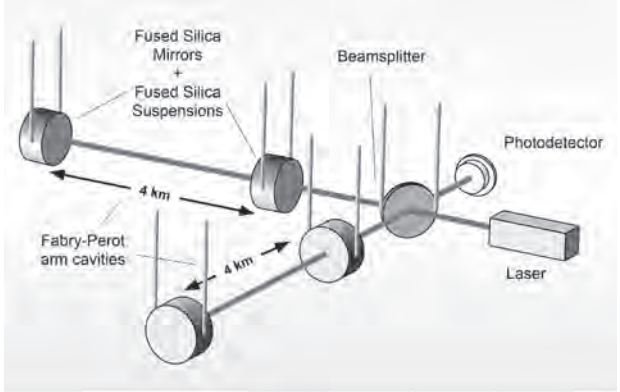

Figure 2 Basic optical configuration of a laser interferometer gravitational wave detector

The main light source is a high power injection-locked 1064-nm Nd:YAG laser with the maximum output of 180W with a master oscillator power amplifier laser. The laser intensity and frequency are stabilized with high bandwidth active feedback servos. Each arm of the Michelson interferometer consists of a 4-km Fabry-Perot cavity to enhance the interaction of GWs with the stored light. Optics, including photodetectors, necessary for GW detection are enclosed in vacuum chambers to attenuate environmental disturbances. The main optics have a mass of 40 kg and are suspended by multi-stage pendula supported by in-vacuum active vibration reduction benches. Reduction of the mirror displacement due to thermal vibration is realized by high quality fused silica for the mirror substrate and the suspension fibers. The motion of the mirrors is servo controlled by a distributed real-time digital control system to keep the high sensitivity state of the interferometer. The GW signal channel, as well as the other ~105 channels for monitoring environmental disturbances and the state of the interferometer control systems, are recorded with the time stamps synchronized to GPS time.

The first observation run of the Advanced LIGO detectors was carried out from September 2015 to January 2016. On September 14, 2015, an online analysis system reacted to a possible GW candidate within several minutes from the arrival of the signal at both detectors. After months of data analysis and validation work, we concluded that the signal indeed was GWs originated from a merger of two black holes with masses of 36 solar mass (i.e. Msolar) and 29 Msolar at 1.3 billion light years from the earth. The resultant black hole has an estimated mass of 62 Msolar. At the moment of the merger, the peak power was about 50 times brighter than that of the whole visible universe: the 3 Msolar was converted to GWs during the merger. Figure 3 shows the detected waveforms by each observatory, compared with the one calculated from numerical relativity. Not only do the waveforms between the detectors match well after adjusting the arrival time difference of 7 milliseconds, the predicted waveform also represents the detected signals well. On December 26, 2015, LIGO detected a similar binary black hole merger with lighter masses than the first.

The first direct detection of the GWs was also the first discovery of a binary black hole merger, and the only direct evidence we have for the existence of black holes. The observed waveforms provide another confirmation of the general theory of relativity. These detections of the GWs already provided new information for astronomy and astrophysics.

Currently, Advanced LIGO detectors are carrying out a second observation run with an improved sensitivity, hoping to collect more events to understand the statistical nature of the black hole mergers and to catch other types of the GW sources. At the same time, LIGO scientists keep working on improvements to the detector sensitivity. We are also considering an enhancement of detector sensitivity by incorporating new technologies such as squeezed vacuum injection, cryogenically cooled large Silicon mirrors and suspensions, and a near-infrared laser with a longer wavelength. Overcoming these technological challenges will let us explore the new aspect of the deep universe.

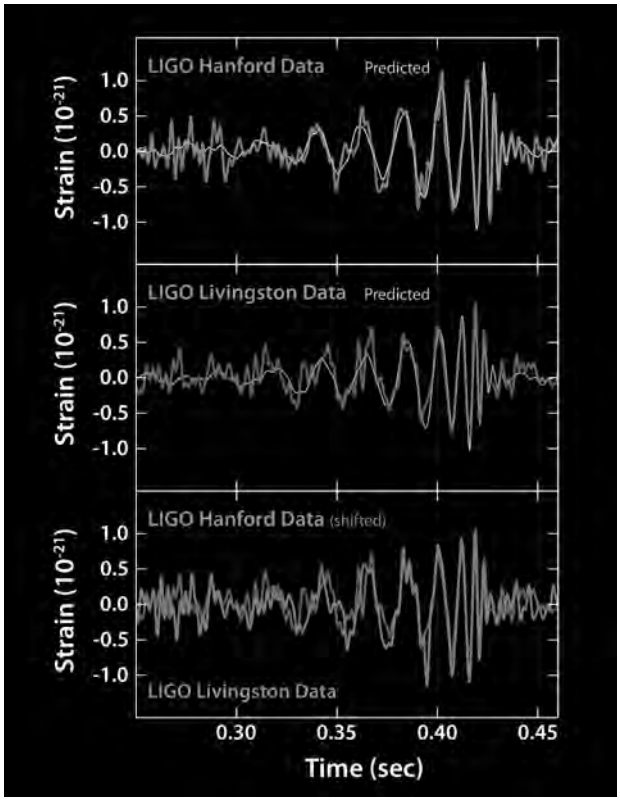

Figure 3 Waveform of GW150914. Comparison between the observed waveforms by each detector and the predicted waveform by General Relativity (Upper and Center). Comparison of the observed waveforms by the detectors (bottom).

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[3] For more information about LIGO's GW detections: https://www.ligo.caltech.edu/detection
[4] Phys. Rev. Lett. 116, 131103 (2016)

Koji Arai joined the LIGO Laboratory at Caltech in 2009 as Senior Research Fellow. Koji has been a Senior Scientist with the LIGO Laboratory at Caltech since 2016, after serving as Research Assistant Professor in 2015. His research area is control systems and noise reduction for precision laser interferometry. Before moving to Caltech, he was Research Associate and Assistant Professor at National Astronomical Observatory of Japan between 1999 and 2009 where he worked on the Japanese laser interferometer gravitational wave project TAMA300. He received his Ph.D. in Physics from the University of Tokyo in 2002.

OPIC 2017

Specialized International Conferences

Conference Chairs' Welcome Letters

The 6th Advanced Lasers and Photon Sources Conference (ALPS '17)

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

We are delighted to welcome you to the 6th Advanced Lasers and Photon Sources Conference (ALPS '17) 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 2017), which consists of twelve optics-related scientific conferences. In the ALPS '17, we will have 16 excellent invited talks and more than 100 contributed papers. The ALPS '17 will collaborate with the International Conference on X-ray optics, detectors, sources and their applications 2017 (XOPT '17), and the International Conference on High Energy Density Sciences (HEDS 2017) 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 2017) 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 3rd Biomedical Imaging and Sensing Conference (BISC '17)

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

On behalf of the organizing committee and program committee, it is our great pleasure to welcome you to the 3rd Biomedical Imaging and Sensing Conference, within the framework of the OPTICS & PHOTONICS International Congress (OPIC 2017). The mission of this conference is to present and discuss recent progress in biomedical optics and photonics, which is one of the most promising and attractive areas. In this field of optics and photonics, advanced optical tools and ideas are employed for the understanding biological and medical phenomena and the diagnosis and treatment of diseases, from the cellular to macroscopic levels. In the cellular level, for example, highly precise laser application allows the manipulation, operation or stimulation of cells, even in living organisms or animals. Optical microscopy has been revolutionized by a thorough understanding of different makers in cells and their switching behavior. Maker-free microscopy, like CARS, SHG, THG or Raman microscopy, is spreading into biological, medical and clinical applications. OCT is still 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. Digital holography is also applied to biomedical imaging to observe functional response in

cells and internal organs.

The techniques developed in biomedical optics and photonics could bring us great steps in advances of physical, engineering and biological knowledge as well as optical and photonics. This conference is planned to covering several aspects from the fundamental studies at cellular level biology to clinical applications using various optical technologies.

Finally, welcome you once again to BISC '17 and we hope you enjoy fruitful discussions in the Conference.

The 2nd Conference on Laser Energy Science/Laser and Accelerator Neutron Sources and Applications (CLES/LANSA '17)

Hiroaki Nishimura
Conference Chair
Institute of Laser Engineering, Osaka University

We are delighted to welcome you to the 2nd Conference on Laser Energy Science/Laser and Accelerator Neutron Sources and Applications (CLES/LANSA '17) in Yokoham. The CLES/LANSA aims at providing a fruitful opportunity to exchange information and discuss on a new horizon of neutron sources along with conventional ones based on accelerators, electrostatic confinement and nuclear reactors. Various types of short-pulse, high-fluence neutron sources have been developed including laser-driven fusion, laser accelerated ion beams, photonuclear reactions, cluster-explosions, as well as various types of accelerators. And, these neutrons are used in a wide variety of applications for such as material science, nuclear science, medical science and care, non-destructive investigation, security, and neutron radiography. The CLES/LANSA '17 is organized as a part of the OPTICS & PHOTONICS International Congress (OPIC 2017), consisting of twelve specialized conferences. In the CLES/LANSA '17, we will have 2 plenary talks, 16 invited talks and 34 contributed papers.

In addition, the OPTICS & PHOTONICS International Exhibition (OPIE 2017) is held at the congress site together with the poster session of CLES/LANSA '17. 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 6th High Energy Density Sciences (HEDS 2017)

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

It is our pleasure to have an opportunity with you in Yokohama to share your latest research achievements in the fields of high energy density science with high power lasers in 2017.

This is the 6th International Conference on High Energy Density Sciences (HEDS 2017) within the framework of the OPICS & PHOTONICS International Congress (OPIC 2017), which consists of 12 Optics-related scientific conferences. The HEDS 2017 will focus on the plasma photonics and laser plasma acceleration such as following topical fields; 1) Quantum beam generation and applications: electron, positron, ion,

meson, and other exotic particle beams, X-ray free electron lasers (XFEL); 2) Imaging Technologies: ultrafast imaging with particle and radiation sources, novel imaging systems; 3) Plasma photonics: ultra-strong fields, THz radiation, X-rays, vacuum physics, PW-class laser induced plasma kinetics; 4) Developing of business projects based on high energy density science: start and promotion.

In HEDS 2017, we will collaborate with the Conference on Advanced Lasers and Photon Sources (ALPS 2017) and the International Conference on X-ray optics, detectors, sources, and their applications (XOPT 2017) 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 formosity of Yokohama.

International Conference on Nano-photonics and Nano-optoelectronics (ICNN 2017)

Yasuhiko Arakawa
The General Chair

We warmly welcome you to the International Conference on Nano-photonics and Nano-optoelectronics 2017 (ICNN 2017). The development of nanoscale devices is an area of research making great strides in both academic and industrial laboratories around the world, and ICNN 2017 has been organized for the purpose of bringing together likeminded researchers working in these related fields. The conference will provide ample opportunities for peer interaction, inspiring presentations, exciting discussions, and invigorating debates. Furthermore, we are pleased to be able to launch this inaugural meeting as a part of the international scientific conference of the Optics & Photonics International Congress 2017 (OPIC '17).

The 3-day program of ICNN 2017 consists of 8 oral sessions and 1 poster session, including 7 invited talks, 32 contributed oral talks, and 21 poster presentations. In particular, this year's meeting, in which recent advances in nano-photonics and nano-optoelectronics will be discussed, features 7 distinguished invited scientists from overseas; Professors Zhenchao Dong (China), Vladimir Dubrovskii (Russia), Jean-Michel Gerard (France), Sven Hoefling (Germany), Yidong Huang (China), Alexey Nikitin (Spain), and Maurice Skolnick (UK).

As the General Chair of ICNN 2017, I would like to express my sincere gratitude to all invited speakers, oral speakers, and poster presenters for their fascinating presentations. Moreover, I thank the organizing committee members, the steering committee members, and the program committee members who have been working tirelessly for the success of ICNN 2017.

We wish that you enjoy the presentations and discussion at ICNN 2017 together with the beautiful bay area in Yokohama.

With best regards,

Information Photonics 2017 (IP '17)

Yoshio Hayasaki
Conference Chair
Center for Optical Research and Education,
Utsunomiya University

We are delighted that Information Photonics (IP) organized by the Optical Society of Japan (OSJ) is going to hold successfully in OPIC 2017 at Yokohama. The IP meeting started at Aspen, Colorado in 1999 as the succeeding meeting of Optics In Computing (OC)

organized by Optical Society of America (OSA). The subsequent IP meeting was held at Lake Tahoe, Nevada, in 2001,Washington, D.C. in 2003, and Charlotte, North Carolina in 2005. After those, the IP meetings were held at Awaji, Japan in 2008 (http://ip2008.i-photonics.jp) organized by the Group of Information Photonics of OSJ, Ottawa in 2011, and Warsaw in 2013. Information photonics is an emerging field that includes state-of-the-art methods, devices, models, and applications related to the utilization of optics in information society.

The IP meeting covers the following topics: optical computing, information processing, digital optics, nanophotonic information system, optical biomimetic computing, optical cryptology, holography and holography art, computer-generated holography, three-dimensional and volumetric displays, novel display, integral imaging, digital holography, quantitative phase imaging, computational imaging, compressive imaging, adaptive imaging, optical memory, holographic data storage, and optical, optoelectronic, and optomechatronic, optofuidic, and imaging devices for information photonics.

We hope that scientists, researchers, engineers, and students enjoy discussing recent developments in the field of information photonics.

The 6th Laser Display and Lightning Conference (LDC '17)

Kazuo Kuroda
Conference Chair
Center for Optical Research and Education,
Utsunomiya University

Welcome to the 6th Laser Display and Lightning Conference (LDC). Last year we held LDC in Jena, Germany. This year LDC will come back to Pacifico Yokohama as one of the conferences in OPIC.

The laser display technology is steadily developing from large displays for movie theaters to ultra-small displays for wearable devices. The laser lighting technology is also developing, especially for automotive headlamps. LDC is intended to provide a central forum for the update and review of scientific and technical information on laser display and lighting covering a wide range of fields from fundamental research to systems and applications.

A total of 36 papers will be presented during the conference, consisting 10 plenary and invited papers including the LEDIA-LDC Joint Session on April 19, and 26 contributed papers. A few post deadline papers will be accepted.

LDC is sponsored by the Optical Society of Japan. We would like to express our sincere thanks to technical supports from several academic societies and associations and to financial supports from Takano-Eiichi Hikari-Kagaku-Kikin (Optical Science Foundation), the Japanese Society of Applied Physics. We hope that all the attendees enjoy the conference.

The 5th International Conference on Light-Emitting Devices and Their Industrial Applications (LEDIA '17)

Yoshinao Kumagai
Steering Committee, Chair, LEDIA '17
Professor, Department of Applied Chemistry,
Tokyo University of Agriculture and Technology

On behalf of the organizing and program committees, it is my great pleasure to welcome you to the 5th International Conference on Light-Emitting Devices and Their Industrial Applications (LEDIA '17),

which is a part of the international specialized conferences of OPTICS & PHOTONICS International Congress 2017 (OPIC 2017).

LEDIA has been designed to maximize exchange of scientific knowledge between academic, industrial and government scientists on challenges of fabrication and characterization of light-emitting devices, exploitation of new materials for light-emitting devices, and industrial utilization of light-emitting devices.

As for the LEDIA '17, we decided to get back to the starting point of LEDIA and argue crystal growth and characterization for light-emitting devices. On the other hand, we also planned a joint session with Laser Display and Lighting Conference 2017 (LDC '17). So, you can get and discuss the latest information on growth and characterization of wide bandgap semiconductors, novel materials for light-emitting devices, fabrication and characterization of light-emitting devices, and industrial application of light-emitting devices.

Apart from the conference, please enjoy walk and sightseeing in Yokohama, the first harbor city introduced to the world as the entrance to Japan.

Finally, we welcome you again to LEDIA '17 and hope all of the participants get an outcome at the conference.

The first Light driven Nuclear-Particle Physics and Cosmology (LNPC '17)

Kensuke Homma
Conference Co-chair
Physical Science, Graduate School of Science,
Hiroshima University, Japan

Ovidiu Tesileanu
Conference Co-chair
Extreme Light Infrastructure - Nuclear Physics
Horia Hulubei National Institute for Physics and
Nuclear Engineering, Romania

We are pleased to announce the first Light-driven Nuclear-Particle Physics and Cosmology (LNPC '17) held in Yokohama, Japan.

We intend to launch a new branch of satellite international conferences within the framework of OPIC 2017. The objective of OPIC 2017 itself is to discuss the future of our society which will be achieved through the latest advances in optics and photonics, as will be presented at OPIC 2017 and OPIE '17 (OPTICS and PHOTONICS International Exhibition 2017). In addition to these technology-focused conferences, we will coherently organize LNPC '17, the main focus of which is fundamental physics. During the conference we will highlight fundamental questions in the physics of the present and early universe from both theoretical

and experimental aspects. In particular, we emphasize subjects which will be drastically advanced through the use of high-intensity lasers, new light sources from sub-eV to GeV energy scales, and the relevant sensor technologies. We hope to stimulate the interest of participants in LNPC '17 with this interdisciplinary exchange of information both in new technologies and fundamental physics.

The 2nd Laser Solutions for Space and the Earth (LSSE 2017)

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 2017)

This is the 2nd meeting of LSSE organized as a part of the OPTICS & PHOTONICS International Congress (OPIC 2017). The aim of "Laser Solutions 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 2017 are "Energy Production", "Social Infrastructure Maintenance with Laser Technology", "Lasers for Space Development and Earth Sciences", and "Space High-intensity Laser." We are looking forward to seeing you at Yokohama, Japan.

Optical Manipulation Conference 2017

Takashige Omatsu
OMC '17 Conference Chair (Chiba Univ.)

The 4th Optical Manipulation Conference 2017 (OMC '17) 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, OMC '15 and OMC '16 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.

International Conference on X-ray Optics and Applications (XOPT '17)

Tetsuya Ishikawa
Conference Co-chair, RIKEN

Kazuto Yamauchi
Conference Co-chair, Osaka University

We are pleased to host the International Conference on X-ray Optics and Applications (XOPT '17) as part of the Optics and Photonics International Congress 2017 (OPIC 2017) in Yokohama, Japan.

X-rays have played a vital role in a number of breakthrough scientific discoveries in recent years. Continuous innovations in X-ray optics, methodologies, and beamline instruments have laid the foundation for these achievements. For this conference, we are inviting leading experts in these fields from around the world to share the latest status of X-ray technology and developments and to discuss their plans for the future. One important topic we would like to discuss is how state-of-the-art X-ray optics can contribute to exploring the potential of the DLSR (Diffraction-Limited Synchrotron Radiation) sources that are currently emerging.

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

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OPIC 2017 Conferences Program

Oral Sessions

Oral, Tuesday, April 18 AM

ALPS <Room 302>

[Opening Address] 9:00-9:15
Hitoki Yoneda
Conference Chair
Inst. for Laser Sci., Univ. Electro-Comm., Japan

[ALPS1] 9:15-10:45
Optical frequency comb technology and applications
Chair: Mitsuru Musha
Inst. for laser Sci. Univ. of Electro-Communications, Japan

ALPS1-1 9:15 *Invited*

Frequency comb sources for spectroscopy in the mid-infrared
Ingmar Hartl
DESY, Germany

ALPS1-2 9:45

One-shot multi-point imaging with a fiber bundle using spectral interferometry of chirped optical- frequency comb
M. Uchida[1,2], T. Kato[1,2], Y. Tanaka[1], and K. Minoshima[1,2]
[1]The Univ. of Electro-Communications (UEC), [2]Japan Sci. and Tech. Agency (JST), ERATO MINOSHIMA Intelligent Optical Synthesizer (IOS) Project

ALPS1-3 10:00

Coherent Mid-infrared Optical Frequency Comb Generation Based on an Yb-doped Fiber Laser System
L. Jin[1], M. Yamanaka[1], V. Sonnenschein[1], H. Tomita[1], T. Iguchi[1], A. Sato[2], A. Ideno[2], T. Oh-hara[2], and N. Nishizawa[1]
[1]Dpet. Quantum Engineering, Nagoya Univ., Japan, [2]Sekisui Medical Co. Ltd., Japan

ALPS1-4 10:15

Repetition rate multiplication of a fiber-based optical frequency comb with a long-fiber-based ring resonator
Y. Nakajima[1,2], A. Nishiyama[1,2,3], S. Yoshida[1,2], T. Hariki[1], and K. Minoshima[1,2]
[1]The Univ. of Electro-Communications, Japan, [2]JST, ERATO MINOSHIMA IOS Project, Japan, [3]Res. Fellow of the JSPS, Japan

ALPS1-5 10:30

Development and characterization of 1.0 - 2.1 um octave-spanning, SC 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]University of Tokyo, Japan

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

ALPS <Room 511+512>

CLES / LANSA <Room 416+417>

[PLE] 9:30-11:30
CLES/LANSA Plenary
Chair: H. Yoshizawa
The University of Tokyo, Japan

PLE-1 9:30 *Invited*

Laser-driven neutron beams for applications
Markus Roth
Technische Universität Darmstadt, Germany

PLE-2 10:30 *Invited*

Recent trend of neutron applications using accelerator driven neutron sources
Yoshiaki Kiyanagi
Nagoya University, Japan

Oral Program

Oral, Tuesday, April 18 AM

HEDS <Room 311+312>

[Opening] 9:00-9:10
Opening Remarks 9:00
R. Kodama
Conference Chair of HEDS 2017
Osaka University, Japan

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

HEDS1-1 9:10 *Plenary I*

Outlook on the new physics with next generation short pulse high power lasers
Serugei Bulanov
QST, Japan

HEDS1-2 9:50 *Plenary II*

Plasma Acceleration: status and Path Forward
Chris Clayton
UCLA ,USA

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

LSSE <Room 316>

[Opening] 9:45-10:00
Opening Remarks
Toshikazu Ebisuzaki
Conference Chair of LSSE 2017
Chief Scientist, Computational Astrophysics Laboratory, RIKEN, Japan

[LSSE1] 10:00-12:00
Lasers for Space Development and Earth Sciences
Chair: Toshikazu Ebisuzaki
Computational Astrophysics Laboratory, RIKEN, Japan

LSSE1-1 10:00 *Invited*

Lasers on Mars: searching for habitability and traces of life
Sylvestre Maurice[1], R. C. Wiens[2], F. Rull[3]
[1]IRAP (Univ. Paul Sabatier, CNRS), France, [2]Los Alamos National Laboratory, USA, [3]Unidad UVa-CSIC al Centro de Astobiologia, University of Valladolid, Spain

Oral, Tuesday, April 18 AM

ALPS <Room 302>

[ALPS2] 11:00-12:00
Dual-comb spectroscopy
Chair: Hajime Inaba
AIST, Japan

ALPS2-1 11:00 *Invited*

Self-Corrected Dual-Comb Spectroscopy
Jérôme Genest[1], Nicolas Bourbeau Hébert[1], Jean-Daniel Deschênes[1], David G. Lancaster[2]
[1]Centre d'optique, photonique et laser, Univ. Laval, Canada, [2]Laser Phys. and Photonics Devices Lab., Univ. of South Australia, Australia

ALPS2-2 11:30

Development of Rapid Evaluation Method of Anisotropy of Nonlinear Optical Materials by Dual Comb Spectroscopy
K. Kondo[1,2], A. Asahara[1,2], Y. Wang[1], I. Shoji[3], K. Minoshima[1,2]
[1]The Univ. of Electro-Communications, Japan, [2]JST,ERATO MINOSHIMA Intelligent Optical Synthesizer, Japan, [3]Chuo Univ., Japan

ALPS2-3 11:45

Application of Relative Carrier Envelope Offset Frequency for Coherent Control in Dual-Comb Configuration
A. Asahara[1,2], K. Kondo[1,2], Y. Wang[1], and K. Minoshima[1,2]
[1]Univ. of Electro-Communications, Japan, [2]JST, ERATO MINOSHIMA Intelligent Optical Synthesizer, Japan

----- 12:00-13:15 Lunch Break -----

ALPS <Room 511+512>

[ALPS3] 11:00-12:00
High energy laser systems and technology
Chair: Hiromitsu. Kiriyama
QST, Japan

ALPS3-1 11:00 *Invited*

PENELOPE – amplifier benchmarks and 10 J performance
D. Albach[1], M. Siebold[1], M. Loeser[1,2], C. Bernert[1,2] and U. Schramm[1,2]
[1]Helmholtz-Zentrum Dresden-Rossendorf, Germany, [2]Technische Universität Dresden, Germany

ALPS3-2 11:30

Demonstration of a 64J at 10ns Output from Cryo- cooled Yb:YAG Laser using new laser-diode technology
T. Sekine, Y. Takeuchi, Y. Hatano, Y. Muramatsu, T. Kurita, T. Morita, Y. Mizuta, Y. Kabeya, K. Kawai, T. Iguchi, Y. Tamaoki, M. Kurata, K. Iyama, Y. Zheng, Y. Kato
Industrial Development Center, Central Res. Lab., Hamamatsu Photonics K.K., Japan

ALPS3-3 11:45

Development of Materials Processing Technology using 100-J class High-Energy-Laser Pulses
T. Watati, T. Kurita, T. Sekine, Y. Takeuchi, Y. Mizuta, Y. Kabeya, and Y. Kato
Cent. Res. Lab. Industries R&D Center, Hamamatsu Photonics K.K, Japan

----- 12:00-13:15 Lunch Break -----

CLES / LANSA <Room 416+417>

----- 11:30-12:40 Lunch Break -----

[CN1] 12:40-16:00
Compact Neutron Sources-1
Chairs: Y. Kiyanagi
Nagoya University, Japan
I. Murata
Osaka University, Japan

CN1-1 12:40 *Invited*

Current status of cyclotron-based epithermal neutron source for boron neutron capture therapy
Hiroki Tanaka[1], Yoshinori Sakurai[1], Minoru Suzuki[1], Shin-ichiro Masunaga[1], Toshinori Mitsumoto[2], Akira Maruhashi[1], Koji Ono[1]
[1]Kyoto University Research Reactor Institute, Japan, [2]Sumitomo Heavy Industries Ltd, Japan

Oral, Tuesday, April 18 AM

HEDS <Room 311+312>

[HEDS2] 11:00-12:30
Beams (Ion) (ImPACT Session II)
Chair: C. Clayton
UCLA, USA

HEDS2-1 11:00 *Invited*

Ion Acceleration Experiments with High Contrast High peak power PW Laser System J-KAREN-P
Mamiko Nishiuchi
QST, Japan

HEDS2-2 11:30 *Invited*

Laser ion acceleration using the Draco Petawatt facility at HZDR - experiments and radio-biological application
Karl Zeil
HZDR, Germany

HEDS2-3 12:00 *Invited*

High Intensity Laser Matter Interactions with the BELLA PW Laser Facility
Qing Ji
LBNL, USA

----- 12:30-14:00 Lunch -----

LSSE <Room 316>

LSSE1-2 11:00 *Invited*

Hadean environment inferred from the oldest zircon of the Earth: Application of micro-analysis by laser technologies
Shinji Yamamoto[1], Shuhei Sakata[2], Hideyuki Obayashi[3], Takafumi Hirata[3], Tsuyoshi Komiya[3]
[1]Yokohama National University, Japan, [2]Gakushuin University, Japan, [3]The University of Tokyo, Japan

LSSE1-3 11:30 *Invited*

The Origin and Evolution of Planet Mars
James M. Dohm
The Univeristy Museum, The University of Tokyo, Japan

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

Oral, Tuesday, April 18 PM

ALPS <Room 302>

[ALPS4] 13:15-15:15
Fiber Lasers and Ultrafast Lasers
Chair: Yasushi Fujimoto
Osaka Univ., Japan

ALPS4-1 13:15 *Invited*

3 kW Single Mode Fiber Laser for Materials Processing

Kensuke Shima, M. Kashiwagi, S. Ikoma, K. Uchiyama, H. Miyauchi, and D. Tanaka
Advanced Technology Laboratory, Fujikura Ltd.., Japan

ALPS4-2 13:45

SRS-suppressed photonic bandgap fiber amplifier using a laser diode as the seed source

D. Yagisawa, A. Shirakawa
Inst. for Laser Sci., Univ. of Electro-Communications, Japan

ALPS4-3 14:00

Combining Efficiency in Divided Pulse Amplification

E. Jo, K. Iwata, H. Tünnermann, and A. Shirakawa
Inst. for Laser Sci., Univ. of Electro-Communications, Japan

ALPS4-4 14:15

Single-Shot Spectral Measurements in Soliton Explosion on Yb Fiber Laser with Time-Stretched Dispersive Fourier Transformation

M. Suzuki[1], S. Yoneya[2], and H. Kuroda[1]
[1]Aichi Med. Univ., Japan, [2]Saitama Med. Univ., Japan

ALPS4-5 14:30

2 GHz Repetition Rate, Single-Wall Carbon Nanotube Mode-Locked Yb:YAG Channel Waveguide Laser in an Extended Cavity Configuration

S. Y. Choi[1], T. Calmano[1,2], C. Kränkel[1,2], F. Rotermund[3]
[1]ILP, Univ. Hamburg, Germany, [2]CUI, Univ. Hamburg, Germany, [3]Department of Physics, KAIST, Republic of Korea

ALPS4-6 14:45

Sub-100 fs mode-locked Yb^{3+}-doped CaF_2 laser by single-walled carbon nanotube

N. Yokoshima[1], S. Kitajima[1], A. Shirakawa[1], S. Y. Choi[2], and F. Rotermund[3]
[1]Inst. for Laser sci., Japan, [2]Inst. of Laser-Phys., Univ. of Hamburg, Germany, [3]Department of Physics, Korea Advanced Inst. of Sci. and Tech., Korea

ALPS4-7 15:00

Sub 200 fs Kerr-lens Mode-locked Tm^{3+}:Sc_2O_3 Laser In-band Pumped by a 1611nm Er:Yb Fiber MOPA

M. Tokurakawa[1],Y. Mashiko[1],E. Fujita[1], and C. Kränkel[2,3]
[1]ILS, UEC, Japan, [2]Inst. of Laser-Phys., Univ. of Hamburg, Germany, [3]The Hamburg Centre for Ultrafast Imaging, Germany

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

ALPS <Room 511+512>

[ALPS5] 13:15-15:00
Ultra-high intensity lasers and technology
Chair: Takunori Taira
IMS, Japan

ALPS5-1 13:15 *Invited*

J-KAREN-P laser facility producing 10^{22} W/cm^2 at 0.1 Hz

H. Kiriyama, M. Nishiuchi, A. S. Pirozhkov, Y. Fukuda, H. Sakaki, A Sagisaka, N. P. Dover, K. Kondo, K. Nishitani, K. Ogura, M. Mori, Y. Miyasaka, M. Kando and K. Kondo
KPSI QST, Japan

ALPS5-2 13:45

J-KAREN-P Laser Wavefront, Spot, and Pulse Shape

A. S. Pirozhkov[1], Y. Fukuda[1], M. Nishiuchi[1], A. Sagisaka[1], K. Ogura[1], H. Kiriyama[1], M. Mori[1], M. Kanasaki[2], K. Kondo[1], and M. Kando[1]
[1]KPSI QST, Japan, [2]Kobe Univ., Japan

ALPS5-3 14:00

Formation process of ozone assisted gas grating

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

ALPS5-4 14:15

Picosecond pedestals of recompressed Ti:Sapphire laser pulses.

M. Kalashnikov, N. Khodakovskiy
Max-Born-Inst. for Nonlinear Opt. and Short Pulse Spectroscopy, Germany

ALPS5-5 14:30

Thin Disk Ti:Sapphire Amplifiers for High Average Power Sub PW class Laser Systems

M. Kalashnikov[1,2], V. Chvykov[2], R. Nagymihaly[2], H. Cao[2], K. Osvay[2]
[1]Max-Born-Inst. for Nonlinear Opt. and Short Pulse Spectroscopy, Germany, [2]ELI-Hu Nkft., Hungary

ALPS5-6 14:45

Compression of high-power femtosecond laser pulses in a solid medium

J. Y. Yoo[1], J. I. Kim[1,2], H. W. Lee[1], J. H. Sung[1,3], J. M. Yang[1], Y. J. Son[1], Y. H. Jang[1], S. K. Lee[1,3], and C. H. Nam[1,2]
[1]Center for Relativistic Laser Sci., Inst. for Basic Sci., Korea, [2]Dep. of Phys. and Photon Sci., GIST, Korea, [3]Ultraintense Laser Lab., Adv. Photonics Res. Inst., GIST, Korea

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

CLES / LANSA <Room 416+417>

CN1-2 13:20 *Invited*

Development of the linac-based neutron source for boron neutron capture therapy in University of Tsukuba

Hiroaki Kumada[1], Fujio Naito[2], Hitoshi Kobayashi[2], Toshikazu Kurihara[2], Takashi Obina[2], Yosuke Honda[2], Tsukasa Miyajima[2], Takemi Nakamura[3], Takeji Sakae[1], Kenta Takada[1], Hideyuki Sakurai[1], Akira Matsumura[1]
[1]University of Tsukuba, Japan, [2]High Energy Accelerator Research Organization, Japan, [3]Japan Atomic Energy Agency, Japan

CN1-3 14:00 *Invited*

RIKEN compact neutron systems with fast and slow neutron

Yoshie Otake
RIKEN center for advanced photonics, RIKEN, Japan

----- 14:40-15:00 Break -----

CN1-4 15:00 *Invited*

Current status of the accelerator neutron source in Budker Institute

Sergey Taskaev, Boris Bayanov, Alexander Ivanov, Alexey Kashkarev, Dmitri Kasatov, Alexander Makarov, Yuri Ostreinov, Ivan Shchudlo, Igor Sorokin, Alexander Zaboronok
Budker Institute of Nuclear Physics, Russia

CN1-5 15:40

Nagoya University BNCT system using DC accelerator and sealed lithium targe

Sachiko Yoshihashi[1], Akira Uritani[1], Kenichi Watanabe[1], Atsushi Yamazaki[1], Daiki Furuzawa[1], Kazuya Sato[1], Kazuki Tsuchida[1], Yoshiaki Kiyanagi[1], Hirohiko Shimizu[1], Katsuya Hirota[1], Masaaki Kitaguchi[1], Go Ichikawa[1], Sohei Imajo[1], Yoshiyuki Tsuji[1], Tatsuya Tsuneyoshi[1], Yukinori Hamaji[2]
[1]Nagoya University, Japan, [2]National-Institute for Fusion Science, Japan

Oral Program

Oral, Tuesday, April 18 PM

HEDS <Room 311+312>

[HEDS3] 14:00-15:30
ImPACT (ImPACT Session III)
Chair: A.Faenov
Osaka University, Japan

HEDS3-1 14:00 *Invited*

Status and Perspective of ImPACT Program to Develop Ultra-compact XFEL Technologies
Yuji Sano
JST, Japan

HEDS3-2 14:30 *Invited*

Staging LWFA aiming for repeatable GeV-class accelerator
Tomonao Hosokai
Osaka Univ., Japan

HEDS3-3 15:00 *Invited*

Development of plasma and beam monitors for laser electron accelerators
Masaki Kando
QST, Japan

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

LSSE <Room 316>

[LSSE2] 13:30-15:30
Laser-Induced Breakdown Spectroscopy
Chair: Takashi Fujii
Central Research Institute of Electric Power Industry, Japan

LSSE2-1 13:30 *Invited*

Application of laser induced breakdown spectroscopy for the chemical investigation of concrete infrastructure
Gerd Wilsch, Cassian Gottlieb, Tobias Günther, Steven Millar, N. Sankat, Herbert Wiggenhauser
BAM, Germany

LSSE2-2 14:00 *Invited*

LIBS techniques for detecting materials in severe environments
Hironori Ohba[1], Ikuo Wakaida[2]
[1]National Institutes for Quantum and Radiological Science and Technology, Japan, [2]Japan Atomic Energy Agency, Japan

LSSE2-3 14:30

Laser-induced breakdown spectroscopy for diagnosis of porcelain insulators
Takashi Fujii[1], Kouhei Motoki[2], Kohei Yaji[1], Shuzo Eto[1], Eiki Hotta[2], Tetsuya Suekane[2]
[1]Central Research Institute of Electric Power Industry, Japan, [2]Tokyo Institute of Technology, Japan

LSSE2-4 14:50

Remote measurement of energetic material using ultra-short pulse laser
Naohiro Kitayama, Kiyohiro Sugiyama
Acquisition, Technology and Logistics Agency, Japan

Oral, Tuesday, April 18 PM

ALPS <Room 302>

[ALPS6] 15:30-17:30
Advanced Laser Technologies
Chair: Shunichi Matsushita
Furukawa Electric Co., Ltd, Japan

ALPS6-1 15:30 *Invited*

Visible laser oscillation in Pr-doped waterproof fluoro-aluminate glass fiber (tentative)
Yasushi Fujimoto
Osaka Univ., Japan

ALPS6-2 16:00

Pr^{3+}:YLF laser directly pumped by high power blue diode laser
H. Tanaka, K. Iijima, Y. Kiyota, F. Kannari
Keio Univ., Japan

ALPS6-3 16:15

Passively Q-switched, visible Pr:YLF laser operation with a Co:MALO saturable absorber
D.-T. Marzahl[1], M. P. Demesh[2], A. S. Yasukevich[2], V. E. Kisel[2], N. V. Kuleshov[2], and C. Kränkel[1,3]
[1]Inst. für Laser-Phys., Univ. Hamburg, Germany, [2]Center for Opt. Materials and Tech., Belarusian National Tech. Univ., Belarus, [3]The Hamburg Center for Ultrafast Imaging, Univ. Hamburg, Germany

ALPS6-4 16:30

A 796-nm Laser-Diode Pumped Self-Frequency- Doubling Nd:GdCOB Green Laser
L. Li[1,2,3], Y. Liu[1,2,3], S. Zhao[1,2,3], and W. Zheng[1,2,3]
[1]State key Lab. on Integrated Optoelectronics, Inst. of Sem., CAS, China, [2]Lab. of Solid-state Optoelectronics Info. Tech., Inst. of Sem., CAS, China, [3]College of Materials Sci. and Opto-Electronic Tech., Univ. of Chinese Academy of Sci.,China

ALPS6-5 16:45

Comparative study of Ti:sapphire laser pumped by 451-, 478- and 520-nm laser diodes
N. Sugiyama, H. Tanaka, and F. Kannari
Keio Univ., Japan

ALPS6-6 17:00

Yb-doped CaF_2-LaF_3 ceramic laser
K. Yamakado[1], S. Kitajima[1], A. Shirakawa[1], K. Ueda[1] and H. Ishizawa[2]
[1]ILS., UEC., Japan, [2]NIKON Corp., Japan

ALPS6-7 17:15

Brightness enhancement in a ring-shape-pumped solid state laser
S. H. Noh, S. M. An, J. G. Hwang, D. J. Kim and J. W. Kim
Dpt. of Appl. Phy., Hanyang Univ., Ansan, Korea

ALPS <Room 511+512>

[ALPS7] 15:30-17:15
Novel laser control, diagnostics and applications
Chair: Toshiyuki Kawashima
Hamamatsu Photonics K.K., Japan

ALPS7-1 15:30

Attosecond streaking of chirp-free high harmonics in the extreme ultraviolet driven by a long-wavelength infrared light source
N. Saito[1], N. Ishii[1], T. Kanai[1], S. Watanabe[2], and J. Itatani[1]
[1]ISSP, Univ. Tokyo, Japan, [2]Tokyo Univ. Sci., Japan

ALPS7-2 15:45

Ultrafast Thulium-Doped Fiber Amplifier Generating Watt-Level 50 Femtosecond Pulses
Y. Nomura[1,2], T. Fuji[1]
[1]Inst. for Molecular Sci., Japan, [2]JST-PRESTO, Japan

ALPS7-3 16:00

Femtosecond Double-Pulse Laser Ablation for Titanium at the Fluence near Ablation Threshold
Y. Furukawa[1,2], S. Inoue[1,2], M. Hashida[1,2], K. Teramoto[1,2], K. Mori[1,2], Y. Nakamiya[1], S. Sakabe[1,2]
[1]Adv. Res. Cent. for Beam Sci., Inst. for Chem. Res., Kyoto Univ., Japan, [2]Grad. Sch. of Sci., Kyoto Univ., Japan

ALPS7-4 16:15

Mid Infrared Pulse Generation, Shaping and Amplification from a Supercontinuum Pulse
R. Hida, T. Suzuki, Y. Yamaguchi, and F. Kannari
Dep. of Electronics and Electrical Eng., Keio Univ., Japan

ALPS7-5 16:30

Optical pulse compression of supercontinuum using spatial light modulator available for UV-NIR
T. Suzuki[1], M. Yamashita[2,3], and H. Yoneda[1]
[1]Inst. for Laser Sci., Univ. Electro-Comm., Japan, [2]Hokkaido Univ., Japan, 3Kyoto Photonics Soc., Japan

ALPS7-6 16:45

CO_2-TEA Pulse Clipping Using Pulsed High Voltage Pre-Ionization For High Spatial Resolution I.R.LIDAR Systems
T. G. Cherifi
Division of Sci. & Eng., Saint Louis Univ.-Madrid Campus, Spain

ALPS7-7 17:00

Simulation and Experiment of 80 GHz Colliding- Pulse Semiconductor Mode-locked Laser with High Power
P. Zhao[1,2,3], A. Liu[2], and W. Zheng[1,2,3]
[1]State Key Lab. on Int. Opt. Lab, Inst. Semiconductors, CAS, China, [2]Lab. of Solid State Opt. Info. Tech., Inst. Semiconductors, CAS, China, [3]Univ. of Chinese Academy of Sci., China.

CLES / LANSA <Room 416+417>

[LN1] 16:00-17:40
Laser Neutron Sources-1
Chair: H. Nishimura
Institute of laser engineering, Osaka University, Japan

LN1-1 16:00 *Invited*

Laser-driven neutron source development for industrial applications of plasma accelerators
C. M. Brenner[1], S. Kar[2], J. Jowsey[3] , C. P. Jones[4], S. R. Mirfayzi[2], D. R. Rusby[1,5], C. Armstrong[1,5], A. Alejo[2], L. A. Wilson[1], R. Clarke[1], H. Ahmed[2], N. M. H. Butler[5], D. Haddock[1], A. Higginson[5], A. McClymont[1], C. Murphy[6], M. Notley[1], P. Oliver[1], R. Allott[1], C. Hernandez-Gomez[1], P. McKenna[5], D. Neely[1], T. B. Scott[4]
[1]Central Laser Facility, Science and Technology Facilities Council, Rutherford Appleton Laboratory, UK, [2]Centre for Plasma Physics, Queen's University Belfast, UK, [3]Sellafield Ltd, UK, [4]Interface Analysis Centre, HH Wills Physics Laboratory, UK, [5]Department of Physics, SUPA, University of Strathclyde, UK, [6]Department of Physics, University of York, UK

LN1-2 16:40

Repetitive neutron generation by laser-driven photonuclear reaction
Yasunobu Arikawa[1], Yusuke Kato[1], Yuki Abe[1], Shuto Matsubara[1], Hidetaka Kishimoto[1], Alessio Morace[1], Akifumi Yogo[1], Hiroaki Nishimura[1], Mitsuo Nakai[1], Shinsuke Fujioka[1], Hiroshi Azechi[1], Kunioki Mima[2], Shunsuke Inoue[3], Yoshihide Nakamiya[3], Kensuke Teramoto[3], Masaki Hashida[3], Shuji Sakabe[3]
[1]Institute of Laser Engineering, Osaka University, Japan, [2]The Graduate School for the Creation of New Photonics Industries, Japan, [3]Advanced Research Center for Beam Science, Institute for Chemical Research, Kyoto University, Japan

LN1-3 17:00

$3x10^8$ D-D neutron generation by high intensity laser irradiation onto inner surface of a spherical shell target
Nakahiro Satoh[1], T. Watari[1], K. Nishihara[1], R. Yoshimura[1], N. Akiyama[1], M. Takagi[1], T. Kawashima[1], Y. Abe[2], Y. Arikawa[2], A. Sunahara[3], Y. Hironaka[2], K. Shigemori[2], S. Fujioka[2], M. Nakai[2], H. Azechi[2]
[1]Central Research Laboratory, HAMAMATSU PHOTONICS K.K., Japan, [2]Institute of Laser Engineering, Osaka University, Japan, [3]Institute for Laser Technology, Japan

LN1-4 17:20

Development project for repetitive laser driven neutron source using diode pumped solid state laser
Ryohei Hanayama
The Graduate School for the Creation of New Photonics Industries, Japan

Oral Program

Oral, Tuesday, April 18 PM

HEDS <Room 311+312>

LSSE <Room 316>

LSSE2-5 15:10

Combining Raman and Laser Induced Breakdown Spectroscopy by Double Pulse Lasing

Vasily N. Lednev[1], Pavel A. Sdvizhenskii[1], Mikhail Ya. Grishin[2,3], Vladimir V. Bukin[3], A. N. Fedorov[3], Sergey M. Pershin[3]
[1]National University of Science and Technology MISiS, Russian Federation, [2]Moscow Institute of Physics and Technology (State University), Russian Federation, [3]Prokhorov General Physics Institute of Russian Academy of Sciences, Russian Federation

[HEDS4] 16:00-17:30
Application / High-Field Physics
Chair: M. Nishiuchi
QST, Japan

HEDS4-1 16:00 *Invited* **(CANCELED)**

Visualization of Lattice Dynamics in Nanoscale Graphite Triggered by Femtoscond Laser Pulses

Wenxi Liang
HUST, P.R. China

HEDS4-2 16:30 *Invited*

Ultrafast Electron Diffraction and Microscopy using a Femtosecond-pulse Electron Beam

Jinfeng Yang
Osaka Univ., Japan

HEDS4-3 17:00 *Invited*

The effect of laser contrast on generation of highly charged Fe ions by ultra - intense femtosecond laser pulses

Anatoly Faenov
Osaka Univ., Japan

Oral, Wednesday, April 19 AM

Congress <Room 501+502>

Plenary Sessions 9:00-12:10

[Greetings] 9:00-9:15

Chris. Barty
Congress Chair
Lawrence Livermore National Laboratory, USA

Kenichi IGA
IAB Chair
Tokyo Institute of Technology Professor Emeritus/
Former President, Japan

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

Chair: Sadao Nakai
Congress Chair
Professor Emeritus, Osaka University, Japan

OPIC1-1 9:15-9:55

Optical Technologies Required for Vehicle Safety System

Kazuoki Matsugatani
Director, ADAS Buisiness & Technology Development Div., DENSO CORPORATION, Japan

OPIC1-2 9:55-10:35

Ultra-precision control of optical waves by use of fiber-based frequency combs and its metrology application

Kaoru Minoshima
The University of Electro-Communications (UEC), Japan, JST, ERATO MINOSHIMA Intelligent Optical Synthesizer (IOS), Japan

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

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

Chair: Reinhart Poprawe
Congress Chair
Director, Fraunhofer Institute for Laser Technology, Germany

OPIC2-1 10:50-11:30

Breaking limits: space-time focusing technologies for imaging and manipulating biological systems

Jeff A. Squier
Department of Physics Colorado School of Mines , USA

OPIC2-2 11:30-12:10

Gravitational Wave Detection: Laser Interferometer Technologies in Advanced LIGO

Koji Arai
Caltech, LIGO Senior Scientist, USA

Oral, Wednesday, April 19 PM

ALPS & HEDS & XOPT <Room 302>

[ALPS, HEDS, XOPT Joint Session 1]
13:30-15:30
Chairs: R. Kodama
Osaka University
H. Yoneda
Inst. for Laser Sci., Univ. Electro-Comm., Japan

HEDSj-1 13:30 *Invited*

Implementation of Extreme Light Infrastructure-Nuclear Physics
Kazuo Tanaka
Extreame Light Infrastructure -Nuclear Physics (ELI-NP)

HEDSj-2 14:00 *Invited*

High peak and average power laser research at the Laboratory for Laser Energetics
Michael Campbell
University of Rochester, USA

ALPSj-1 14:30 *Invited*

Linking high harmonics from solids and gases
T. J. Hammond, Paul B Corkum
University of Ottawa, Canada

ALPSj-2 15:00 *Invited*

Recent Advances of the Apollon 10 PW Laser
Ji-Ping Zou[1], D. N. Papadopoulos[1], C. L. Blanc[1], F. Druon[2], L. Martin[1], A. Fréneaux[1], C. Bonnin[1], I. Taghzout[1], A. Beluze[1], N. Lebas[1], B. L. Garrec[1], F. Mathieu[1], and P. Audebert[1]
[1]Lab. pour l'Utilisation des Lasers Intenses, CNRS, Ecole Polytechnique, CEA, Univ. Pierre et Marie Curie, Palaiseau, France, [2]Lab. Charles Fabry, Inst. d'Optique, CNRS, Univ. Paris Sud, Palaiseau, France

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

[ALPS, HEDS, XOPT Joint Session 2]
16:00-17:00
Chair: M. Yabashi
RIKEN SPring-8 Center, Japan

XOPTj-1 16:00 *Invited*

Perfect X-ray focusing via fitting corrective glasses to aberrated optics
Christian G. Schroer
DESY/University of Hamburg, Germany

XOPTj-2 16:30 *Invited*

Probe into vacuum filed using high intensity X-ray
Shoji Asai
The University of Tokyo, Japan

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

LDC & LEDIA <Room 301>

[LED-LDC1] 13:30-17:15
LEDIA LDC Joint Session
Chairs: Ryuji Katayama
Osaka Univ., Japan
Sunao Kurimura
National Institute for Materials Science, Japan

Opening Remarks 13:30-14:00
Hiroshi Amano
Nagoya Univ., Japan
Kazuo Kuroda
Utsunomiya Univ., Japan

LED-LDC1-1 14:00 *Invited*

IQE Quantification of Nitride Semiconductors Omnidirectional Photoluminescence (ODPL) Measurement Utilizing an Integrating Sphere
Kazunobu Kojima[1], Hirotaka Ikeda[2], Kenji Fujito[2], Shigefusa F. Chichibu[1]
[1]Tohoku Univ., Japan, [2]Mitsubishi Chemical Corp., Japan

LED-LDC1-2 14:30 *Invited*

IQE Quantification of Nitride Semiconductors Photocurrent and Photoluminescence Measurements for InGaN Based LED
Shigeyoshi Usami, Yoshio Honda, Hiroshi Amano
Nagoya Univ., Japan

LED-LDC1-3 15:00 *Invited*

IQE Quantification of Nitride Semiconductors Simultaneous Photo-acoustic and Photoluminescence Measurements for InGaN Quantum Wells
Atushi A. Yamaguchi[1], Takashi Nakano[1], Shigeta Sakai[1], Haruki Fukada[1], Yuya Kanitani[2], Shigetaka Tomiya[2]
[1]Kanazawa Institute of Technology, Japan, [2]Sony Corp., Japan

----- 15:30-15:50 Break -----

LED-LDC1-4 15:50 *Invited*

Output Power Improvement of High-Power Blue Laser Diode with Modulated AlGaN Cladding and n-type InGaN/GaN Superlattice Waveguide Layers
C.L. Wu[1], J.D. Wu[2], Y.L. Lai[2], K.Y. Liao[2], C.L. Lin[2], Y.L. Li[2], S.H. Teng[1],
[1]National Taiwan Univ., Taiwan, [2]PlayNitride Inc., Taiwan

LED-LDC1-5 16:20 *Invited*

Holographic Display and its Computational Techniques
Tomoyoshi Shimobaba, Takashi Kakue, Tomoyoshi Ito
Chiba Univ., Japan

LED-LDC1-6 16:50 *Invited*

Projection Mapping
Hisayo Yoshida
PICS, Japan

BISC & OMC <Room 418>

[OMC and BISC Joint Symposium I]
13:30-15:10
Chair: Takashige Omatsu
Chiba Univ., MCRC Chiba Univ., Japan

OMC & BISC1-1 13:30 *Plenary*

Bioluminescent indicator applicable to membrane voltage recording in various excitable cell types
Takeharu Nagai
Osaka Univ., Japan

OMC & BISC1-2 14:10 *Invited*

Cellular biophysical markers of hydroxyurea treatment in sickle cell disease
Peter T. C. So
Massachusetts Institute of Technology, USA

OMC & BISC1-3 14:40 *Invited*

To be announced
Cornelia Denz
Westfälische Wilhelms-Univ. Münster, Germany

----- 15:10-15:40 Coffee Break -----

[OMC and BISC Joint Symposium II]
15:40-16:40
Chair: Osamu Matoba
Kobe Univ., Japan

OMC & BISC2-1 15:40

Wavefront correction enables vibrational imaging of bacteria with multimode fibre probes
Ivan Gusachenko, Mingzhou Chen, Kishan Dholakia
Univ. of St Andrews, UK

OMC & BISC2-2 15:55

Two-photon excitation microscopy with spatial light modulator
Naoya Matsumoto[1], Alu Konno[2], Takashi Inoue[1], Haruyoshi Toyoda[1], Toshiyuki Miwa[1], Kazuhiro Nakamura[1], Shigetoshi Okazaki[2]
[1]Hamamatsu Photonics K.K., Japan, [2]Hamamatsu Univ. School of Medicine, Japan

OMC & BISC2-3 16:10

Rhythmic motion of colloidal particles driven by optical force
Keita Saito, Yasuyuki Kimura
Kyushu Univ., Japan

OMC & BISC2-4 16:25

Thermo-plasmonic manipulation of living cyanobacteria on a gold nanostructure
Shota Naka, Tatsuya Shoji, Yasuyuki Tsuboi
Osaka City University, Japan

OMC & BISC2-5 16:40

Novel compact photoacoustic imaging system to explore the applications in the medical imaging field
Kaku Irisawa[1], Takatsugu Wada[1], Toshiro Hayakawa[1], Miya Ishihara[2]
[1]FUJIFILM Corp., Japan, [2]National Defense Medical College, Japan

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

Wed, 19 April

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ALPS <Room 511+512>

[ALPS8] 13:30-15:15
Novel optical devices, materials, nanostructure and applications
Chairs: Takasumi Tanabe
Keio Univ., Japan
Takuo Tanaka
RIKEN, Japan

ALPS8-1 13:30 *Invited*

Expanding applicable optical sources in plasmonics and through a dispersionincreasing fiber
Chen-Bin Huang
Inst. of Photonics Tech., National Tsing Hua Univ., Taiwan

ALPS8-2 14:00 *Invited*

Metamaterial absorbers and their applications
Takuo Tanaka[1,2,3]
[1]RIKEN Metamaterials Lab., Japan, [2]RIKEN Innovative photon manipulation research team, Japan, [3]Tokyo Inst. of Tech., Japan

ALPS8-3 14:30

Nanofocused Surface Plasmon Pulses at 400 nm and 800 nm using an Aluminum Tapered Tip
K. Tomita, Y. Kojima, and F. Kannari
Keio Univ., Japan

ALPS8-4 14:45

Tuning Supermode Splitting for Stimulated Brillouin Scattering
Y. Honda[1], W. Yoshiki[1], T. Tetsumoto[1], S. Fujii[1], K. Furusawa[2], N. Sekine[2] and T. Tanabe[1]
[1]Keio Univ, Japan, [2]NICT, Japan

ALPS8-5 15:00

A Silicon Waveguide Platform with Large Misalignment Tolerance for Flip-Chip Based Hybrid Silicon/III-V Laser
H. Wang[1], W. Zheng[1,2]
[1]Lab. of Solid State Opt. Info. Tech., Inst. Semiconductors, CAS, China, [2]State Key Lab. on Int. Opt., Inst. Semiconductors, CAS, China

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

CLES / LANSA <Room 416+417>

[LN2] 13:20-15:00
Laser Neutron Sources-2
Chair: C. Brenner
Central Laser Facility, Science and Technology Facilities Council, UK

LN2-1 13:20 *Invited*

Laser-driven neutron source: state of the art and applications on ILE
Akifumi Yogo[1,4], K. Koga[1], S. Tosaki[1], Y. Suzuki[1], K. Okamoto[1], Y. Arikawa[1], S. Fujioka[1], Y. Sentoku[1], Y. Abe[1], Y. Kato[1], M. Nakai[1], K. Mima[1,2], K. Yamanoi[1], T. Norimatsu[1], M. Kanasaki[3], K. Oda[3], T. Yamauchi[3], H. Azechi[1], H. Nishimura[1]
[1]Institute of Laser Engineering (ILE), Osaka University, Japan, [2]The Graduate School for the Creation of New Photonics Industries, Japan, [3]Graduate School of Maritime Sciences, Kobe University, Japan, [4]PRESTO, Japan Science and Technology Agency, Japan

LN2-2 14:00

Ion acceleration and neutron production in different types of targets
Yutong Li[1,2,3], Yihang Zhang[1,2], Weimin Wang[1,3]
[1]Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, China, [2]School of Physical Sciences, University of Chinese Academy of Sciences, China, [3]Collaborative Innovation Center of IFSA (CICIFSA), Shanghai Jiao Tong University, China

LN2-3 14:20

Quasimonoenergetic proton production through the coulomb explosion of spherical nanostructures
Myles Allen H. Zosa, Masakatsu Murakami
Institute of Laser Engineering, Osaka University, Japan

LN2-4 14:40

Compact neutron source using coulomb-explosion-generated quasimonoenergetic protons
Masakatsu Murakami, Myles-Allen Zosa, Kazumasa Fujinohara
Institute of Laser Engineering, Osaka University, Japan

----- 15:00-15:20 Break -----

ICNN <Room 414+415>

[Opening] 13:30-13:45
Opening Remarks
Y. Arakawa
The University of Tokyo

[ICNN1] 13:45-15:00
QDs and photonic crystals
Chair: Y. Huang
Tsinghua University, China

ICNN1-1 13:45 *Invited*

On-chip Quantum Optics based on III-V Quantum Dots in Circuit Geometries
Maurice Skolnick[1,2]
[1]Department of Physics and Astronomy, University of Sheffield, UK, [2]University of Sheffield, UK

ICNN1-2 14:15

Quantum dot-nanocavity-waveguide coupled systems fabricated by transfer printing
Ryota Katsumi[1], Yasutomo Ota[2], Kazuhiro Kuruma[1], Akihito Tamada[1], Masahiro Kakuda[2], Toshiyuki Miyazawa[3], Kazuya Takemoto[3], Satoshi Iwamoto[1], Yasuhiko Arakawa[1]
[1]Institute of Industrial Science, The Univ. of Tokyo, Japan, [2]Institute for Nano Quantum Information Electronics, The Univ. of Tokyo, Japan, [3]Fujitsu Laboratories Ltd, Japan

ICNN1-3 14:30

Adiabatic Wavelength Conversion Through Free-Carrier Depletion Using pn-Junction-Loaded Photonic Crystal Waveguides
Keisuke Kondo, Toshihiko Baba
Yokohama Nat'l Univ., Japan

ICNN1-4 14:45

A Scheme for Generating Optical Vortex from a Quantum Dot using Degenerate Photonic Crystal Nanocavity Modes
Satoshi Iwamoto, Yasutomo Ota, Yasuhiko Arakawa
The University of Tokyo, Japan

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

Oral, Wednesday, April 19 PM

IP <Room 413>

[IP-19PM-1] 13:30-15:30
[Special Session] Photonic Intelligence
Chair: Makoto Naruse
National Institute of Information and Communications Technology, Japan

IP-19PM-1-1 13:30 *Invited*

A Coherent Ising Machine Based on Networked Optical Parametric Oscillators for Optimization Problems

Takahiro Inagaki[1], Yoshitaka Haribara[2,3], Koji Igarashi[4], Tomohiro Sonobe[3,5], Shuhei Tamate[3], Toshimori Honjo[1], Alireza Marandi[6], Peter McMahon[6], Takeshi Umeki[7], Koji Enbutsu[7], Osamu Tadanaga[7], Hirokazu Takenouchi[7], Kazuyuki Aihara[2], Ken-ichi Kawarabayashi[3,5], Kyo Inoue[4], Shoko Utsunomiya[3], Hiroki Takesue[1]
[1]NTT Basic Research Laboratories, Japan, [2]The University of Tokyo, Japan, [3]National Institute of Informatics, Japan, [4]Osaka University, Japan, [5]JST, Japan, [6]Stanford University, USA, [7]NTT Device Technology Laboratories, Japan

IP-19PM-1-2 14:00 *Invited*

Solving Ising Problems with All-to-All Network of Time-Multiplexed Optical Parametric Oscillators

Ryan Hamerly[1], Peter McMahon[1,2], Alireza Marandi[2], Shoko Utsunomiya[1], Yoshihisa Yamamoto[3]
[1]National Institute of Informatics, Japan, [2]Stanford University, USA, [3]JST, Japan

IP-19PM-1-3 14:30 *Invited*

Performance Improvement of Reservoir Computing by Using Two Temporal Outputs in Mutually Coupled Optoelectronic System

Kazutaka Kanno, Masatoshi Bunsen
Fukuoka University, Japan

IP-19PM-1-4 15:00 *Invited*

Structure and Fundamental Processes of Photonic Intelligence

Hirokazu Hori
University of Yamanashi, Japan

----- 15:30-15:45 BREAK -----

LNPC <Room 317>

[Opening] 13:25-13:30
Opening Remarks
K. Homma[1,2]
[1]Hiroshima Univ., Japan, [2]IZEST, Ecole Polytechnique, France

[LNPC1] 13:30-17:30
Fundamental physics in the extremely early universe
Chair: T. Namba
ICEPP, The univ. of Tokyo, Japan

LNPC1-1 13:30 *Invited*

Cosmic evolution and fundamental physics

M. Hazumi
KEK, Japan

LNPC1-2 14:20 *Invited*

Introduction to LiteBIRD - Light Satellite for studies for B-mode Polarization and Inflation from cosmic Background Radiation and Detection

S. Uozumi for the LiteBIRD Phase-A1 working group
Okayama Univ., Japan

LNPC1-3 14:50

Dilaton and PseudoDilaton

Y. Fujii
Waseda Univ., Japan

----- 15:30-15:50 Break -----

LSSE <Room 316>

[LSSE3] 13:10-15:10
Decommissioning and Monitoring for Power Reactors
Chair: Akihiko Nishimura
Japan Atomic Energy Agency, Japan

LSSE3-1 13:10 *Invited*

The composite-type optical fiberscope system and its industrial deployment

Kiyoshi Oka[1], Akihiko Nishimura[2]
[1]National Institutes for Quantum and Radiological Science and Technology, Japan, [2]Japan Atomic Energy Agency, Applied Laser Technology Institute, Japan

LSSE3-2 13:40

Nondestructive evaluation of plastic strain in carbon steels by magnetic incremental permeability method

Takanori Matsumoto[1], Tetsuya Uchimoto[2], Toshiyuki Takagi[2], Gerd Dobmann[3]
[1]Graduate School of Engineering, Tohoku University, Japan, [2]Institute of Fluid Science, Tohoku University, Japan, [3]Saarland University, Germany

LSSE3-3 14:00

Laser Ultrasonic Approach for Detecting a Deteriorated Rebar in Concrete

Akinori Furusawa[1], Akihiko Nishimura[1], Yusuke Takenaka[2]
[1]Japan Atomic Energy Agency, Japan, [2]A-tech Co. Ltd., Japan

LSSE3-4 14:20

Evaluation of the Applicability of Laser Measurement Techniques for the Instrumentation of Fast Reactors using Sodium Engineering Research Facility

Masashi Ueda, Koichi SARUTA, Toshihiko Yamaguchi
Japan Atomic Energy Agency, Japan

LSSE3-5 14:40 *Invited*

Development of laser techniques for decommissioning of Fukushima Daiichi Nuclear Power Station

Tomonori Yamada[1], Nguyen Phi Long[1], Toshihide Hanari[1], Takuya Shibata[1], Akihiko Nishimura[1], Shin-ichi Koyama[1], Hiroyuki Daido[1], Yoshinori Shimada[2], Oleg Kotyaev[2], Shinri Kurahashi[2]
[1]Japan Atomic Energy Agency, Japan, [2]Institute for Laser Technology

----- 15:10-15:30 Break -----

Oral, Wednesday, April 19 PM

ALPS <Room 511+512>

[ALPS9] 15:45-17:30
Biomedical Imaging
Chair: Masayuki Suzuki
Aichi-medi. Univ., Japan

ALPS9-1 15:45 *Invited*

In vivo two-photon imaging of brain and neurons using a high-peakpower gain-switched laser diode and adaptive optics
Tomomi Nemoto[1,2], R. Kawakami[1,2], T. Hibi[1], A. Tanabe[1,2]
[1]Research Inst. for Elec. Sci., Hokkaido Univ., Japan [2]Grad. school of info. sci. and tech., Hokkaido Univ., Japan

ALPS9-2 16:15

Dynamics of Triplet/Dark States of Fluorescent Molecules in the Photobleaching Process
N. Sakata, S. Maesako, N. Kamiyama, K. Iwata, K. Toda, and A. Suda
Tokyo Univ. of Sci., Japan

ALPS9-3 16:30

Real Time Measurement of Folmaldehyde Using 3μm Difference Frequency Laser
S. Sakai[1], M. Asobe[1], A. Katoh[1], A. Tokura[2]
[1]Tokai Univ., Japan, [2]NTT Corp., Japan

ALPS9-4 16:45 *Invited*

Ultrahigh resolution OCT with broadband fiber lasers
Norihiko Nishizawa, Hiroyuki Kawagoe, and Masahito Yamanaka
Dept. Electrical Eng., Nagoya Univ., Japan

ALPS9-5 17:15

Ultrahigh speed en face optical coherence tomography using two axis KTN optical beam deflectors
M. Ohmi[1], Y. Shinya[1], R. Tagashira[1], T. Imai[2], S. Tatsumi[2], S. Toyoda[2], T. Sakamoto[2]
[1]Grad. School of Med., Osaka Univ., Japan, [2]NTT Device Innovation Center, NTT Corp., Japan

----- 17:30-18:00 Break / Move -----

CLES / LANSA <Room 416+417>

[AP1] 15:20-16:40
Applications-1
Chair: D. Higginson
Lawrence Livermore National Laboratory, USA

AP1-1 15:20 *Invited*

Development and application of quasi-monoenergetic neutron/gamma sources from ion-driven nuclear reactions
Igor Jovanovic
University of Michigan, USA

AP1-2 16:00

Development of neutron resonance transmission analysis as a non-destructive assay technique for nuclear nonproliferation
Harufumi Tsuchiya, Fumito Kitatani, Makoto Maeda, Yosuke Toh, Masatoshi Kureta
Nuclear Science and Engineering Center, Japan Atomic Energy Agency, Japan

AP1-3 16:20

Industrial applications of compact neutron radiography
Haruo Miyadera, Koichi Nakayama, Kei Takakura, Tsukasa Sugita, Kenichi Yoshioka, Naoto Kume, Yoshiji Karino
TOSHIBA Corporation, Japan

[CN2] 16:40-18:00
Compact Neutron Sources-2
Chair: H. Miyadera
TOSHIBA Corporation, Japan

CN2-1 16:40 *Invited*

Development of a portable neutron source based on inertial electrostatic confinement fusion and its application to active interrogation of special nuclear materials
Kai Masuda[1], Mahmoud A. Bakr[1], Tsuyoshi Misawa[2], Yoshiyuki Takahashi[2], Yasunori Kitamura[2], Masaya Yoshida[3], Norio Yamakawa[4], Atsushi Matsuda[4]
[1]Institute of Advanced Energy, Kyoto University, Japan, [2]Research Reactor Institute, Kyoto University, Japan, [3]Graduate School of Energy Science, Kyoto University, Japan, [4]Pony Industry Co. Ltd., Japan

CN2-2 17:20

A waterproof palm-sized neutron generator using inertial electrostatic confinement (IEC) fusion
Kei Takakura[1,2], Takayuki Sako[1], Haruo Miyadera[1], Kenichi Yoshioka[1], Yoshiji Karino[1], Daisuke Uematsu[1], Kohei Okumoto[2], Jun Hasegawa[2], Toshiyuki Kohno[2], Eiki Hotta[2]
[1]Toshiba Corporation, Japan, [2]Tokyo Institute of Technology, Japan

CN2-3 17:40

Construction of a compact, low-inductance, 100 J dense plasma focus for yield optimization studies
Christopher Cooper, Ihor Holod, Drew Higginson, Alexander Povilus, Steven Chapman, Steve Falabella, Yuri Podpaly, Brian Shaw, Jason Liu, Andrea Schmidt
Lawrence Livermore National Laboratory, USA

ICNN <Room 414+415>

[ICNN2] 15:30-17:00
Photonic nanostructures
Chair: M. S. Skolnick
University of Sheffield, UK

ICNN2-1 15:30 *Invited*

Manipulating the Generalized Energy-bands by Nanostructure
Yidong Huang,Kaiyu Cui, Zhilei Huang
Dept. of Electronic Engineering, Tsinghua Univ., China

ICNN2-2 16:00

High Speed and Highly Efficient Si Optical Modulator with In-Situ B Doped Strained SiGe Layer
Junichi Fujikata[1], Jaehoon Han[2], Masataka Noguchi[1], Shigeki Takahashi[1], Mitsuru Takenaka[2], Takahiro Nakamura[1]
[1]PETRA, Japan, [2]Univ. of Tokyo, Japan

ICNN2-3 16:15

Continuous-Wave Operation of Photonic-Crystal Lasers Coupled to Si Waveguides
Koji Takeda[1], Takuro Fujii[1], Akihiko Shinya[2], Tai Tsuchizawa[1], Hidetaka Nishi[1], Eiichi Kuramochi[2], Masaya Notomi[2], Koichi Hasebe[1], Takaaki Kakitsuka[1], Shinji Matsuo[1]
[1]NTT Device Technology Labs., Japan, [2]NTT Basic Research Labs., Japan

ICNN2-4 16:30

Polarization Splitting Grating Coupler for a Silicon Photonics Receiver
Yohei Sobu, Seok-Hwan Jeong, Yu Tanaka
PETRA, Japan

ICNN2-5 16:45

A CMOS compatible in-plane compact wavelength demultiplexer based on photonic crystal nanocavities
Tomohiro Tetsumoto, Yuta Ooka, Nurul Ashikin Binti Daud, Naotaka Kamioka, Taku Okamura, Takasumi Tanabe
Keio University, Japan

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

Oral, Wednesday, April 19 PM

IP <Room 413>

[IP-19PM-2] 15:45-17:30
Optical Signal Processing I
Chair: Koichi Nitta
Kobe University, Japan

IP-19PM-2-1 15:45

Widely Applicable Coding Method for Optical Correlators Based on an Autoencoder

Hidenori Suzuki, Ikeda Kanami, Eriko Watanabe
University of Electro-Communications, Japan

IP-19PM-2-2 16:00

Improvement of Response Time in Dual-Wavelength Spatial Light Modulators via Overdrive Method

Hiroto Sakai, Yu Takiguchi, Naoya Matsumoto, Munenori Takumi, Hiroshi Tanaka, Hirokazu Asaine, Norihiro Fukuchi, Naohisa Mukozaka, Haruyoshi Toyoda
Hamamatsu Photonics K.K., Japan

IP-19PM-2-3 16:15

Reference- and Lens-Free Single-Pixel Holographic Camera

Ryoichi Horisaki, Hiroaki Matsui, Jun Tanida
Osaka University, Japan

IP-19PM-2-4 16:30

Two-Parameter Analysis of the Signal's Envelope as a Theoretical Basis for a New Trend in Optical Phase Measurements

Tatiana Yakovleva
Federal Research Center "Computer Science and Control" of Russian Academy of Sciences, Russia

IP-19PM-2-5 16:45

Optimization of Polynomial Order Based on Residuals of Interpolation in Higher-Order Transport of Intensity Phase Imaging

Koshi Komuro, Takanori Nomura
Wakayama University, Japan

IP-19PM-2-6 17:00

Point Spread Function Engineering for Snapshot Compressive Imaging

Esteban Vera[1], Pablo Meza[2]
[1]Pontificia Universidad Católica de Valparaíso, Chile, [2]Universidad de la Frontera, Chile

IP-19PM-2-7 17:15

An Aperture-Division Full-Stokes Vector Polarimetric Camera and its Polarimetric Imaging Applications

Liyong Ren[1], Wenfei Zhang[1,2,3], Jian Liang[1,2], Haijuan Ju[1,2], Zhaofeng Bai[1], Enshi Qu[1], Zhaoxin Wu[3]
[1]Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences, China, [2]University of Chinese Academy of Sciences, China, [3]Xi'an Jiaotong University, China

LNPC <Room 317>

LNPC1-4 15:50 *Invited*

Production and evolution of axion dark matter in the early universe

K. Saikawa[1], T. Hiramatsu[2,3], M. Kawasaki[4,5], A. Ringwald[1], T. Sekiguchi[6]
[1]DESY, Germany, [2]YITP, Kyoto Univ., Japan, [3]Rikkyo Univ., Japan, [4]ICRR, The univ. of Tokyo, Japan, [5]Kavli IPMU, Japan, [6]IBS, Korea

LNPC1-5 16:30

Search for Axion-like Particles via optical-Parametric effects with High-Intensity laseRs in Empty Space over a wide mass range

K. Homma[1,2]
[1]Hiroshima Univ., Japan, [2]IZEST, Ecole Polytechnique, France

LNPC1-6 16:50

Probing pseudo-Nambu-Goldstone boson by stimulated photon colliders in the mass range 0.1 eV to 10 keV

Y. Toyota[1], K. Homma[1,2]
[1]Hiroshima Univ., Japan, [2]IZEST, Ecole Polytechnique, France

LNPC1-7 17:10

Preparatory experiments toward a search for sub-eV Dark Matter at Extreme Light Infrastructure-Nuclear Physics (ELI-NP)

L. Neagu[1] on behalf of the SAPPHIRES collaboration, S. Ataman[1], M. Cuciuc[1], M. Hashida[2], K. Homma[3,4], S. Inoue[2], Y. Nakamiya[2], M. Rosu[1], S. Sakabe[2], O. Tesileanu[1], Y. Toyota[3]
[1]ELI-NP, IFIN-HH, Romania, [2]Kyoto Univ., Japan, [3]Hiroshima Univ., Japan, [4]IZEST, Ecole Polytechnique, France

LSSE <Room 316>

[LSSE4] 15:30-17:40
Social Infrastructure
Chair: Yoshinori Shimada
Institute for Laser Technology, Japan

LSSE4-1 15:30 *Invited*

Development of High-speed Defect Inspection Technique for Concrete Structure using Laser Hammering Method

Shinri Kurahashi[1], Toshiyuki Kitamura[1], Hajime Okada[2], Shuji Kondo[2], Katsuhiro Mikami[2], Noboru Hasegawa[2], Masaharu Nishikino[2], Yoshinori Shimada[1]
[1]Institute for laser technology, Japan, [2]National Institutes for Quantum and Radiological Science and Technology, Japan

LSSE4-2 16:00 *Invited*

Non-contact acoustic inspection method for civil engineering structure using air-borne sound and laser Doppler vibrometer

Tsuneyoshi Sugimoto[1], Kazuko Sugimoto[1], Noriyuki Uatagawa[2], Kageyoshi Katakura[3]
[1]Toin University of Yokohama, Japan, [2]SatoKogyo Co., Ltd, Japan, [3]Meitoku Engineering Laboratory, Japan

LSSE4-3 16:30

Development of Cutting Technology for Decommissioning of Nuclear Facilities Using High Power Fiber Laser

Shin'ichi Toyama, Ryoya Ishigami
The Wakasa Wan Energy Research Center, Japan

LSSE4-4 16:50 *Invited*

Laser cleaning system using a kW-class fiber laser for maintenance of social infrastructures

Kazuhisa Fujita[1], Kazuaki Toyosawa[2], Hiromitsu Inagaki[3], Kazuhiro Takahara[2], Toyohiko Hongo[2], Tetsuaki Akiyoshi[2], Nobumitsu Maebashi[2], Shin-ichiro Okihara[1]
[1]The Graduate School for the Creation of New Photonics Industries, Japan, [2]Toyokoh Co., Ltd., Japan, [3]Chubu Electric Power Co., Inc., Japan

LSSE4-5 17:20

Deployment of sensing technologies to promote human resource development in Naraha Remote Technology Development Center of JAEA

Akihiko Nishimura, T. Shibata, T. Yamada, H. Suzuki, K. Shimada, Y. Sato, T. Torii, S. Koyama
Japan Atomic Energy Agency, Japan

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

Oral, Thursday, April 20 AM

ALPS <Room 302>

[ALPS10] 9:00-10:30
High power lasers
Chair: Daniel Albach
Institute of Radiation Physics, HZDR, Germanuy

ALPS10-1 9:00 *Invited*

High Average Power Petawatt Laser Systems enabling the transition from proof-of-principle experiments to commercial applications (tentative)
Constantin Haefner
NIF Photon Science Lawrence Livermore National Laboratory, USA

ALPS10-2 9:30

Development of a 1-J, 300-Hz High-Power Diode- Pumped Laser System for High-Energy Materials Processing
T. Kurita[1,2], Y. Kato[1,2], T. Morita[1,2], T. Iguchi[1], T. Sekine[1,2], Y. Tamaoki[1,2], Y. Takeuchi[1,2], and T. Kawashima[1,2]
[1]Hamamatsu Photonics K.K., Japan, [2]ImPACT Program, Japan

ALPS10-3 9:45

Recent progress on 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. Lee[1], J. Oh[1],and J. S. Kim[2]
[1]Dep. of Phys., KAIST, Korea, [2]Laser Spectronix, Korea

ALPS10-4 10:00

Advanced Multi-pass Amplification System using Yb:YAG Thin-disk Device
Y. Ochi, K. Nagashima, M. Maruyama, R. Itakura
Kansai Photon Sci. Inst., QST, Japan

ALPS10-5 10:15

Wavelength conversion of the 100 kHz, 100 W picosecond thin-disk laser from deep-UV to mid-IR
O. Novák[1], M. Vyvlečka[1,2], H. Turčičová[1], M. Smrž[1], L. Roškot[1,3], J. Mužík[1,3], M. Komanec[4], D. Suslov[4], S. Zvánovec[4], A. Endo[1], T. Mocek[1]
[1]HiLASE Centre, Inst. of Phys. AS CR, Czech Republic, [2]Faculty of Math. and Phys., Charles Univ., Czech Republic,[3]Faculty of Nucl. Sci. and Phys. Eng., Czech Tech. Univ., Czech, Republic, [4]Faculty of Elect. Eng., Czech Tech. Univ., Czech Republic

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

ALPS <Room 511+512>

[ALPS11] 9:00-10:30
New Materials for Laser Control
Chair: Sunao Kurimura
NIMS, Japan

ALPS11-1 9:00 *Invited*

New Ba-Based Crystals for Nonlinear Frequency Conversion in the Mid-IR
Valentin Petrov[1], V. V. Badikov[2], D. V. Badikov[2], V. B. Laptev[3], K. V. Mitin[4], G. S. Shevyrdyaeva[2], A. Kwasniewski[5], E. Boursier[6,7], N. I. Shchebetova[4], A. Tyazhev[1], G. Marchev[1], V. Panyutin[1], P. Segonds[6,7], B. Boulanger[6,7]
[1]Max-Born-Inst. for Nonlinear Optics and Ultrafast Spectroscopy, Germany, [2]High Tech. Lab., Kuban State Univ., Russia, [3]Inst. of Spectroscopy, Russian Academy of Sci., Russia, [4]Astrophysika National Laser Centre, Russia, [5]Leibniz Inst. for Crystal Growth, Germany, [6]Univ. Grenoble Alpes, Inst. NEEL, France, [7]CNRS, Inst. NEEL, France,

ALPS11-2 9:30 *Invited*

Broadband ultrafast nonlinear photonics in nanocarbons
Fabian Rotermund
KAIST, Korea

ALPS11-3 10:00

Growing Carbon Nanotubes on a Silica Toroid Microcavity to Observe Saturable Absorption
N. Hirota, W. Yoshiki, A. Hori, K. Namiki, K. Sato, H. Maki, and T. Tanabe
Keio Univ. Japan

ALPS11-4 10:15

Growth, Spectroscopy and Laser Operation of a Novel Disordered Tetragonal Tungstate Crystal - Tm:$Na_2La_4(WO_4)_7$
L. Z. Zhang[1], Z.B. Lin[1], X. Mateos[2,3], P. Loiko[4], J. M. Serres[3], Y.C. Wang[2], U. Griebner,[2], V. Petrov[2], M. Aguiló[3], F. Díaz[3], E. Vilejshikova[5], K. Yumashev[5], H.F.Lin[1], G. Zhang[1] and W.D. Chen[1,2]
[1]Key Lab. of Optoelectronic Materials Chemistry and Phys., Fujian Inst. of Res. on the Structure of Matter, Chinese Academy of Sci., Fujian, China, [2]Max-Born- Insti. for Nonlinear Opt. and Ultrafast Spectroscopy, Germany, [3]FiCMA-FiCNA, Univ. Rovira i Virgili (URV), Spain, [4]ITMO Univ., Russia, [5]Center for Optical Materials and Tech., BNTU, Belarus

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

BISC <Room 419>

[Opening] 8:45-9:00
Opening Remarks
Toyohiko Yatagai
Utsunomiya Univ., Japan

[BISC3] 9:00-10:15
Brain Imaging and Raman Microscopy
Chair: Osamu Matoba
Kobe Univ., Japan

BISC3-1 9:00 *Invited*

Brain connectomics imaging in schizophrenia study
Wen-Yih Tseng
National Taiwan Univ., Taiwan

BISC3-2 9:30 *Invited*

Improvement of spatial and spectral resolution in Raman microscopy
Katsumasa Fujita
Osaka Univ., Japan

BISC3-3 10:00

Label-free characterization of degenerative changes in articular cartilage by Raman spectroscopy
Yusuke Oshima, Mayu Akehi, Hiroshi Kiyomatsu, Hiromasa Miura
Ehime Univ., Japan

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

Oral, Thursday, April 20 AM

CLES / LANSA <Room 416+417>

[FAC] 9:00-12:20
Facilities
Chairs: Y. Otake
RIKEN Center for Advanced Photonics, RIKEN, Japan
S. Miyamoto
University of Hyogo, Japan

FAC-1 9:00 *Invited*

Current status of high intensity pulsed spallation neutron source of J-PARC
Hiroshi Takada
Japan Atomic Energy Agency, Japan

FAC-2 9:40 *Invited*

Present status of chinese spallation neutron source project
Xuejun Jia
Institute of Physics, CAS, China

FAC-3 10:20

J-PARC transmutation experimental facility program
Fujio Maekawa, Transmutation Experimental Facility Design Team
Japan Atomic Energy Agency, Japan

----- 10:40-11:00 Break -----

HEDS <Room 311+312>

[HEDS5] 9:10-10:30
Plenary (ImPACT Session IV)
Chair: E. Miura
AIST, Japan

HEDS5-1 9:10 *Plenary*

Integrating Advanced Accelerator and High-Power Laser Technologies to Overcome Current Limitations
Hitoshi Tanaka
JASRI, Japan

HEDS5-2 9:50 *Plenary*

EuPRAXIA - A European Project for Pioneering Applications with Plasma Accelerators
Ralph Assmann
DESY, Germany

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

ICNN <Room 414+415>

[ICNN3] 9:00-10:30
Quantum light
Chair: S. Matsuo
NTT Corporation, Japan

ICNN3-1 9:00 *Invited*

Nanophotonic quantum light emitting devices based on semiconductor quantum dots and 2D materials
Sven Hoefling, Yu-Ming He, Stefan Gerhardt, Sebastian Unsleber, Oliver Iff, Nils Lundt, Christian Schneider
Wuerzburg University, Germany

ICNN3-2 9:30

Spin-dependent Directional Emission from a Quantum Dot Ensemble Embedded in an Asymmetric Optical Waveguide
Wenbo Lin[1], Yasutomo Ota[2], Satoshi Iwamoto[1], Yasuhiko Arakawa[1]
[1]Institute of Industrial Science, The University of Tokyo, Japan, [2]Institute for Nano Quantum Information Electronics (NanoQuine) , The University of Tokyo, Japan

ICNN3-3 9:45

Lifetime measurement of a single GaN fluctuation quantum dot based on its power dependent single photon emission dynamics
Kang Gao[1,2], Mark Holmes[3], Munetaka Arita[1], Yasuhiko Arakawa[1]
[1]Institute of Industrial Science, University of Tokyo, Japan, [2]Institute of Industrial Science, University of Tokyo, Japan, [3]Institute of Industrial Science, University of Tokyo, Japan, UK

ICNN3-4 10:00

Observation of the Purcell effect in a plasmonic microring resonator embedding self-assembled quantum dots
Akihito Tamada[1], Yasutomo Ota[2], Kazuhiro Kuruma[1], Jinfa Ho[2], Katsuyuki Watanabe[2], Satoshi Iwamoto[2], Yasuhiko Arakawa[2]
[1]Institute of Industrial Science, The University of Tokyo, Japan, [2]Institute for Nano Quantum Information Electronics, The University of Tokyo, Japan

ICNN3-5 10:15

High-Q photonic crystal double-hetero structure nanocavity with Er,O-codoped GaAs
Masayuki Ogawa, Natsuki Fujioka, Kanji Sakuragi, Taiki Kishina, Takanori Kojima, Yasufumi Fujiwara
Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University, Japan

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

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IP <Room 413>

[IP-20AM-1] 9:00-10:30
Optical Signal Processing II
Chair: Ryoichi Horisaki
Osaka University, Japan

IP-20AM-1-1 9:00

Single Pixel Imaging with 1-D Hadamard Transform and Frequency Multiplexing
Kouichi Nitta, Kazuki Morimoto, Shinji Hayashi, Osamu Matoba
Kobe University, Japan

IP-20AM-1-2 9:15

Depth Extraction from Image Contrast using Retroreflective Structure
Sungwon Choi, Sung-Wook Min, Junkyu Yim
Kyung Hee University, Republic of Korea

IP-20AM-1-3 9:30

Single-Shot Fast Phase Retrieval in the Holographic Data Storage
Xiao Lin[1], Tsutomu Shimura[2], Ryushi Fujimura[3], Yoshito Tanaka[2], Masao Endo[2], Jinpeng Liu[1], Jinyan Liu[1], Yong Huang[1], Xiaodi Tan[1]
[1]Beijing Institute of Technology, China, [2]The University of Tokyo, Japan, [3]Utsunomiya University, Japan

IP-20AM-1-4 9:45

Elimination Method for the Zero-Order Term in Off-Axis Digital Holography Utilizing Spatial-Carrier Frequency Analysis
Erkhembaatar Dashdavaa, Nam Kim
Chungbuk National University, Republic of Korea

IP-20AM-1-5 10:00

Inkjet-Printed 3D Structure Projecting Multiple Full-Color Images
Ryuji Hirayama[1,2], Tomotaka Suzuki[1], Tomoyoshi Shimobaba[1], Atsushi Shiraki[1], Makoto Naruse[3], Hirotaka Nakayama[4], Takashi Kakue[1], Tomoyoshi Ito[1]
[1]Chiba University, Japan, [2]JSPS, Japan, [3]National Institute of Information and Communications Technology, Japan, [4]National Astronomical Observatory of Japan, Japan

IP-20AM-1-6 10:15

Design and Investigation of Computer-Generated Fourier Holograms of Colored 3D Objects
Michael Golub, Michael Parchomovsky
Tel Aviv University, Israel

----- 10:30-11:00 BREAK -----

LDC <Room 301>

[LDC1] 9:10-10:30
Pleanary Session
Co Chairs: Tetsuya Yagi
Mitsubishi Electric Corp., Japan
Shevlin Fergal
Dyoptika, Ireland

LDC1-1 9:10 *Invited*

The Initiatives of Market Direction and Activation of the Gallium Nitride Based Laser Diode for Laser Display
Shigeki Okauchi, Atsutomo Hama
Nichia Corp., Japan

LDC1-2 9:50 *Invited*

Laser Phospher Based Projector
Fei Hu
Appotronics, China

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

LEDIA <Room 411+412>

[LED1] 9:00-10:00
Characterizations
Chairs: Atsushi A. Yamaguchi
Kanazawa Institute of Technology, Japan
Young Joo Kim
Yonsei University, Korea

LED1-1 9:00 *Invited*

Evaluation of Nitrides Semiconductors Using Terahertz Time-Domain Spectroscopic Ellipsometry
Tsutomu Araki
Ritsumeikan University, Japan

LED1-2 9:30

Quantitative Evaluation of Internal Quantum Efficiency in InGaN Light-Emitting Diodes at Room Temperature
Jong-In Shim[1], Dong-Pyo Han[1], Dong-Soo Shin[1], Hyundon Jung[2]
[1]Hanyang University, Korea, [2]EtaMax Co., Korea

LED1-3 9:45

A study on internal quantum efficiency of polar GaN/InGaN multi-quantum-well structures through time-resolved photoluminescence measurement
Yuchen Xing, Lai Wang, Di Yang, Zilan Wang, Zhibiao Hao, Changzheng Sun, Bing Xiong, Yi Luo, Yanjun Han, Jian Wang, Hongtao Li
Tsinghua University, China

[LEDp2] 10:00-11:54
Short Presentations for Poster Session
Chairs: Hisashi Murakami
Tokyo University of Agriculture and Technology, Japan
Tomohiro Yamaguchi
Kogakuin University, Japan

Poster session program p.100

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

Oral, Thursday, April 20 AM

LNPC <Room 317>

[LNPC2] 9:00-10:30
Laser-driven fundamental physics and technology
Chair: K Homma[1,2]
[1]Hiroshima Univ., Japan, [2]IZEST, Ecole Polytechnique, France

LNPC2-1 9:00

Optical Cavity Tests of Lorentz Invariance
Y. Michimura[1], H. Takeda[1], Y. Sakai[1], N. Matsumoto[2,3,4], M. Ando[1,5]
[1]The univ. of Tokyo, Japan, [2]FRIS, Tohoku Univ., Japan, [3]RIEC, Tohoku Univ., Japan, [4]JST, PRESTO, Japan, [5]NAOJ, Japan

LNPC2-2 9:30 *Invited*

Neutrino spectroscopy with atoms and laser - toward detection of relic neutrino -
A. Yoshimi on behalf of the SPAN collaboration
RIIS, Okayama Univ., Japan

LNPC2-3 10:00 *Invited*

Terahetz Photon Detectors
Y. Kawano
TITEC, Japan

----- 10:30-10:50 Break -----

OMC <Room 418>

[Opening] 9:00-9:15
Opening Remarks
Takashige Omatsu
Chiba Univ., MCRC Chiba Univ., Japan

[OMC1] 9:15-10:30
Optical Manipulation I
Chair: Keiji Sasaki
Hokkaido Univ., Japan

OMC1-1 9:15 *Invited*

Optical tweezers for stretching, division and balance
Alexander B. Stilgoe, Itia A. Favre-Bulle, Anatolii V. Kashchuk, Halina H. Rubinsztein-Dunlop
The Univ. of Queensland, Australia

OMC1-2 9:45 *Invited*

Optical manipulation of hot nanoparticles can mediate selected cell fusion
Lene B. Oddershede, Azra Bahadori, Poul M. Bendix
Niels Bohr Institute, Denmark

OMC1-3 10:15

Molecular dynamics in an optical trap of glutamate receptors labeled with quantum-dots on living neurons
Tatsunori Kishimoto[1,2], Yasuyo Maezawa[1], Suguru N. Kudoh[2], Takahisa Taguchi[1], Chie Hosokawa[1]
[1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Kwansei Gakuin Univ., Japan

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

XOPT <Room 313+314>

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

[XOPT1] 9:00-10:30
Imaging, microscopy & ptychography (I)
Chair: H. Mimura
The University of Tokyo

XOPT1-1 9:00 *Invited*

Optics for Lensless X-Ray Microscopy
Andreas Menzel
Paul Scherrer Institut, Switzerland

XOPT1-2 9:30 *Invited*

High-resolution hard X-ray spectro-ptychography
Yukio Takahashi[1], Nicolas Burdet[2], Makoto Hirose[1], Kei Shimomura[1]
[1]Osaka University, Japan, [2]RIKEN SPring-8 Center, Japan

XOPT1-3 10:00 *Invited*

Recent Developments in X-ray Phase Imaging and X-ray Phase Tomography
Atsushi Momose
Tohoku University, Japan

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

Oral, Thursday, April 20 AM

ALPS <Room 302>

[ALPS12] 11:00-12:00
New lasers
Chair: Martin Smrž
HiLASE centre, Institute of Physics ASCR, Czech Republic

ALPS12-1 11:00 *Invited*

Semiconductor laser pumped visible rare-earth doped lasers
Christian Kränkel[1,2,3]
[1]Zentrum für Lasermaterialien, Leibniz-Institut für Kristallzüchtung, Germany, [2]Institut für Laser-Physik, Univ. Hamburg, Germany, [3]The Hamburg Centre for Ultrafast Imaging, Germany

ALPS12-2 11:30

Highly beam quality PCSEL pumped Yb:YAG laser with near theory limited slope efficiency
X. Guo[1,3], S. Tokita[1], H. Nishida[1], K. Hirose[2], T. Sugiyama[2], A. Watanabe[2], K. Ishizaki[3], S. Noda[3], N. Miyanaga[1], and J. Kawanaka[1]
[1]ILE. Osaka Univ., Japan, [2]Hamamatsu Photonics K.K., Japan, [3]Kyoto Univ., Japan

ALPS12-3 11:45

New Concept on Thermal-Lens-Free Solid State Lasers – A Heat Capacitive Active Mirror Laser –
K. Ueda[1,2,3,4,5,6]
[1]Inst. Laser Sci., Univ. of Electro-Communications, Japan, [2]ILE, Osaka Univ., Japan, [3]Hamamatsu Photonics K.K., Japan, [4]Toyota Phys. Chem. Res. Inst., Japan, [5]JST SAKIGAKE, Japan, [6]Inst. Appl. Phys., RAS, Russian

----- 12:00-13:15 Lunch Break -----

ALPS <Room 511+512>

[ALPS13] 11:00-12:00
Physics and Materials for Photo Emission Control
Chair: Atsushi Sanada
Osaka Univ., Japan

ALPS13-1 11:00 *Invited*

Photonic Dirac cones and relevant physics
Kazuaki Sakoda
NIMS, Japan

ALPS13-2 11:30

Optical properties of large diameter CaF_2 and Yb^{3+}:CaF_2 for high energy laser applications
K. Inaba[1], G. von der Gönna[1], J. Körner[2], and T. Töpfer[1]
[1]Hellma Materials, Germany, [2]Institute of Optics and Quantum Electronics, Germany

ALPS13-3 11:45

Stable Amplified Spontaneous Emission from Perovskite $CsPb_2Br_5$ Microplate
J. Du[1], Z. Hu[2], Z. Liu[1], X. Tang[2], Y. Leng[1]
[1]State Key Lab. of High Field Laser Phys., Shanghai Inst. of Opt. and Fine Mech., Chinese Acad. of Sci., China, [2]Key Lab. of Optoelectronic Tech. and Sys. (Ministry of Ed.), College of Optoelectronic Eng., Chongqing Univ., China

----- 12:00-13:15 Lunch Break -----

BISC <Room 419>

[BISC4] 10:45-12:00
Imaging in Turbid Media
Chair: Eiji Okada
Keio Univ., Japan

BISC4-1 10:45 *Invited*

Investigation of light scattering characteristics of individual leukocytes using three-dimensional refractive index maps
Kung-Bin Sung
National Taiwan University, Taiwan

BISC4-2 11:15 *Invited*

Imaging through scattering media with single-pixel detection
Esther Irles[1], Fernando Soldevila[1], Yessenia Jáuregui Sanchez[1], Pere J. Clemente Pesudo[1], Vicente Durán-Bosch[1], Enrique Tajahuerce[1], Pedro Andrés Bou[2], Pablo Artal[3], Jesús Lancis[1]
[1]Univ. Jaume I, Spain, [2]Univ. de València, Spain, [3]Lab. de Óptica Univ. de Murcia, Spain

BISC4-3 11:45

Fundamental study for scattering suppression in biological tissue using digital phase-conjugate light with intensity modulation
Sogo Toda[1], Yuji Kato[1], Nobuki Kudo[1], Koichi Shimizu[2]
[1]Hokkaido Univ., Japan, [2]Waseda Univ., Japan

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

Oral, Thursday, April 20 AM

CLES / LANSA <Room 416+417>

FAC-4 11:00 *Invited*

Gamma above neutron threshold experiments at extreme light infrastructure - nuclear physics

Dan Filioescu[1,2], Gheorghe Ciocan[1,2], Dan Ghita[1,2], Ioana Gheorghe[1,2,3], Tudor Glodariu[1,2], Franco Camera[4,5], Hiroaki Utsunomiya[6,7], Vladimir Varlamov[8]
[1]Extreme Light Infrastructure - Nuclear Physics, Romania, [2]Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering, Romania, [3]University of Bucharest, Romania, [4]University of Milano, Italy, [5]INFN section of Milano, Italy, [6]Department of Physics, Konan University, Japan, [7]Center for Nuclear Study, University of Tokyo, Japan, [8]Skobeltsyn Institute of Nuclear Physics, Lomonosov Moscow State University, Russia

FAC-5 11:40 *Invited*

Enhanced efficiency moderator-reflector systems for neutron sources

Ferenc Mezei[1,2]
[1]European Spallation Source ERIC, Sweden, [2]HAS Wigner Research Center for Physics, Hungary

----- 12:20-13:30 Lunch Break -----

HEDS <Room 311+312>

[HEDS6] 11:00-12:30
Beams / Rad. Source (ImPACT Session V)
Chair: H. Tanaka
JASRI, Japan

HEDS6-1 11:00 *Invited*

Plasma devices for relativistic electron beams

Cédric Thaury
LOA, France

HEDS6-2 11:30 *Invited*

Progress of the COXINEL application of laser plasma acceleration

Marie-Emmanuelle Couprie
SOLEIL, France

HEDS6-3 12:00 *Invited*

Betatron x-ray radiation in the self-modulated acceleration regime

Félicie Albert
LLNL, USA

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

ICNN <Room 414+415>

[ICNN4] 11:00-12:00
CQED and superconductors
Chair: S. Hoefling
University of Wuerzburg, Germany

ICNN4-1 11:00 *Invited*

Dynamic Control of CQED Effects in Switched Optical Microcavities

Jean-Michel GERARD[1,2], Emanuel PEINKE[2], Tobias SATTLER[2], Joël BLEUSE[2], Julien CLAUDON[2], Gaston HORNECKER[2], Emre YUCE[3], Henri Thyrrestrup[3], Willem L VOS[3]
[1]CEA/INAC Grenoble, FRANCE, [2]CEA/INAC, FRANCE, [3]Twente Univ., The Netherlands

ICNN4-2 11:30

Hybrid Semiconductor-Superconductor Optoelectronic Devices

Alex Hayat, Dmitry Panna, Shlomi Bouscher, Leonid Rybak
Department of Electrical Engineering, Technion, Haifa 32000, Israel

ICNN4-3 11:45

Si-waveguide-integrated Superconducting Nanowire Single-photon Detector with Low-loss Spot-size Converter

Tatsurou Hiraki[1], Tai Tsuchizawa[1], Hiroyuki Shibata[2], Shinji Matsuo[1]
[1]NTT Device Technology Laboratories, Japan, [2]Kitami Institute of Technology, Japan

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

Oral, Thursday, April 20 AM

IP <Room 413>

[IP-20AM-2] 11:00-12:00
Information Photonics Tutorial
Chair: Yoshio Hayasaki
Utsunomiya University, Japan

IP-20AM-2-1 11:00 *Invited*

Marriage between Holography and Statistical Optics for Unconventional Imaging: Coherence Holography and Holographic Correloscopy (A Tutorial)
Mitsuo Takeda
Utsunomiya University, Japan

LDC <Room 301>

[LDC2] 11:00-12:00
Projection Technology
Co Chairs: Satoshi Ouuchi
Hitachi, Ltd., Japan
Jae Kwon
LG Electronics, Korea

LDC2-1 11:00

Performance of RGB Laser Based Projection for Video Walls
Peter Hickl
Barco, Germany

LDC2-2 11:15

Laser Beam Scanning Short Throw Displays and an Exploration of Laser-Based Virtual Touchscreens
Jari O. Honkanen, P. Selvan Viswanathan
MicroVision Inc., USA

LDC2-3 11:30

Image Quality of Retinal Projection Laser Eyewear: How to Achieve High Resolution and Free Focus in Proper Balance
Makoto Suzuki, Kenji Yasui, Kinya Hasegawa, Nori Miyauchi and Mitsuru Sugawara
QDLaser, Inc., Japan

LDC2-4 11:45

Electro-Optic Bragg Diffraction Type Spatial Light Modulator Using Periodically Poled Structures for Laser Displays
Yuta Hayashi, Toshiyuki Inoue, Hiroshi Murata, Atsushi Sanada
Osaka Univ., Japan

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

LEDIA <Room 411+412>

Poster session program p.100

----- 11:54-13:15 Lunch -----

Oral, Thursday, April 20 AM

LNPC <Room 317>

[LNPC3] 10:50-12:30
Physics in intense fields
Chair: A. Ilderton
Plymouth Univ., UK

LNPC3-1 10:50 *Invited*

Neutrino decay to electron and W-boson in a superstrong magnetic field in the Early Universe

A. Kuznetsov, A. Okrugin, A. Mosichkin, A. Shitova
Demidov Univ., Russia

LNPC3-2 11:30 *Invited*

Interplay between strong fields in QED and QCD

K. Itakura
KEK, Japan

LNPC3-3 12:00

Strong-field QED in tightly focused laser beams

A. Di Piazza
MPI, Germany

----- 12:30-14:00 Lunch -----

OMC <Room 418>

[OMC2] 11:00-12:00
Optical Manipulation II
Chair: Satoshi Ashihara
The Univ. of Tokyo, Japan

OMC2-1 11:00 *Invited*

Photonic entanglement processing with a single sub-wavelength structure

Gabriel Molina-Terriza, Mathieu Juan
Macquarie Univ, Australia

OMC2-2 11:30

Single orbital angular momentum mode emission from vertical cavity surface emitting laser by optical feedback

Yasunori Toda[1], Kyohhei Shigematsu[1], Keisaku Yamane[1], Ryuji Morita[1], Yoshinari Awaji
[1]Hokkaido Univ, Japan, [2]National Institute of Information and Communications Technologies, Japan

OMC2-3 11:45

Experimental generation of Bessel-Gauss coherence functions

Salla Gangi Reddy[1], Ravindra Pratap Singh[2], Yoko Miyamoto[1]
[1]The Univ. of Electro-Communications, Japan, [2]Physical Research Lab., India

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

XOPT <Room 313+314>

[XOPT2] 11:00-12:00
Imaging, microscopy & ptychography (II)
Chair: Y. Takahashi
Osaka University

XOPT2-1 11:00

Progress in X-ray phase contrast imaging based on random modulation

Sebastien Berujon, Eric Ziegler
ESRF, France

XOPT2-2 11:15

Simultaneous Image Reconstruction of Attenuation, Scatter and Phase Using the Compressed Sensing in Sparse-View Phase CT

Ryosuke Ueda[1,2], Hiroyuki Kudo[1,2], Koichi Matsuo[3]
[1]University of Tsukuba, Japan, [2]JST-ERATO, Japan, [3]Keio University, Japan

XOPT2-3 11:30

Achromatic and High-Resolution Full-Field X-ray Microscope and its Applications

Satoshi Matsuyama[1], Jumpei Yamada[1], Shuhei Yasuda[1], Yoshiki Kohmura[2], Hiromi Okada[3], Yasuhisa Sano[1], Makina Yabashi[2], Tetsuya Ishikawa[2], Kazuto Yamauchi[1]
[1]Osaka University, Japan, [2]RIKEN SPring-8 Center, Japan, [3]JTEC Corporation, Japan

XOPT2-4 11:45

Development of precision sub-arcsecond-resolution Wolter mirrors for future X-ray observations of the Sun

Taro Sakao[1], Satoshi Matsuyama[2], Takumi Goto[2], Jumpei Yamada[2], Shuhei Yasuda[2], Kazuto Yamauchi[2], Yoshiki Kohmura[3], Ayumi Kime[4], Yoshinori Suematsu[5], Akira Miyake[6], Tadakazu Maezawa[7], and Hirokazu Hashizume[7]
[1]ISAS/JAXA, Japan, [2]Osaka University, Japan, [3]RIKEN SPring-8 Center, Japan, [4]JAXA, Japan, [5]National Astronomical Observatory, Japan, [6]Canon Inc., Japan, [7]Natsume Optical Corp., Japan

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

Oral, Thursday, April 20 PM

ALPS

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

Poster session program p.102

BISC <Room 419>

[BISC5] 13:30-15:00
Digital Holography and Microscopy
Chairs: Peter T. C. So
Massachusetts Institute of Technology, USA
Yuan Luo
National Taiwan Univ., Taiwan

BISC5-1 13:30 *Invited*

Holographic Techniques for Cellular Fluorescence Microscopy
Myung K. Kim
Univ. of South Florida, USA

BISC5-2 14:00

Three-dimensional imaging of micro-specimen by optical scanning holography
Jung-Ping Liu, Cheng-Hao Tsou
Feng Chia Univ., Taiwan

BISC5-3 14:15

Microscopic video observation of capillary vessel systems using diffuse back lighting
Minako Sakai, Kiroki Arai, Toshiaki Iwai
Tokyo Univ. of Agriculture and Technology, Japan

BISC5-4 14:30

Incoherent digital holography system utilizing single-shot phase-shifting interferometry
Tatsuki Tahara[1,2], Yasuhiko Arai[1], Takeaki Ozawa[3]
[1]Kansai Univ., Japan, [2]PRESTO, Japan Science and Technology Agency, Japan, [3]The Univ. of Tokyo, Japan

BISC5-5 14:45

Absorption contrast imaging beyond the diffraction limit with electron-beam excitation assisted optical microscope
Wataru Inami[1], Masahiro Fukuta[1], Yoshimasa Kawata[1], Susumu Terakawa[2]
[1]Shizuoka Univ., Japan, [2]Tokoha Univ., Japan

----- 15:00-15:20 Coffee Break -----

CLES / LANSA <Room 416+417>

[CLES/LANSA-POS] 13:30-14:30
Poster Session
<Exhibition Hall A>

Poster session program p.104

----- 14:40-15:00 Break -----

[ND1] 15:00-16:00
Neutron Diagnostics-1
Chair: M. Nakai
Institute of Laser Engineering, Osaka University, Japan

ND1-1 15:00

Techniques to measure absolute neutron spectrum and intensity for accelerator based neutron source for BNCT
Isao Murata, Shingo Tamaki, Yuuki Ohtani, Yuta Ohsawa, Yusuke Kashiwagi, Sachie Kusaka, Fuminobu Sato
Division of Sustainable Energy and Environmental Engineering, Graduate School of Engineering, Osaka University, Japan

ND1-2 15:20

Design of epi-thermal neutron beam intensity monitor for boron neutron capture therapy
Yusuke Kashiwagi[1], Xingcai Guan[2], Isao Murata[1]
[1]Division of Suitable Energy and Environment Engineering, Graduate School of Engineering, Osaka University, Japan, [2]School of Nuclear Science and Technology, Lanzhou University, China

ND1-3 15:40

Development of sealed-type capillary plate gas detector for neutron imaging
Haruyasu Kondo[1], Hiroyuki Sugiyama[1], Masahiro Hayashi[1], Teruyuki Okada[1], Fuyuki Tokanai[2], Takayuki Sumiyoshi[3], Ryutaro Ito[2], Satoshi Ishizawa[2], Yuichiro Inomata[2], Kento Suzuki[2], Seiji Tasaki[4], Masanori Hirose[4], Masahiro Hino[4], Ryohei Hanayama[5]
[1]Hamamatsu Photonics K.K, Japan, [2]Yamagata University, Japan, [3]Tokyo Metropolitan University, Japan, [4]Kyoto University, Japan, [5]The Graduate School for the Creation of New Photonics Industries, Japan

Oral, Thursday, April 20 PM

HEDS <Room 311+312>

[HEDSp7] 13:30-15:00
Poster Session
<Exhibition Hall A>

Poster session program p.104

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

ICNN <Room 414+415>

Poster session 13:00-15:00
<Exhibition Hall A>

Poster session program p.98

IP <Room 413>

[IP-20PM-1] 13:30-15:00
Imaging and Holography
Chair: Lingling Huang
Beijing Institute of Technology, China

IP-20PM-1-1 13:30

Image-Based Link Between Frequency Comb Profilometer and Optical Interferometer

Quang Duc Pham, Yoshio Hayasaki
Utsunomiya University, Japan

IP-20PM-1-2 13:45

Exposure Fusion Based on Luminance and Contrast Evaluation

Kuo Chen, Zhong Qu, Shufang Xia
Chongqing University of Posts and Telecommunications, China

IP-20PM-1-3 14:00

Holographic Particle Sizing by Using Wigner-Ville Distribution of Flipped and Replicated Holograms

Porntip Chuamchaitrakool[1], Joewono Widjaja[1], Hiroyuki Yoshimura[2]
[1]Suranaree University of Technology, Thailand, [2]Chiba University, Japan

IP-20PM-1-4 14:15

Multi-Layered Aerial LED Display by Double-Stage Polarized Aerial Imaging by Retro-Reflection

Nao Kurokawa, Kenta Onuki, Hirotsugu Yamamoto
Utsunomiya University, Japan

IP-20PM-1-5 14:30

Highly Concentration Phenanthrenequinone Doped Poly (MMA-Co-BzMA) for Thick Polarization Holography

Fenglan Fan, Ying Liu, Yifan Hong, Jinliang Zang, Tianbo Zhao, Xiaodi Tan
Beijing Institute of Technology, China

IP-20PM-1-6 14:45

Full-Color Polygon Based Computer Holography for Real Objects Captured by a Depth Camera

Yu Zhao[1], Ki-Chul Kwon[1], Yan-ling Piao[1], Seok-Hee Jeon[2], Nam Kim[1]
[1]Chungbuk National University, Republic of Korea, [2]Incheon National University, Republic of Korea

----- 15:00-15:30 BREAK -----

Oral, Thursday, April 20 PM

LDC <Room 301>

[LDCp3] 13:00-15:00
<Exhibition Hall A>

Poster session program p.99

LEDIA <Room 411+412>

[LEDp2] 13:15-15:15
Poster Session
<Exhibition Hall A>

Poster session program p.100

[LED3] 15:15-16:30
Light Emitting Diodes-1
Chairs: Yongjo Park
Advanced Institute of Convergence Technology, Korea
Yoshio Honda
Nagoya University, Japan

LED3-1 15:15 *Invited*

Status and Prospects for Wide Bandgap LEDs / Lasers and Their Applications
Michael Krames
ARKESSO, LLC, USA

LED3-2 15:45

Influence of Growth-induced Surface Roughness on Characteristics and Reliability of InGaN LEDs
Wen-Chu Yang[1], Bai-Hao Lai[1], Hui-Tzu Chang[1], Fang-Ming Chen[1], Jenn-Chyuan Fan[2], Ray-Ming Yang[3], Chia-Hung Sun[3]
[1]Institute of Photonics, National Changhua University of Education, Taiwan, [2]Department of Electronic Engineering, Nan Kai University of Technology, Taiwan, [3]Tekcore Inc., Taiwan

LED3-3 16:00

Structural Design and Characterization of GaN-Based Tunnel-Junction Light-Emitting Diodes
Jih-Yuan Chang[1], Ya-Hsuan Shih[2], Fang-Ming Chen[1], Yen-Kuang Kuo[1]
[1]National Changhua University of Education, Taiwan, [2]National Cheng Kung University, Taiwan

LED3-4 16:15

Integration of GaN LEDs with Si CMOS integrated circuits on 200 mm Si
Li Zhang[1], Kwang Hong Lee[1], I. Made Riko[1], Kenneth Lee[1], Soo Jin Chua[2], Eugene Fitzgerald[3]
[1]Singapore-MIT Alliance for Research and Technology, Singapore, [2]National University of Singapore, Singapore, [3]Massachusetts Institute of Technology, USA

----- 16:30-16:45 Break -----

LNPC <Room 317>

[LNPC4] 14:00-16:15
Vacuum birefringence
Chair: A. Di Piazza
MPI, Germany

LNPC4-1 14:00 *Invited*

A fresh look on the Heisenberg-Euler effective action
F. Karbstein
HI Jena, Germany

LNPC4-2 14:30 *Invited*

Vacuum birefringence in high-energy laser-electron collisions
B. King[1], N. Elkina[2]
[1]Plymouth Univ., UK, [2]HI Jena, Germany

----- 15:00-15:20 Break -----

LNPC4-3 15:20

High-energy vacuum birefringence in an intense laser field
S. Bragin, S. Meuren, C. H. Keitel, A. Di Piazza
MPI, Germany

LNPC4-4 15:45 *Invited*

The possibility of observing resonant photon splitting and photon scattering in a strong electromagnetic field
A. Hartin
DESY, Germany

Oral, Thursday, April 20 PM

LSSE <Room 316>

[LSSE5] 13:30-15:00
Space High Intensity Laser
Chair: Toshikazu Ebisuzaki
Computational Astrophysics Laboratory, RIKEN, Japan

LSSE5-1 13:30 *Invited*

A XCAN Laser for Small Space-Debris Mitigation

Gérard Mourou, Jean Christophe Chanteloup
Ecole Polytechnique, France

LSSE5-2 14:00 *Invited*

Advanced Solid-state Lasers for Space - A Perspective on the Prospects of Spaceborne Lasers

John-Mark Hopkins
Fraunhofer UK, UK

LSSE5-3 14:30 *Invited*

Prospective laser system architectures for space debris removal

Alexander Sergeev, Ivan Mukhin, Ivan Kuznetsov, Oleg Palashov
Institute of Applied Physics of Russian Academy of Sciences, Russia

OMC <Room 418>

[OMC3] 13:30-15:00
Optical Manipulation III
Chair: Yoshihiko Arita
Univ. of St. Andrews, UK

OMC3-1 13:30 *Invited*

Light robotics: aiming towards all-optical nano-robotics

Jesper Glückstad
Technical Univ. of Denmark, Denmark

OMC3-2 14:00

Tailored vectorial light fields: flower, spider web and hybrid structures

Eileen Otte, Christina Alpmann, Cornelia Denz
Westfälische Wilhelms-Univ. Münster, Germany

OMC3-3 14:15

High average power ultraviolet picosecond optical vortex generation

Yuta Sasaki, Maya Kowa, Koki Yamaguchi, Jun Shibakawa, Katsuhiko Miyamoto, Takashige Omatsu
Chiba Univ., Japan

OMC3-4 14:30

Generation of intense ultrafast-rotating ring-shaped optical lattices with programmable control of rotational symmetry

Keisaku Yamane, Kohei Iwasa, Kohei Kakizawa, Kazuhiko Oka, Yasunori Toda, Ryuji Morita,
Hokkaido Univ., Japan

OMC3-5 14:45

Astigmatism inducing the degenerate effect in nearly hemispherical cavities: generation of three-dimensional structured light

Jung-Chen Tung[1], Hsing-Chih Liang[2], Kuan-Wei Su[1], Kai-Feng Huang[1], Yung-Fu Chen[1]
[1]National Chiao Tung University, Taiwan, [2]National Taiwan Ocean University, Taiwan

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

XOPT <Room 313+314>

[XOPT3] 13:30-15:00
Optical components & systems (I)
Chair: H. Yumoto
JASRI

XOPT3-1 13:30 *Invited*

X-ray in-line interferometers based on refractive optics

Anatoly Snigirev
Baltic Federal University, Russia

XOPT3-2 14:00

Development of soft x-ray focusing system with ellipsoidal mirror

Yoko Takeo[1], Hiroto Motoyama[1], Yasunori Senba[2], Hikaru Kishimoto[2], Haruhiko Ohashi[2], Hidekazu Mimura[1]
[1]The University of Tokyo, Japan, [2]JASRI, Japan

XOPT3-3 14:15

Advances in Axially Symmetric Microfocus and Nanofocus Xrays

Wenbing Yun, Benjamin Stripe, Mark Cordier, Janos Kirz, Richard Ian Spink, Sylvia Lewis Sigray, USA

XOPT3-4 14:30

Design and Test of a Miniature Dynamic Mirror Bender with Laminar Flexure Bending Machanism for X-ray Microfocusing

Deming Shu[1], Aiguo Li[2], Steven Kearney[1], Chengwen Mao[2], Jayson Anton[1], Yaolin Pan[2]
[1]Argonne National Laboratory, USA, [2]Shanghai Institute of Applied Physics, China

XOPT3-5 14:45

The ALS ex situ metrology for x-ray optics: current capabilities, new challenges, and tasks for further developments

Valeriy Yashchuk, Gevork Gevorkyan, Ian Lacey, Sergey Nikitin
Advanced Light Source, Lawrence Berkeley National Laboratory, USA

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

Oral, Thursday, April 20 PM

ALPS

BISC <Room 419>

[BISC6] 15:20-18:00
Beyond the Disturbance: High-Resolution Imaging Through Turbid Living Cells and Tissues
Chairs: Yosuke Tamada
National Institute for Basic Biology, Japan
Hideki Takami
National Astronomical Observatory of Japan, Japan

Opening Remarks 15:20-15:25
Yosuke Tamada
National Institute for Basic Biology, Japan

BISC6-1 15:25 *Invited*

Adaptive optical microscope for brain imaging in vivo
Kai Wang
Insitute of Neuroscience, Chinese Academy of Sciences, China

BISC6-2 16:05 *Invited*

Current limitations in super-resolution fluorescence microscopy for biological specimens: how deep can we go from the coverglass?
Yasushi Okada[1,2]
[1]RIKEN Quantitative Biology Ctr., Japan, [2]The Univ. of Tokyo, Japan

BISC6-3 16:35 *Invited*

Computational holographic imaging through random diffraction
Ryoichi Horisaki
Osaka Univ., Japan

BISC6-4 16:55 *Invited*

Adaptive optical imaging through complex living plant cells
Yosuke Tamada[1], Yutaka Hayano[2], Shin Oya[2], Noriaki Miura[3], Yasuhiro Kamei[1], Masayuki Hattori[1]
[1]National Institute for Basic Biology, Japan, [2]National Astronomical Observatory of Japan, Japan, [3]Kitami Institute of Technology, Japan

BISC6-5 17:15 *Invited*

Ultra-fast 3D scanning and holographic illumination in non-linear microscopy using acousto-optic deflectors
Laurent Bourdieu, Walther Akemann, Cathie Ventalon, Jean-Francois Léger, Stéphane Dieudonné, Baptiste Blochet, Benjamin Mathieu, Sylvain Gigan
Ecole Normale Supérieure, France

Closing Remarks 17:55-18:00
Hideki Takami
National Astronomical Observatory of Japan, Japan

CLES / LANSA <Room 416+417>

[PHS] 16:00-18:00
Physics / Control Technologies
Chair: M. Roth
Technische Universität Darmstadt, Germany

PHS-1 16:00 *Invited*

Status of fast ignition researches in china
Feng Zhang, Yuqiu Gu, Baohan Zhang
Science and Technology on Plasma Physics Laboratory,Laser Fusion Research Center, CAEP , China

PHS-2 16:40

Measurement of proton and D^+ stopping in plasma
Zhe Zhang[1], Yihang Zhang[1], Jie Feng[1], Lei Zhao[2], Fang Tan[3], Yuichi Wu[3], Yuqiu Gu[3], Yutong Li[1]
[1]Institute of Physics, CAS, China, [2]Department of Physics, University of Mining and Technology of China, China, [3]National Key Laboratory of Laser Fusion, China

PHS-3 17:00

Effect of external and self-generated magnetic field in formation of pre-plasma due to the pre-pulse of ultra-intense laser
Hideo Nagatomo[1], Takashi Asahina[1], Atsushi Sunahara[2], Kunioki Mima[3], Ryohei Hanayama[3]
[1]Institute of Laser Engineering, Osaka University, Japan, [2]Institute for Laser Technology, Japan, [3]The Graduate School for the Creation of New Photonics Industries, Japan

PHS-4 17:20

Colliding shock Ion acceleration by multi laser beam irradiation
Kunioki Mima[1], T. Asahina[2], A. Yogo[2], T. Johzaki[3], H. Nagatomo[2], T. Taguchi[4], Y. Sentoku[2], R. Hanayama[1], H. Nishimura[2]
[1]The Graduate School for the creation of New Photonics, Japan, [2]Institute of laser engineering, Osaka University, Japan, [3]School of Engineering, Hiroshima University, Japan, [4]Faculty of Engineering, Setsunan University, Japan

PHS-5 17:40

The kinetic neutron production in indirect-drive fast ignition experiment
Lianqiang Shan[1], Hongbo Cai[2], Wenshuai Zhang[3], Weimin Zhou[1], Shaoping Zhu[2], Yuqiu Gu[1]
[1]Science and Technology on Plasma Physics Laboratory,Laser Fusion Research Center, CAEP , China, [2]Institute of Applied Physics and Computational Mathematics, China, [3]Graduate School, China Academy of Engineering Physics, China

Oral, Thursday, April 20 PM

HEDS <Room 311+312>

[HEDS8] 15:15-16:15
High-Field Physics / Rad. Source
Chair: K. Sueda
Osaka Univ., Japan

HEDS8-1 15:15 *Invited* **(CANCELED)**

Measuring lifespan of hot, relativistic electrons produced in ultra-intense laser-solid interactions
G Ravindra Kumar
TaTa Inst., India

HEDS8-2 15:45 *Invited*

High energy & high average power Pump Lasers… The route to High average power petawatt lasers
Franck Falcoz
Amplitude Tech., Frrance

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

[HEDS9] 16:30-17:30
Business / Products
Chair: J. Sasaki
Japan Laser, Japan

HEDS9-1 16:30 *Invited*

Innovative Targetry for Laser-Plasma Interaction
F. Sylla
Source Lab., France

HEDS9-2 17:00 *Invited/Special*

Electron beam technology innovation by semiconductor photocathodes and its commercialization for startup
Tomohiro Nishitani[1,2], Takayuki Suzuki[2]
[1]Nagoya Univ., Japan, [2]Photo electron Soul, Japan

ICNN <Room 414+415>

[ICNN5] 15:00-17:00
Plasmonic nanostructures
Chair: J. M. Gerard
CEA, University of Grenoble, France

ICNN5-1 15:00 *Invited*

Plasmon Enhanced Single-Molecule Electroluminescence and Beyond
Zhenchao Dong
University of Science and Technology of China, P. R. China

ICNN5-2 15:30

Carrier-lifetime measurements of deep-subwavelength Si core plasmonic waveguide
Hidetaka Nishi, Tai Tsuchizawa, Masaaki Ono, Masaya Notomi, Shinji Matsuo
NTT, Japan

ICNN5-3 15:45

Luminescent Silicon Nanocrystals: Physics and Applications
Ilya Sychugov[1], Federico Pevere[1], Jun-Wei Luo[2], Jonathan Veinot[3], Alex Zunger[4], Jan Linnros[1]
[1]KTH - Royal Institute of Technology, Sweden, [2]State Key Laboratory for Superlattices and Microstructures, Chinese Academy of Science, China, [3]University of Alberta, Edmonton, Canada, [4]Renewable and Sustainable Energy Institute, University of Colorado, USA

ICNN5-4 16:00

Surface plasmon-enhanced ultraviolet electroluminescence from an individual n-ZnO microrod/p-GaN heterostructured light-emitting diodes via controlling the size of Ag nanoparticles
Hsu-Cheng Hsu, Dai-Jie Lin, Ching-Yen Wang, Bo-Lun Jiang
Department of Photonics, National Cheng Kung University, Tainan, Taiwan

ICNN5-5 16:15

Complex cavity photonic crystal surface emitting laser
Yufei Wang, Xiaojie Guo, Wanhua Zheng
Laboratory of Solid State Optoelectronics Information Technology, Institute of Semiconductors, CAS, China

ICNN5-6 16:30

A Single GaAs Nanowire Schottky Junction Photodetector
Yanbin Luo, Bang Li, Xin Yan, Qichao Lu, Jiamin Wang, Xia Zhang
State Key Laboratory of Information Photonics and Optical Communications, Beijing University of Posts and Telecommunications, China

ICNN5-7 16:45

Silicon photonics platform and PDK of 300mm SOI for advanced optical integrated circuits
Tohru Mogami[1], Tsuyoshi Horikawa[1,2], Keizo Kinoshita[1]
[1]Photonics Electronics Technology Research Association (PETRA), Japan, [2]National Institute of Advanced Industrial Science and Technology (AIST), Japan

IP <Room 413>

[IP-20PM-2] 15:30-18:00
[Special Session] Computational complex-amptude imaging
Chair: Takanori Nomura
Wakayama University, Japan

IP-20PM-2-1 15:30 *Invited*

Quantitative Single-Shot Phase Imaging for Shape Inspection
Mikael Sjödahl[1], Per Bergström[1], Davood Khodadad[2], Per Gren[1], Eynas Amer[1], Erik Olsson[1]
[1]Luleå University of Technology, Sweden, [2]Linnaeus University, Sweden

IP-20PM-2-2 16:00 *Invited*

Three-Dimensional Pupil Holographic Imaging
Yuan Luo
National Taiwan University, Taiwan

IP-20PM-2-3 16:30 *Invited*

A Single Pixel Imaging for Digital Holography
Min-Chul Park, Thibault Leportier
Korea Institute of Science and Technology, Republic of Korea

IP-20PM-2-4 17:00 *Invited*

High-Speed Single-Pixel Digital Holography with Phase-Structured Illumination
Lluís Martínez-León[1], Humberto González[1], Pere Clemente[2], Fernando Soldevila[1], Eva Salvador-Balaguer[1], María Araiza-Esquivel[1], Jesús Lancis[1], Enrique Tajahuerce[1]
[1]Universitat Jaume I, Spain, [2]Universidad de Zacatecas, México

IP-20PM-2-5 17:30 *Invited*

Cyphertext-Only Attack to Double Random-Phase Encoding: Experimental Demonstrations
Guohai Situ, Guowei Li, Wanqin Yang, Dayan Li
Shanghai Institute of Optics and Fine Mechanics, China, University of the Chinese Academy of Sciences, China

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LDC <Room 301>

[LDC4] 15:30-17:30
Laser Diode & LED
Co Chairs: Tomoyuki Miyamoto
Tokyo Inst. Tech., Japan
Charles Li
PlayNitride Inc., Taiwan

LDC4-1 15:30 *Invited*

GaN-based VCSELs Towards High Efficiency
T. Takeuchi[1], S. Kamiyama[1], M. Iwaya[1], I. Akasaki[1,2]
[1]Meijo Univ.,Japan, [2]Nagoya Univ., Japan

LDC4-2 16:00

High-Power and Highly-Reliable 638 nm Band BA-LD for CW Operation
T. Nishida, K. Kuramoto, S. Abe, M. Kusunoki, M. Miyashita, T. Yagi
Mitsubishi Electric Corp., Japan

LDC4-3 16:15

Master Oscillator Power Amplifier Concepts with Nearly Diffraction-Limited Watt-Level Continuous Wave Emission at 635 nm for Laser Projection
N. Werner, G. Blume, D. Feise, J. Pohl, P. Ressel, D. Prasai, K. Paschke, G. Tränkle
Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik, Germany

LDC4-4 16:30

Improvement of WPE of Laser Diode by Conversion of Spontaneous Surface-emission to Edge-emission via Radiation Mode
Junichi Kinoshita
Osaka Univ., Japan

LDC4-5 16:45

Study on AlGaN-Based High-Voltage Ultraviolet Light-Emitting Diodes for White Light Applications
Ray-Hua Horng, Chen-Hao Kuo, Ching-Ho Tien, Dong-Sing Wuu
National Chiao Tung Univ., Taiwan

LDC4-6 17:00 *Invited*

Building the ECO-System for the Digital Electro- optics Platform (X –on Silicon)
Kenneth Tai
Jasper Display Corp., Taiwan

LEDIA <Room 411+412>

[LED4] 16:45-17:45
Light Emitting Diodes-2
Chairs: Michael Krames
ARKESSO, LLC, USA
Motoaki Iwaya
Meijo University, Japan

LED4-1 16:45 *Invited*

Growth and Optical Characteristics of GaN-based LED on Cavity-Engineered Sapphire Substrate
Yongjo Park
Advanced Institute of Convergence Technology, Korea

LED4-2 17:15

Temperature Dependence of Efficiency in IIInitride Light-emitting Diodes
S. Oh[1], J. Cho[1], E. F. Schubert[2]
[1]Chonbuk National University, Republic of Korea, [2]Rensselaer Polytechnic Institute, USA

LED4-3 17:30

Semipolar (10-1-1) GaInN/GaN p-i-n light-emitting solar cells
Noboru Muramatsu[1], Tutomu Takanishi[1], Shun Mitsuhuji[1], Motoaki Iwaya[1], Tetsuya Takeuchi[1], Satoshi Kamiyama[1], Isamu Akasaki[2]
[1]Department of Materials Science and Engineering, Meijo University, Japan, [2]Department of Materials Science and Engineering, Meijo University, Akasaki Research Center, Nagoya University, Japan

LNPC <Room 317>

[LNPC5] 16:15-17:15
New gamma-ray sources
Chair: Y. Nakamiya
ICR, Kyoto Univ., Japan

LNPC5-1 16:15

Gamma-beam experiments at ELI-NP: The future is emerging
D. L. Balabanski
ELI-NP, IFIN-HH, Romania

LNPC5-2 16:45 *Invited*

Intense gamma radiation by accelerated quantum ions
N. Sasao[1], H. Hara[1], T. Hiraki[1], Y. Honda[2], Y. Ichikawa[3], O. Kamigaito[3], Y. Kanai[4], T. Nagatomo[3], T. Nakagawa[3], T. Matsuda[1], Y. Miyamoto[1], K. Sakaue[5], S. Uetake[1], K. Yokoya[2], M. Yoshida[2], A. Yoshimi[1], K. Yoshimura[1], M. Yoshimura[1]
[1]RIIS, Okayama Univ., Japan, [2]KEK, Japan, [3]RIKEN Nishina Center, Japan, [4]Physics Research Unit, RIKEN, Japan, [5]WIAS, Waseda Univ., Japan

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LSSE <Room 316>

OMC <Room 418>

[OMC4] 15:30-17:45
Optical Manipulation IV
Chair: Kei Murakoshi
Hokkaido Univ., Japan

OMC4-1 15:30 *Invited*

To be announced
Shuntaro Tani
The Univ. of Tokyo, Japan

OMC4-2 16:00

Plasmonic Au nano-needle fabricated by optical vortex laser illumination
Kai Izumisawa[1], Tatsuyuki Sugimoto[1], Yuri Nakamura[1], Katsuhiko Miyamoto[1], Tsukasa Torimoto[2], Ryuji Morita[3], Takashige Omatsu[1]
[1]Chiba Univ., Japan, [2]Nagoya Univ., Japan, [3]Hokkaido Univ., Japan

OMC4-3 16:15

Macroscopic assembly by optical control of zmol-level DNA hybridization
Takuya Iida[1], Mamoru Tamura[1], Syoji Ito[2]
[1]Osaka Prefecture Univ., Japan, [2]Osaka University, Japan

OMC4-4 16:30

Twisted polymeric microfiber formed by structured light illumination
Junhyung Lee[1], Shunsuke Toyoshima[1], Katsuhiko Miyamoto[1,2], Yoshihiko Arita[2,3], Kishan Dholakia[3], Takashige Omatsu[1,2]
[1]Graduate School of Advanced Integration Science, Chiba Univ., Japan, [2]Molecular Chirality Research Ctr., Chiba Univ., Japan, [3]Univ. of St. Andrews, UK

OMC4-5 16:45

Plasmon active site for nanosized polymerization
Hiro Minamimoto, Jinjiang Zhang, Xiaowei Li, Kei Murakoshi
Hokkaido Univ., Japan

OMC4-6 17:00

Circularly polarized lights twist azo-polymer to form helical surface relief
Keigo Masuda[1], Shogo Nakano[1], Daisuke Barada[2], Katsuhiko Miyamoto[1], Takashige Omatsu[3,4]
[1]Chiba Univ., Japan, [2]Utsunomiya Univ., Japan, [3]Graduate School of Advanced Integration Science, Chiba Univ., Japan, [4]Molecular Chirality Research Ctr., Chiba Univ., Japan

OMC4-7 17:15

Fabrication of semiconductor microspheres with laser ablation in superfluid helium
Yosuke Minowa, Yuya Oguni, Masaaki Ashida
Osaka Univ., Japan

OMC4-8 17:30

Creating a crystalline silicon (111) needle by optical vortex illumination
Kai Izumisawa[1], Ablimit Ablez[1], Yuri Nakamura[1], Tatsuyuki Sugimoto[1], Honami Fujiwara[1], Katsuhiko Miyamoto[1], Ryuji Morita[2], Takashige Omatsu[1]
[1]Chiba Univ., Japan, [2]Hokkaido Univ., Japan

XOPT <Room 313+314>

[XOPT4] 15:30-18:00
Inelastic scattering & spectroscopy
Chair: M. Yabashi
RIKEN SPring-8 Center

XOPT4-1 15:30 *Invited*

Optics and Optical Issues for IXS
Alfred Q.R. Baron
RIKEN SPring-8 Center, Japan

XOPT4-2 16:00 *Invited*

Inelastic x-ray scattering and new frontiers in x-ray optics
Hasan Yavans
DESY, Germany

XOPT4-3 16:30 *Invited*

Flat-Crystal Optics for Ultra-High Energy-Resolution Resonant Inelastic X-ray Scattering
Thomas Gog, Jung Ho Kim, Diego M. Casa, Mary H. Upton, Ayman Said, XianRong Huang
Argonne National Laboratory, USA

XOPT4-4 17:00

X-ray Echo Spectroscopy
Yuri Shvyd'ko
Advanced Photon Source, Argonne National Laboratory, USA

XOPT4-5 17:15 *Invited*

2-Dimensional VLS Gratings for X-ray Spectroscopy and Monochromators with Femtosecond Time Resolution
Alexei Erko
Helmholtz Zentrum Berlin, Deutschland

XOPT4-6 17:45

An improved multi-channel multilayer-mirrors-based EUV/soft X-ray spectrometer developed for the dynamic hohlraum experiment
Qiang Yi[1], Yi Qin[1], Rongkun Xu[1], Taiping Peng[1], Qiushi Huang[2], Zhanshan Wang[2]
[1]INPC, CAEP, China, [2]Tongji University, China

----- 19:00-21:00 XOPT Banquet -----

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ALPS <Room 511+512>

[ALPS15] 9:00-10:30
Terahertz Technology 1
Chair: Jinghua Teng
Inst. of Materials Res. and Eng. Singapore

ALPS15-1 9:00 *Invited*

Development and Application of Terahertz Focal-Plane Imaging Technique

Xinke Wang, Yan Zhang
Dep. of Phys., Capital Normal Univ., Beijing Key Lab. of Metamaterials and Devices, and Key Lab. of Terahertz Optoelectronics, Ministry of Edu., China

ALPS15-2 9:30

Carrier-Envelope Phase-Stable KTA-Based Optical Parametric Amplifiers at 3.3 μm

F. M. Lu, T. Kanai, Y. Matsumoto, N. Ishii, and J. Itatani
The inst. for Solid State Phys., The Univ. of Tokyo, Japan

ALPS15-3 9:45

Terahertz radiation from two-color laser filaments in air

Y. Chen[1,2], Z. Zhang[1,2], M. Chen[1,2], Z. Zhang[1,2], J. Yu[1], Z. Sheng[1,2,3], and J. Zhang[1,2]
[1]Dep. Phys. and Astro., Shanghai Jiao Tong Univ., China, [2]Collaborative Innovation Center of IFSA, Shanghai Jiao Tong Univ., China, [3]Dep. Phys., SUPA, Univ. of Strathclyde, UK

ALPS15-4 10:00

Enhanced Terahertz Emission from Micro Structure Fabricated from Silver Nanoparticles

K. N. T. Phan, K. Kato, K. Takano, M. Yoshimura, H. Azechi, and M. Nakajima
ILE, Osaka Univ., Japan

ALPS15-5 10:15

Effects of Metal V grooved waveguide gap width on MLD THz-TDS system using laser chaos and super focusing

F. Kuwashima[1], T. Shirao[1], T. Kishibata[1], Y. Akamine[1], K. Iwao[1], M. Ooi[1], N. Sakaue[1], S. Gouda[1], T. Sirasaki[1], M. Tani[2], K. Kurihara[3], K. Yamamoto[2], O. Morikawa[4], H. Kitahara[2], and M. Nakajima[5]
[1]Dep. of Elec. and Elec. Eng., Fukui Univ. of Tech., Japan, [2]Res. Cent. for Dev. of Far-Infrared Reg., Univ. of Fukui, Japan, [3]Fac. of Educ., Univ. of Fukui, Japan, [4]Chair of Liberal Arts, Japan Coast Guard Academy, Japan, [5]ILE., Osaka Univ., Japan

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

BISC <Room 419>

[BISC7] 9:00-12:00
Interdisciplinary Biomedical Imaging
Chair: Tatsuki Tahara
Kansai Univ., Japan

BISC7-1 9:00 *Invited*

High-speed bioimaging with frequency-division-multiplexed fluorescence confocal microscopy

Hideharu Mikami, Jeffrey Harmon, Yasuyuki Ozeki, Keisuke Goda
The Univ. of Tokyo, Japan

BISC7-2 9:30 *Invited*

Observation of elastic wave propagation near tissue surface using swept-source optical coherence tomography

Marie Tabaru
Tokyo Institute of Technology, Japan

BISC7-3 10:00 *Invited*

Non-label bioimaging utilizing scattering lights

Tomonobu M. Watanabe[1], Taro Ichimura[1], Hideaki Fujita[2]
[1]RIKEN Quantitative Biology Ctr., Japan, [2]Osaka Univ., Japan

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

CLES / LANSA <Room 416+417>

[ND2] 9:00-10:20
Neutron Diagnostics-2
Chair: A. Yogo
Institute of Laser Engineering, Osaka University, Japan

ND2-1 9:00 *Invited*

Diagnosing collisionless and kinetic phenomena via neutron self-emission on the National Ignition Facility

Drew Higginson[1], J. S. Ross[1], R. Hatarik[1], A. Link[1], D. D. Ryutov[1], S. V. Weber[1], S. C. Wilks[1], F. Fiuza[2], C. K. Li[3], H. Sio[3], A. B. Zylstra[4], H.-S. Park[1]
[1]Lawrence Livermore National Laboratory, USA, [2]SLAC National Accelerator Laboratory, USA, [3]Massachusetts Institute of Technology, USA, [4]Los Alamos National Laboratory, USA

ND2-2 9:40

Measurements of neutrons from photonuclear reaction using laser compton scattering gamma-ray

Shuji Miyamoto[1], Akinori Takemoto[1], Masashi Yamaguchi[1], Kento Sugita[1], Satoshi Hashimoto[1], Sho Amano[1], Takehito Hayakawa[2], Toshiyuki Shizuma[2], Hiroki Utsunomiya[3], Toshiro Itoga[4], Yoshihiro Asano[5]
[1]Laboratory of Advanced Science and Technology for Industry, University of Hyogo, Japan, [2]National Institutes for Quantum and Radiological Science and Technology, Japan, [3]Konan University, Japan, [4]Japan Synchrotron Radiation Research Institute, Japan, [5]RIKEN SPring-8 Center, Japan

ND2-3 10:00

Laser-based fast-neutron spectroscopy

I. Kishon[1,2], A. Kleinschmidt[3,4], V. A. Schanz[3,4], A. Tebartz[3], J. Fernandez[5], D. Gautier[5], R. P. Johnson[5], T. Shimada[5], G. A. Wurden[5], M. Roth[3], I. Pomerantz[1,2]
[1]The School of Physics and Astronomy, Tel-Aviv University, Israel, [2]Center for Light-Matter Interaction, Tel-Aviv University, Israel, [3]Institut für Kernphysik, Technische Universität Darmstadt, Germany, [4]GSI Helmholtzzentrum für Schwerionenforschung GmbH, Germany, [5]Los Alamos National Laboratory, USA

----- 10:20-10:40 Break -----

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HEDS <Room 311+312>

[HEDS10] 9:00-10:30
Beams (ImPACT Session VI)
Chair: M. Kando
QST, Japan

HEDS10-1 9:00 *Invited*

Relativistic electron beams driven by single-cycle laser pulses at kilohertz repetition rate
Jerome Faure
LOA, France

HEDS10-2 9:30 *Invited*

Dynamics of plasma mirrors driven by relativistic-intensity few-cycle pulses
Rodrigo Lopez-Martens
LOA, France

HEDS10-3 10:00 *Invited*

Novel accelerator after burner experiment using existing 7 GeV LINAC
Mitsuhiro Yoshida
KEK, Japan

----- 10:30-10:50 Break -----

ICNN <Room 414+415>

[ICNN6] 9:00-10:30
Nanowires and optoelectronics
Chair: A. Nikitin
CIC nanoGUNE, Spain

ICNN6-1 9:00 *Invited*

Heterostructured III-V nanowires: opportunities and challenges
Vladimir Dubrovskii
St. Petersburg Academic University, Russia

ICNN6-2 9:30

Nanowire-quantum dot lasers on flexible substrates
Jun Tatebayashi[1], Yasutomo Ota[1], Satomi Ishida[2], Masao Nishioka[2], Satoshi Iwamoto[3], Yasuhiko Arakawa[3]
[1]NanoQuine, the Univ. of Tokyo, Japan, [2]IIS, the Univ. of Tokyo, Japan, [3]NanoQuine and IIS, the Univ. of Tokyo, Japan

ICNN6-3 9:45

A theoretical comparison study on threshold currents of III-nitride lasers with quantum dots and quantum wells
Renchun Tao[1], Yasuhiko Arakawa[2]
[1]Institute for Nano Quantum Information Electronics, The University of Tokyo, Japan, [2]Institute of Industrial Science, The University of Tokyo, Japan

ICNN6-4 10:00

Photonic Crystal Nanolaser Array with Ordered Lasing Wavelengths For High-Speed Cell Imaging
Hiroshi Abe, Satoshi Ota, Yasushi Takemura, Toshihiko Baba
Yokohama National University, Japan

ICNN6-5 10:15

Spectral control of near-field thermal radiation transfer using a Si photonic crystal thermal emitter
Takuya Inoue, Takashi Asano, Susumu Noda
Kyoto University, Japan

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

IP <Room 413>

[IP-21AM-1] 9:00-10:30
[Special Session] Holography
Chair: Hiroshi Yoshikawa
Hihon University, Japan

IP-21AM-1-1 9:00 *Invited*

Recent Progress in Optical Scanning Holography
Jung-Ping Liu
Feng Chia University, Taiwan

IP-21AM-1-2 9:30 *Invited*

Applications of Geometric Metasurface in Holography
Lingling Huang, Yongtian Wang
Beijing Institute of Technology, China

IP-21AM-1-3 10:00 *Invited*

Holographic and Light Field Head Mounted Displays and Their Contents Synthesis
Jae-Hyeung Park
Inha University, Republic of Korea

------ 10:30-11:00 BREAK ------

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LDC <Room 301>

[LDC5] 9:00-10:30
Color Speckle & Management
Co Chairs: Shigeo Kubota
Oxide Corp., Japan
Young-Joo Kim
Yonsei Univ., Korea

LDC5-1 9:00 *Invited*

Direct Measurement of Color Speckle II Modification of 2D Colorimeter
Kazuo Kuroda[1], Junichi Kinoshita[2], Hiroyuki Tanaka[3], Ryushi Fujimura[1], Kazuhisa Yamamoto[2]
[1]Utsunomiya Univ., Japan, [2]Osaka Univ., Japan, [3]Topcon Technohouse, Japan

LDC5-2 9:30

Color Speckle Measurement Errors for Uncorrelated XYZ Filter-Sensor System
Junichi Kinoshita[1] , Kazuhisa Yamamoto[1], Kazuo Kuroda[2]
[1]Osaka Univ., Japan, [2]Utsunomiya Univ., Japan

LDC5-3 9:45

Measurement of Angular Characteristics of Speckle Contrast
Shogo Kubota, Makio Kurashige, Kazutoshi Ishida
Dai Nippon Printing Co., Ltd., Japan

LDC5-4 10:00

A New Measurement Method Suitable for Color and Photometric Quantity of Laser Displays
K.Hieda, T.Maruyama
HIOKI E.E. CORP., Japan

LDC5-5 10:15

Efforts to Realize Wide Color Gamut, High Brightness Projector
Masaya Masuda, Daisuke Hayashi, Shunji Kamijima
Seiko Epson Corp., Japan

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

LEDIA <Room 411+412>

[LED5] 9:00-10:30
Growths
Chairs: Yoshinao Kumagai
Tokyo University of Agriculture and Technology, Japan
Takeo Kageyama
The University of Tokyo, Japan

LED5-1 9:00 *Invited*

Growth and Characterization of $(Al,Ga)_2O_3$-Based Alloy and Heterostructures
Takayoshi Oshima
Saga University, Japan

LED5-2 9:30 *Invited*

HVPE as a method for crystallizing GaN with low background impurity concentration with controllable doping - highly conductive n-type and semi-insulating material
Malgorzata Iwinska, Michal Bockowski
Institute of High Pressure Physics PAS, Poland

LED5-3 10:00

Novel doping techniques during MOVPE of GaN
Christoph Berger, Andreas Lesnik, Silvio Neugebauer, Armin Dadgar, Marc Hoffmann, Aqdas Fariza, Florian Hörich, Jürgen Bläsing, Hartmut Witte, Peter Veit, Jürgen Christen, André Strittmatter
Otto-von-Guericke-University Magdeburg, Germany

LED5-4 10:15

Effect of gaseous carbon addition in GaN crystal growth by Na-flux method
Naoki Takeda, Masayuki Imanishi, Kousuke Murakami, Masatoshi Hayashi, Mamoru Imade, Masashi Yoshimura, Yusuke Mori
Osaka University, Japan

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

LNPC <Room 317>

[LNPC6] 9:00-11:45
Physics with combined light sources
Chairs: K. Homma[1,2]
[1]Hiroshima Univ., Japan, [2]IZEST, Ecole Polytechnique, France

LNPC6-1 9:00

Search for Hidden Photon Dark Matter (HPDM) using Dish Antenna in Millimeter-wave region
Y. Okesaku[1], T. Yamazaki[2], T. Inada[2], S. Asai[1], S. Knirck[1,3], T. Idehara[4]
[1]The univ. of Tokyo, Japan, [2]ICEPP, The univ. of Tokyo, Japan, [3]Univ. of Heidelberg, Germany, [4]Univ. of Fukui, Japan

LNPC6-2 9:20

Search for X-ray photon-photon elastic scattering with a Laue-case beam collider
T. Yamaji[1], T. Inada[2], T. Yamazaki[2], T. Namba[2], S. Asai[1], T. Kobayashi[3], K. Tamasaku[4], Y. Tanaka[5], Y. Inubushi[6], K. Sawada[4], M. Yabashi[4], T. Ishikawa[4]
[1]The univ. of Tokyo, Japan, [2]ICEPP, The univ. of Tokyo, Japan, [3]KEK, Japan, [4]RIKEN, SPring-8, Japan, [5]Univ. of Hyogo, Japan, [6]JASRI, Japan

LNPC6-3 9:40

Possiblity for measuring Delbrück Scattering in the sub-MeV range using polarized gamma-ray photons
J. K. Koga, T. Hayakawa
QST, Japan

LNPC6-4 10:05

Phase retardation and polarimetry with GeV photons to probe deformed vacuum
Y. Nakamiya[1], K. Homma[2,3]
[1]ICR, Kyoto Univ., Japan, [2]Hiroshima Univ., Japan, [3]IZEST, Ecole Polytechnique, France

----- 10:25-10:45 Break -----

Oral Program

Oral, Friday, April 21 AM

LSSE <Room 302>

[LSSE6] 9:30-14:10
Natural Energy Production
Chair: Satoshi Wada
RIKEN Center for Advanced Photonics, Japan

LSSE6-1 9:30 *Invited*

Photocatalysis and Light Guide Pipe
Akira Fujishima
Tokyo University of Science, Japan

OMC <Room 418>

[OMC5] 9:00-10:30
Optical Manipulation V
Chair: Masaaki Ashida
Osaka Univ., Japan

OMC5-1 9:00 *Invited*

Polarization dependent optical forces: from single particles to collective effects
Stephen H. Simpson
Institute of Scientific Instruments of the ASCR, v.v.i., Czech Republic

OMC5-2 9:30

Optical binding of two microparticles levitated in vacuum
Yoshihiko Arita[1], Ewan Wright[2], Kishan Dholakia[1]
[1]Univ. of St. Andrews, UK, [2]College of Optical Sciences, The Univ. of Arizona, USA

OMC5-3 9:45

Nano-ring arrays for sub-micron particle trapping
Xue Han, Viet Giang Truong, Síle Nic Chormaic
Okinawa Institute of Science and Technology Graduate Univ., Japan

OMC5-4 10:00

Rotational dynamics and heating of trapped nanovaterite particles
Yoshihiko Arita[1], Joseph M. Richards[2], Michael Mazilu[1], Gabriel C. Spalding[2], Susan E. Skelton Spesyvtseva[1], Kishan Dholakia[1]
[1]Univ. of St Andrews, UK, [2]Illinois Wesleyan Univ., USA

OMC5-5 10:15

Optical binding of particles in the evanescent field of microfiber modes
Maimaiti Aili, Viet Giang Truong, Síle Nic Chormaic
OIST Graduate Univ, Japan

XOPT <Room 313+314>

[XOPT5] 8:45-10:15
XFEL facilities
Chair: Y. Feng
SLAC National Accelerator Laboratory

XOPT5-1 8:45 *Invited*

Recent progress and development in hard X-ray instrumentation and applications at LCLS
Takahiro Sato
Linac Coherent Light Source, SLAC National Accelerator Laboratory, USA

XOPT5-2 9:15 *Invited*

Current status and future perspectives of SACLA
Yuichi Inubushi[1], Kensuke Tono[1], Tadashi Togashi[1], Shigeki Owada[2], Toshinori Yabuuchi[2], Tetsuo Katayama[1], Akira Kon[1], Ichiro Inoue[2], Taito Osaka[2], Makina Yabashi[2]
[1]JASRI, Japan, [2]RIKEN SPring-8 Center, Japan

XOPT5-3 9:45 *Invited*

Status of the European XFEL
Harald Sinn
European XFEL, Germany

[XOPT6] 10:15-10:30
Optical components & systems (II)
Chair: Y. Feng
SLAC National Accelerator Laboratory

XOPT6-1 10:15

Hard X-ray Split-and-Delay Optics with wavefront Division at SACLA
Takashi Hirano[1], Taito Osaka[2], Yasuhisa Sano[1], Yuichi Inubushi[3], Tadashi Togashi[3], Ichiro Inoue[2], Satoshi Matsuyama[1], Kensuke Tono[3], Kazuto Yamauchi[1], Makina Yabashi[2]
[1]Osaka University, Japan, [2]RIKEN SPring-8 Center, Japan, [3]JASRI, Japan

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

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

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

Oral, Friday, April 21 AM

ALPS <Room 511+512>

[ALPS16] 11:00-12:00
Terahertz Technology 2
Chair: Makoto Nakajima
Osaka Univ., Japan

ALPS16-1 11:00 *Invited*

Tunable and reconfigurable THz devices

Jinghua Teng
Inst. of Materials Res. and Eng. Agency for Sci., Tech. and Res. (A*STAR), Singapore

ALPS16-2 11:30

Simultaneous Generation and Detection of Multi-wavelength Terahertz Waves by Parametric Wavelength Conversion

K. Murate[1,2], K. Maeda[1], S. Hayashi[3], K. Kawase[1]
[1]Nagoya Univ., Japan, [2]JSPS, Japan, [3]National Inst. of Info. and Commun. Tech., Japan

ALPS16-3 11:45

Characterization of Unexplored Second-order Nonlinear Optical Coefficients of organic DAST Crystal

T. Notake, K. Nawata, Y. Takida, Y. Tokizane, Z. Han, M. Koyama, A. K. D. Bosco, and H. Minamide
RIKEN RAP, Teraphotonics Team, Japan

----- 12:00-13:15 Lunch Break -----

BISC <Room 419>

BISC7-4 11:00 *Invited*

Cell tracking for cell image analysis

Ryoma Bise[1], Yoichi Sato[2]
[1]National Institute of Informatics, Japan, [2]The Univ. of Tokyo, Japan

BISC7-5 11:30 *Invited*

Requirement of spatiotemporal resolution for imaging intracellular temperature distribution

Noriko Hiroi, Ryuichi Tanimoto, Kaito Ii, Mitsunori Ozeki, Kota Mashimo, Akira Funahashi
Keio Univ., Japan

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

CLES / LANSA <Room 416+417>

[AP2] 10:40-12:40
Applications-2
Chair: Y. Li
Institute of Physics, Chinese Academy of Sciences, China

AP2-1 10:40 *Invited*

Study of nuclear structure by measuring neutrons from photodisintegration reactions with linear polarized gamma-ray beam

Takehito Hayakawa[1,2], Toshiyuki Shizuma[1], Akinori Takemoto[3], Masashi Yamaguchi[3], Ken Horikawa[3], Shuji Miyamoto[3], Sho Amano[3], Satoshi Chiba[4], Hidetoshi Akimune[5], Kazuyuki Ogata[6], Mamoru Fujiwara[6]
[1]National Institutes for Quantum and Radiological Science and Technology, Japan, [2]National Astronomical Observatory of Japan, Japan, [3]University of Hyogo, Japan, [4]Tokyo Institute of Technology, Japan, [5]Konan University, Japan, [6]Research Center for Nuclear Physics (RCNP), Osaka University, Japan

AP2-2 11:20 *Invited*

Development of a neutron flat panel detector

Hiroyuki Takahashi[1], Takeshi Fujiwara[2]
[1]Institute of Engineering Innovation, The University of Tokyo, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

AP2-3 12:00

Study for non-destructive detection of salt in concrete using neutron-captured prompt-gamma rays at RANS

Yasuo Wakabayashi[1], Yuichi Yoshimura[1,2], Tomohiro Kobayashi[1], Maki Mizuta[1], Atsushi Taketani[1], Yoshimasa Ikeda[1], Takao Hashiguchi[1], Shinzo Yanagimachi[1], Hideyuki Sunaga[1], Yujiro Ikeda[1,3], Yoshie Otake[1]
[1]RIKEN Center for Advanced Photonics, RIKEN, Japan, [2]Tokyo Institute of Technology, Japan, [3]J-PARC Center, Japan Atomic Energy Agency, Japan

AP2-4 12:20

Optimization of experimental system design for benchmarking of large angle scattering reaction cross section at 14 MeV using two shadow bars

Naoya Hayashi, Seiki Ohnishi, Yuki Fujiwara, Sachie Kusaka, Fuminobu Sato, Isao Murata
Department of Sustainable Energy and Environmental Engineering, School of Engineering, Osaka University, Japan

[Closing] 12:40-13:00
Closing Remarks

Oral, Friday, April 21 AM

HEDS <Room 311+312>

[HEDS11] 10:50-12:00
Beams (ImPACT Session VII)
Chair: J. Faure
LOA, France

HEDS11-1 10:50 *Invited*

High energy electron accelerator platform at ELI Beamline, ultra-stable pointing investigations
C. Lazzarini, Tadzio Levato
ELI-Beamlines, Czeck Rep.

HEDS11-2 11:20

Experimental investigation of sheath asymmetry effects on proton beam spatial profile in high intensity laser solid interactions
Nicolas. P. Dover
QST, Japan

HEDS11-3 11:40

Study of Laser Wakefield Acceleration via Single-shot Non-destructive Electro-optic Sampling Diagnostics
Huang Kai
QST, Japan

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

ICNN <Room 414+415>

[ICNN7] 11:00-12:00
Low dimensional nanophotonics
Chair: V. Dubrovskii
St. Petersburg Academic University, Russia

ICNN7-1 11:00 *Invited*

Nanophotonics in low dimensions
Alexey Nikitin
CIC NAnogune, Ikerbasque, Spain

ICNN7-2 11:30

The optical response of a two-dimensional crystal
Michele Merano
Università degli studi di Padova, Italy

ICNN7-3 11:45

Growth and structure of In0.5Ga0.5Sb quantum dots on GaP(001) for nanomemories
Elisa M. Sala[1], Gernot Stracke[1], Sören Selve[2], Tore Niermann[3], Michael Lehmann[3], Sarah Schlichting[1], Felix Nippert[1], Gordon Callsen[1], Andrè Strittmatter[4], Dieter Bimberg[1]
[1]Institute of Solid State Physics, Technical University of Berlin, Germany, [2]Center for Electron Microscopy (ZELMI), Technical University of Berlin, Germany, [3]Institute for Optics and Atomic Physics (IOAP), Technical University of Berlin, Germany, [4]Institute of Experimental Physics, Otto-von-Guericke University Magdeburg, Germany

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

IP <Room 413>

[IP-21AM-2] 11:00-11:30
Holography
Chair: Mikael Sjödahl
Luleå University of Technology, Sweden

IP-21AM-2-1 11:00

3D Physically Based Rendering of Computer Generated Holograms by Orthographic Ray-Sampling
Shunsuke Igarashi[1], Tomoya Nakamura[1,2], Kyoji Matsushima[3], Masahiro Yamaguchi[1]
[1]Tokyo Institute of Technology, Japan, [2]PRESTO, JST, Japan, [3]Kansai University, Japan

IP-21AM-2-2 11:15

Optical Fabrication of DNA Hydrogel Using Holographic Pattern
Suguru Shimomura, Takahiro Nishimura, Yusuke Ogura, Jun Tanida
Osaka University, Japan

Oral, Friday, April 21 AM

LDC <Room 301>

[LDC6] 10:45-11:45
Speckle Reduction
Co Chairs: Hiroshi Murata
Osaka Univ., Japan
Lung-Han Peng
National Taiwan Univ., Taiwan

LDC6-1 10:45 *Invited*

Simulation and Fabrication to the Speckle Reduction in Compact Optical Engine for Laser Projection Displays

Young-Joo Kim, Jae-Yong Lee, Se-Hwan Jang, Sungbin Jeon, No-Cheol Park
Yonsei Univ., Korea

LDC6-2 11:15

Speckle Contrast Measurement Rigorously in Human Eye Response Time

Koji Suzuki, Shigeo Kubota
Oxide Corp., Japan

LDC6-3 11:30

Laser Speckle Reduction by Using Motionless Image Conduits

Zhaomin Tong[1], Wenzhi Cheng[1], Shaohua Song[1], Zhuo Cai[1], Yifei Ma[1], Xuyuan Chen[1,2], Weiguang Ma[1], Liantuan Xiao[1], Suotang Jia[1]
[1]Shanxi Univ., Republic of China, [2]Univ. College of Southeast Norway, Norway

----- 11:45-13:15 Lunch -----

LEDIA <Room 411+412>

[LED6] 10:45-12:15
Laser Diodes
Chairs: Jaehee Cho
Chonbuk National University, Korea
Kazunobu Kojima
Tohoku University, Japan

LED6-1 10:45 *Invited*

Advances in AlGaN-Based Laser Diodes

Zlatko Sitar
North Carolina State University, USA

LED6-2 11:15

Influence of the Quantum Well Width on the Optical Properties of AlGaN-based Light Emitters in the Deep UV Spectral Range

Christoph Reich[1], Martin Feneberg[2], Martin Guttmann[1], Johannes Enslin[1], Frank Mehnke[1], Christian Kuhn[1], Tim Wernicke[1], Michael Kneissl[1]
[1]Technische Universität Berlin, Germany, [2]Otto-von-Guericke-Universität, Germany

LED6-3 11:30 *Invited*

Recent Progress in Quantum Dot Lasers

Takeo Kageyama[1], Mitsuru Sugawara[2], Yasuhiko Arakawa[3]
[1]NanoQuine, The University of Tokyo, Japan, [2]QD laser, Japan, [3]IIS, The University of Tokyo, Japan

LED6-4 12:00

GaAsP quantum well tunable single-mode semiconductor lasers with deeply etched periodic structures

Masahiro Uemukai, Akihiro Yamashita, So Kusumoto, Ryuji Katayama
Osaka University, Japan

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

LNPC <Room 317>

LNPC6-5 10:45

Gamma Polari-Calorimeter: an instrument for gamma ray polarimetry using the pair production process

M. Cuciuc[1], S. Ataman[1], L. D'Alessi[1], K. Homma[2,3], T. Moritaka[4], Y. Nakamiya[5], M. Rosu[1], K. Seto[1], O. Tesileanu[1]
[1]ELI-NP, IFIN-HH, Romania, [2]Hiroshima Univ., Japan, [3]IZEST, Ecole Polytechnique, France, [4]National Central Univ., Taiwan, [5]ICR, Kyoto Univ., Japan

LNPC6-6 11:05

Search for Vacuum Magnetic Birefringence With Pulsed Magnet and Fabry-Pérot Cavity

S. Kamioka[1], X. Fan[1], T. Inada[2], T. Yamazaki[2], T. Namba[2], S. Asai[1], J. Omachi[1], K. Yoshioka[3], M. Kuwata-Gonokami[1], A. Matsuo[4], K. Kindo[4], H. Nojiri[5]
[1]The univ. of Tokyo, Japan, [2]ICEPP, The univ. of Tokyo, Japan, [3]PSC, The univ. of Tokyo, Japan, [4]ISSP, The univ. of Tokyo, Japan, [5]IMR. Tohoku Univ., Japan

LNPC6-7 11:25

Search for Vacuum Diffraction Using high power laser and X-ray Free Electron Laser SACLA

Y. Seino[1], T. Yamazaki[2], T. Inada[2], T. Namba[2], S. Asai[1], T. Yabuuchi[3], T. Togashi[3,4], Y. Inubushi[3,4], K. Tamasaku[3], M. Yabashi[3,4], T. Ishikawa[3]
[1]The univ. of Tokyo, Japan, [2]ICEPP, The univ. of Tokyo, Japan, [3]RIKEN, SPring-8, Japan, [4]JASRI, Japan

----- 11:45-13:15 Lunch -----

Oral, Friday, April 21 AM

LSSE <Room 302>

OMC <Room 418>

[OMC6] 11:00-12:15
Optical Manipulation VI
Chair: Gabriel Molina-Terriza
Macquarie Univ., Australia

XOPT <Room 313+314>

[XOPT7] 11:00-12:00
Photon diagnostic & new techniques
Chair: Y. Inubushi
JASRI

LSSE6-2 11:00 *Invited*

Solar-Driven Photochemical and Electrochemical Energy Generation

Joel Ager[1,2,3]
[1]Joint Center for Artificial Photosynthesis, Lawrence Berkeley National Laborary, USA, [2]The Materials Sciences Division of Lawrence Berkeley National Laboratory, USA, [3]Department of Materials Science and Engineering, University of California Berlceley, USA

OMC6-1 11:00 *Invited*

Optical tweezer manipulation for atom tetris

Jaewook Ahn
KAIST, Korea, Republic of

XOPT7-1 11:00

Determination of XFEL pulse duration via X-ray intensity interferometry

Ichiro Inoue[1], Toru Hara[1], Yuichi Inubushi[2], Kensuke Tono[2], Hitoshi Tanaka[1], Makina Yabashi[1]
[1]RIKEN SPring-8 Center, Japan, [2]JASRI, Japan

XOPT7-2 11:15

Tunable Young's double pinhole system coupled with lens for hard X-ray spatial coherence characterization.

Irina Snigireva[1], Mikhail Lyubomirskiy[2], Anatoly Snigirev[3]
[1]ESRF, France, [2]DESY, Germany, [3]Baltic Federal University, Russia

LSSE6-3 11:30 *Invited*

User-on-demand Solar to Power System with Solar to Hydrogen on site Storage

Katsushi Fujii[1,2,3], Kayo Koike[2], Masakazu Sugiyama[2], Yoshiaki Nakano[2], Shinichiro Nakamura[3], Satoshi Wada[3]
[1]The University of Kitakyushu, Japan, [2]The University of Tokyo, Japan, [3]RIKEN, Japan

OMC6-2 11:30

Dynamics of optically levitated microparticles in vacuum placed in 2D and 3D optical potentials possessing orbital angular momentum

Yoshihiko Arita[1], Michael Mazilu[1], Mingzhou Chen[1], Ewan Wright[2], Kishan Dholakia[1]
[1]Univ. of St Andrews, UK, [2]College of Optical Sciences, The Univ. of Arizona, USA

XOPT7-3 11:30

Single bunch extraction by SAW driven bunch chopper

Simone Vadilonga[1], Ivo Zizak[1], Andrei Petsiuk[1], Dmitry Roshchupkin[2], Igor Dolbnya[3], Kawal Sawhney[3], Alexei Erko[1]
[1]Helmholtz Zentrum Berlin, Germany, [2]Institute of Microelectronics Technology and High Purity Materials, Russian Academy of Sciences, Russia, [3]Diamond Light Source, England

OMC6-3 11:45

Continuous rotation of a cholesteric liquid crystalline droplet by a circularly polarized optical tweezers

Yasuyuki Kimura
Kyushu Univ., Japan

XOPT7-4 11:45

New design of environmental cells as a first step toward 3D imaging in solution by X-ray laser diffraction

Akihiro Suzuki[1], Tatsuro Tachibana[1], Naoya Tani[1], Yasumasa Joti[2], Yoshitaka Bessho[3], Takashi Kimura[1], Yoshinori Nishino[1]
[1]Hokkaido University, Japan, [2]JASRI, Japan, [3]Academia Sinica, Taiwan

----- 12:00-13:10 Lunch -----

OMC6-4 12:00

Nanoparticle trapping and control in a hollow whispering gallery resonator

Jonathan M. Ward, Yong Yang, Síle Nic Chormaic
Okinawa Institute of Science and Technology Graduate Univ., Japan

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

----- 12:15-13:00 Lunch Break -----

Oral, Friday, April 21 PM

ALPS <Room 511+512>

[ALPS17] 13:15-15:45
Short wavelength
Chairs: Yutaka Nagata
RIKEN, Japan
Nobuhisa Ishii
The Univ. of Tokyo, Japan

ALPS17-1 13:15 *Invited*

kW-class picosecond thin-disk pre-pulse laser Perla for efficient EUV generation
Martin Smrž[1], J. Mužík[1,2], O. Novák[1], M. Chyla[1], A. Endo[1], T. Mocek[1]
[1]HiLASE Centre, Inst. of Phys. AS CR, Czech Republic, [2]Faculty of Nuclear Sci. and Phys. Eng., Czech Technical Univ. in Prague, Czech Republic

ALPS17-2 13:45 *Invited*

Development of 250 W LPP EUV Light Source for HVM Lithography
Tatsuya Yanagida
Gigaphoton Inc., Japan

ALPS17-3 14:15

Few cycle pulse generation from a bandwidth– optimized high energy Yb-doped fiber laser source
L. Lavenu[1,2], M. Natile[3,4], F. Guichard[2], Q. Mocaer[2], Y. Zaouter[2], M. Hanna[1], E. Mottay[2], and P. Georges[1]
[1]Lab. Charles Fabry, Inst. d'Optique, CNRS, France, [2]Amplitude Sys., France, [3]Amplitude Tech., France, [4]LIDyL, CEA, France

ALPS17-4 14:30

Time-Resolved VUV Reflection Spectroscopy for Spatio-Temporal Diagnosis of Ultrafast Plasma Formation
R. Itakura, H. Akagi, Y. Wada, and T. Otobe
KPSI, QST, Japan

ALPS17-5 14:45

Development of Multi-fragment Momentum Imaging Method for Attosecond-Pump Attosecond- Probe of Ultrafast Dynamics of Polyatomic Molecules
T. Okino[1,2], Y. Nabekawa[1], K. Midorikawa[1]
[1]RIKEN Cent. for Adv. Photonics, Japan, [2]JST PRESTO, Japan

ALPS17-6 15:00

UV-driven harmonic generation for time-resolved ultraviolet photoelectron spectroscopy of polyatomic molecules
S. Adachi, M. Sato, and T. Suzuki
Grad. Sch. of Sci., Kyoto Univ., Japan

ALPS17-7 15:15

Self-compression of sub-mJ, 14 fs pulses in a deep ultraviolet filament
S. Adachi, T. Suzuki
Grad. Sch. of Sci., Kyoto Univ., Japan

ALPS17-8 15:30

Laser-induced damage in silica glasses with double pulses irradiation
S. Motokoshi[1], Y. Takemura[2], M. Yoshida[2], T. Jitsuno[3], M. Yoshimura[3]
[1]Inst. for Laser Tech., Japan, [2]Kindai Univ.,Japan, [3]ILE Osaka Univ., Japan

BISC <Room 419>

[BISCp8] 13:00-14:00
Posters-Friday
<Exhibition Hall A>

Poster session program p.106

----- 14:00-14:15 Break -----

[BISC9] 14:15-15:30
Optical Coherence Tomography
Chair: Yoshihisa Aizu
Muroran Institute of Technology, Japan

BISC9-1 14:15 *Invited*

Multi-contrast imaging of human posterior eye by Jones matrix optical coherence tomography
Yoshiaki Yasuno
Univ. of Tsukuba, Japan

BISC9-2 14:45

Ultra-high resolution polarization-sensitive optical coherence tomography for imaging of the retinal nerve fiber layer
Barry Cense, Maddipatla Reddikumar, Joel Cervantes
Utsunomiya Univ., Japan

BISC9-3 15:00

Study on laser-assisted drug delivery with optical coherence tomography
Wen-Guei Tsai[1], Ting-Yen Tsai[1], Chih-Hsun Yang[2], Meng-Tsan Tsai[1]
[1]Chang Gung Univ., Taiwan, [2]Chang Gung Memorial Hospital, Taiwan

BISC9-4 15:15

A 3.4-mm beam diameter system for retinal imaging with OCT and adaptive optics
Maddipatla Reddikumar, Barry Cense
Utsunomiya Univ., Japan

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

CLES / LANSA <Room 416+417>

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HEDS <Room 311+312>

[HEDS12] 13:30-15:00
Beams / Rad. Source (ImPACT Session VIII)
Chair: A. Zhidkov
Osaka Univ., japan

HEDS12-1 13:30 *Invited*

Nuclear Fusion in Laser-Driven Counter-Stream Collisionless Plasmas
Liming Chen
IOP, P.R.China

HEDS12-2 14:00 *Invited*

Nonlinear inverse Compton scattering experiment in BNL ATF
Yusuke Sakai
UCLA, USA

HEDS12-3 14:30

BISER: Burst Intensification by Singularity Emitting Radiation
Alexander Pirozhkov
QST, Japan

HEDS12-4 14:50

Status and perspective of an experimental platform for high-energy density science at SACLA
Akira Kon
JASRI, Japan

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

ICNN <Room 414+415>

[ICNN8] 13:30-15:15
Devices and materials
Chair: M. Holmes
The University of Tokyo, Japan

ICNN8-1 13:30

32 Gbps Operation in Si Photonic Crystal Slow Light Modulator
Yosuke Terada, Tomoki Tatebe, Yosuke Hinakura, Toshihiko Baba
Yokohama National University, Japan

ICNN8-2 13:45

Design of Double-slotted Photonic Crystal Nanocavity Robust to Structural Fluctuations
Masahiro Nakadai, Ryotaro Konoike, Yoshinori Tanaka, Takashi Asano, Susumu Noda
Department of Electronic Science and Engineering, Kyoto University, Japan

ICNN8-3 14:00

Photonic Crystal Nanocavity Photodetector Integrated with p-i-n Junction Fabricated by Photolithography Process.
Nurul Ashikin Binti Daud, Yuta Ooka, Tomohiro Tetsumoto, Takasumi Tanabe
Keio University, Japan

ICNN8-4 14:15

Two mode channel switchable hybrid grating assisted contra-directional coupler
Xiangjie Zhao, Yuxi Wang, Qingzhong Huang, Jinsong Xia
Wuhan National Laboratory for Optoelectronics, China

ICNN8-5 14:30

Novel Silicon-Organic Hybrid Micro-Ring Modulator
Feng Qiu, Shiyoshi Yokoyama
Kyushu University, Japan

ICNN8-6 14:45

Enhanced Light-Coupling in Laser-Crystallised Silicon Thin-Film Solar Cells on Glass by Moth-Eye Anti-Reflection Foil
Mohd Zamir Pakhuruddin[1,2], Sven Kühnapfel[3], Jialiang Huang[2], Jonathan Dore[2], Stefan Gall[3], Sergey Varlamov[2]
[1]School of Photovoltaic and Renewable Energy Engineering, University of New South Wales, Sydney 2052, Australia, Malaysia, [2]School of Photovoltaic and Renewable Energy Engineering, University of New South Wales, Sydney 2052, Australia, [3]Helmholtz-Zentrum Berlin, Institute for Silicon-Photovoltaics, Kekuléstr. 5, D-12489 Berlin, Germany

[Closing] 15:00-15:15
Closing Remarks
Y. Arakawa
The University of Tokyo, Japan

IP <Room 413>

[IP-21PM-1] 13:00-15:00
INFORMATION PHOTONICS POSTER SESSION
<Exhibition Hall A>

Poster session program p.108

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LDC <Room 301>

[LDC7] 13:15-15:15
Advanced Laser & Lighting
Co Chairs: Tetsuya Yagi
Mitsubishi Electric Corp., Japan
Masafumi Ide
Magic Leap, Japan

LDC7-1 13:15 *Invited*

Compact RGB Laser Sources
K. Paschke, G. Blume, N. Werner, J. Hofmann, R. Bege, D. Feise, A. Sahm
Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik, Germany

LDC7-2 13:45

30 W CW Red Fiber Laser for RGB Laser System
Surin A.A., Borisenko T.E., Stirmanov Y.S.
"IRE-Polus" Ltd (IPG Photonics Russian department), Russia

LDC7-3 14:00

Speckle Reduction Using Fiber-laser Pumped $X^{(2)}$ Nonlinear Photonic Crystals with Double-slit Structures
Seong-Jin Son[1], Hsin-Jung Lee[2], Ya-Ching Huang[2], Do-Kyeong Ko[1], Lung-Han Peng[2], Nan Ei Yu[1]
[1]Gwangju Institute of Science and Technology, South Korea, [2]National Taiwan Univ., Taiwan

LDC7-4 14:15

Compact Microchip-seeded Multistage MOPA System for Laser Induced Breakdown Applications
V. Yahia, T. Taira
Institute for Molecular Science, Japan

LDC7-5 14:30 *Invited*

Liquid Crystal Display with RGB Laser Backlight
Y. Fujii, E. Niikura, N. Okimoto, S. Maeda, H. Yasui, A. Heishi
Mitsubishi Electric Corp., Japan

LDC7-6 15:00

Simple and Small Holographic RGB Illumination Unit. ~ Ega-rim ~
Toshihiro Kasezawa[1], Hideyoshi Horimai[1], Hiroshi Tabuchi[2], Toshitaka Nara[2], Tsutomu Shimura[3]
[1]Egarim Co., Ltd, Japan, [2]Okamoto Glass Co., Ltd., Japan, [3]The Univ.of Tokyo, Japan

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

LEDIA <Room 411+412>

[LED7] 13:15-15:15
Nanostructures
Chairs: Christophe Durand
Centre National de la Recherche Scientifique (CNRS), France
Tomoyuki Tanikawa
Tohoku University, Japan

LED7-1 13:15 *Invited*

Emerging technologies based on III-nitride nano-LEDs
Hilde Hardtdegen, Martin Mikulics
Research Center Juelich GmbH, Peter Gruenberg Institute, Germany

LED7-2 13:45 *Invited*

Classical and Quantum Light Generation Using Nano- and Micro-Structured Nitride Semiconductors
Yonghoon Cho
Korea Advanced Institute of Science and Technology (KAIST), Korea

LED7-3 14:15

Evolution of Free Carrier Concentration within Core-Shell Microrod LEDs: Nanometer-resolved Correlation of Cathodoluminescence and µ-Raman
Frank Bertram[1], Marcus Müller[1], Peter Veit[1], Christian Nenstiel[2], Gordon Callsen[2], Axel Hofmann[2], Juergen Christen[1], Andreas Waag[3], Matin Mohajerani[3], Jana Hartmann[3], Hao Zhou[3], Hergo-H. Wehmann[3]
[1]University of Magdeburg, Germany, [2]TU Berlin, Germany, [3]TU Braunschweig, Germany

LED7-4 14:30

Nano-scale correlation of the optical, structural, and compositional properties of InGaN/GaN core-shell nanorod LEDs
Marcus Müller[1], Sebastian Metzner[1], Peter Veit[1], Florian Krause[2], Frank Bertram[1], Tilman Schimpke[3], Adrian Avramescu[3], Martin Strassburg[3], Andreas Rosenaer[2], Jürgen Christen[1]
[1]Otto-von-Guericke-University Magdeburg, Germany, [2]University of Bremen, Germany, [3]OSRAM Opto Semiconductors GmbH, Germany

LED7-5 14:45

InGaN nanowires for light emitting diodes applications
Xin Zhang[1], Benedikt Haas[2], Marion Gruart[2], Eric Robin[2], Bruno Gayral[2], Catherine Bougerol[3], Jean-Luc Rouvière[2], Bruno Daudin[2]
[1]CEA-Grenoble and Aledia, France, [2]CEA-Grenoble, France, [3]CNRS-Institut Néel, France

LED7-6 15:00

Fabrication of idiosyncratic GaN structures by ICP-RIE with enhanced chemical etching conditions and its applications
Narihito Okada[1], Kohei Nojima[1], Naoto Ishibashi[1], Kei Nagatoshi[1], Norihiro Itagaki[1], Ryo Inomoto[1], Shinichi Motoyama[2], Takayuki Kobayashi[2], Kazuyuki Tadatomo[1]
[1]Yamaguchi University, Japan, [2]R&D Department, SAMCO Inc., Japan

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

LNPC <Room 317>

[LNPC7] 13:15-14:40
Radiations in intense field
M. Kando
QST, Japan

LNPC7-1 13:15 *Invited*

Radiation dominated nonlinear Compton scattering: signatures of quantum dynamics and attosecond gamma-bursts
K. Z. Hatsagortsyan, J. -X. Li, C. H. Keitel
MPI, Germany

LNPC7-2 13:45

New exact solutions for QED in external fields
A. Ilderton, T. Heinzl
Plymouth Univ., UK

LNPC7-3 14:15

Radiation reaction on a Brownian scalar electron in high-intensity laser
K. Seto
ELI-NP, IFIN-HH, Romania

[LNPC8] 14:40-16:50
Laser driven nuclear physics
Chair: O. Tesileanu
ELI-NP, IFIN-HH, Romania

LNPC8-1 14:40 *Invited*

Nulcear Astrophysics in laser deriven gamma-ray pulse
T. Hayakawa[1,2], T. Nakamura[3], T. Kajino[2,4,5]
[1]QST, Japan, [2]NAOJ, Japan, [3]FIT, Japan, [4]The univ. of Tokyo, Japan, [5]Beihang Univ., China

----- 15:10-15:30 Break -----

Oral, Friday, April 21 PM

LSSE <Room 316>

LSSE6-4 13:10 *Invited*

Recent R&D Status of Solar Power Satellite with Wireless Power Transfer

Naoki Shinohara
Kyoto University, Japan

LSSE6-5 13:40 *Invited*

Super high efficiency concentrator photovoltaic system and its application to make hydrogen

Kensuke Nishioka
University of Miyazaki, Japan

[LSSE7] 14:10-16:50
Remote Sensing
Chair: Norihito Saito
RIKEN Center for Advanced Photonics, Japan

LSSE7-1 14:10

Pulsating aurora-induced Na density depletion in the polar MLT region: high-speed sodium lidar and EISCAT radar observation

Toru Takahashi[1], Takuo Tsuda[2], Keisuke Hosokawa[2], Satonori Nozawa[3], Yasunobu Ogawa[1,4], M. Tsutsumi[1,4], Y. Hiraki[2], T. D. Kawahara[5], N. Saito[6], S. Wada[6], T. Kawabata[3], C. Hall[7], H. Miyaoka[1]
[1]National Institute of Polar Research, Japan, [2]Department of Communication Engineering and Informatics, University of Electro-communications, Japan, [3]Institute for Space-Earth Environmental Research, Nagoya University, Nagoya, Japan, [4]Graduate University for Advanced Studies, SOKENDAI, Japan, [5]Faculty of Engineering, Shinshu University, Japan, [6]RIKEN Center for Advanced Photonics, RIKEN, Japan, [7]Tromsø Geophysical Observatory, The Arctic University of Norway, Norway

LSSE7-2 14:30 *Invited*

Sodium LIDAR observations of polar mesosphere and lower thermosphere

Satonori Nozawa[1], T. Kawahara[2], T. T. Tsuda[3], Y. Ogawa[4], T. Takahashi[4], N. Saito[5], S. Wada[5], H. Fujiwara[6], M. Tsutsumi[4], C. Hall[7], T. Kawabata[1], Y. Ogawa[1], A. Brekke[7]
[1]ISEE, Nagoya University, Japan, [2]Shinshu University, Japan, [3]The University of Electro-Communications, Japan, [4]NIPR, Japan, [5]RIKEN, Japan, [6]Seikei University, Japan, [7]UiT The Arctic University of Norway, Norway

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

OMC <Room 418>

[OMCp7] 13:00-14:00
Posters-Friday
<Exhibition Hall A>

Poster session program p.108

[OMC8] 14:00-15:30
Optical Manipulation VII
Chair: Alexander B. Stilgoe
The Univ. of Queensland, Australia

OMC8-1 14:00 *Invited*

Dynamic optics for microscopy and photonic engineering

Martin J. Booth[1], Friedrich-Alexander[2]
[1]Univ. of Oxford, UK, [2]Univ. Erlangen-Nürnberg, Germany

OMC8-2 14:30

Near-field optical forces-assisted molecular nanoparticle deposition in the nanogap of plasmonic nanoantennas

Christophe Pin[1], Shutaro Ishida[1], Genta Takahashi[1], Tsuyoshi Fukaminato[2], Keiji Sasaki[1]
[1]Hokkaido Univ., Japan, [2]Kumamoto Univ., Japan

OMC8-3 14:45

Analysis of a nano-particle rotation using a plasmonic trimer nano-structure

Shutaro Ishida, Keiji Sasaki
Hokkaido University, Japan

OMC8-4 15:00

Temperature measurement of the metal particle during laser-induced migration in the glass

Nobuyasu Nishioka, Hirofumi Hidai, Souta Matsusaka, Akira Chiba, Noboru Morita
Chiba Univ., Japan

OMC8-5 15:15

On-chip photonic tweezers for photonics, microfluidics, and biology

Christophe Pin[1,2], Claude Renaut[1,2], Manon Tardif[2,3], Jean-Baptiste Jager[2], Eric Delamadeleine[2], Emmanuel Picard[2], David Peyrade[4], Emmanuel Hadji[2], Frédérique de Fornel[4], Benoît Cluzel[1]
[1]Univ. de Bourgogne - Franche Comté, France, [2]CEA Grenoble, France, [3]Univ. Grenoble Alpes, France, [4]Ctr. National de la Recherche Scientifique, France

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

XOPT <Room 313+314>

[XOPTp8] 13:00-14:30
Poster Session
<Exhibition Hall A>

Poster session program p.109

----- 14:30-14:45 Break -----

[XOPT9] 14:45-16:00
Optical components & systems (III)
Chair: C. Schroer
DESY/University of Hamburg

XOPT9-1 14:45 *Invited*

Diffractive X-ray Optics: Opportunities for Photon Science at Large Scale Facilities

Christian David
Paul Scherrer Institut, Switzerland

XOPT9-2 15:15

Multilayer based monochromators for upgraded ESRF beamlines

Christian Morawe, Jean-Christophe Peffen
ESRF, France

XOPT9-3 15:30

X-ray Kinoform Beamsplitters

Maxime Lebugle, Felix Marschall, Gediminas Seniutinas, Vitaliy A. Guzenko, Daniel Grolimund, Christian David
Paul Scherrer Institut, Switzerland

XOPT9-4 15:45

Development of X-ray optics for DLSRs

Makina Yabashi
RIKEN SPring-8 Center, Japan

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

Oral, Friday, April 21 PM

ALPS <Room 511+512>

[Closing] 15:45

Award Ceremony 15:45-15:55

Hiromitsu Kiriyama
Program Committee Chair
QST., Japan

Closing Remarks 15:55-16:05

Fumihiko Kannari
Steering Committee Chair
Keio Univ., Japan

BISC <Room 419>

[BISC10] 16:00-17:30

Computational Imaging

Chairs: Yusuke Ogura
Osaka Univ., Japan
Izumi Nishidate
Tokyo Univ. of Agriculture and Technology, Japan

BISC10-1 16:00 *Invited*

Advancements in remote physiological measurement and applications in human-computer interaction

Daniel McDuff[1,2]
[1]Microsoft Research Cambridge, USA, [2]MIT Media Lab., USA

BISC10-2 16:30

Three-dimensional movement analysis for near infrared system using stereo vision and optical flow techniques

Geliztle A. Parra Escamilla,
David Ignacio Serrano-García, Yukitoshi Otani
Utsunomiya Univ., Japan

BISC10-3 16:45

In vivo imaging of spontaneous low-frequency oscillations in cerebral hemodynamics with a digital red-green-blue camera

Afrina Mustari
Tokyo Univ. of Agriculture and Technology, Japan

BISC10-4 17:00

Simultaneous three-dimensional Imaging of multi-focal microscopy

Chen Yen Lin, National Taiwan Univ., Taiwan

BISC10-5 17:15

Bayesian based fluorescence coded imaging using quantum dots

Takahiro Nishimura, Hitoshi Kimura,
Yusuke Ogura, Jun Tanida
Osaka Univ., Japan

CLES / LANSA <Room 416+417>

Oral, Friday, April 21 PM

HEDS <Room 311+312>

[HEDS13] 15:30-17:00
Beams / R Rad. Source
Chair: A. Pirozhkov
QST, Japan

HEDS13-1 15:30

Intense surface wave excitation on a metal wire by intense laser interaction with a foil target
Kensuke Teramoto
Kyoto Univ., Japan

HEDS13-2 15:50

Grating-based dielectric laser accelerator for subrelativistic electrons
Zhaofu Chen
The University of Tokyo, japan

HEDS13-3 16:10

Laser-filament-induced discharges for electron wake field acceleration by PW class laser pulses
Alexei Zhidkov
Osaka Univ., japan

[Closing] 16:30-16:45
Closing Remarks 16:30
S.V. Bulanov
QST, Japan

ICNN <Room 414+415>

IP <Room 413>

[IP-21PM-2] 15:30-16:30
Imaging and Display
Chair: Enrique Tajahuerce
Universitat Jaume I, Spain

IP-21PM-2-1 15:30

About Resolution of Refocused Image and Generated 3D Image from Data Acquired by Light-Field Camera
Toru Iwane
NIKON Corporation, Japan

IP-21PM-2-2 15:45

Graphene Based LC Devices for Near Infrared Image Processing
Vera Marinova[1,2], Shiuan H Lin[1], Stefan Petrov[1], Chia M Chang[1], Yi H Lin[1], Ken Y Hsu[1]
[1]National Chiao Tung University, Taiwan, [2]Institute of Optical Materials and Technologies, Bulgaria

IP-21PM-2-3 16:00

Analysis of Three-Dimensional Screen Composed of Lens Array and Retroreflector Sheet and its Implementation with Projection-Type Integral Imaging
Young Min Kim, Sung-Wook Min, Seunghwi Ryu, Hyeongkyu Do
Kyung Hee University, Republic of Korea

IP-21PM-2-4 16:15

Holographic Accesses for Volumetric Bubble Display
Kota Kumagai, Yoshio Hayasaki
Utsunomiya University, Japan

[IP-21PM-3] 16:30-16:45
AWARD & CLOSING REMARK
Yoshio Hayasaki
Utsunomiya University, Japan

Oral, Friday, April 21 PM

LDC <Room 301>

[LDC8] 15:30-15:50
Postdeadline Session
Chair: Sunao Kurimura
National Inst. for Materials Science, Japan

LDC8-1 15:30

Fibrance® Enables Laser For Everyday Light and Decoration
Qing Tan[1], Mario Pannicia[1], Kevin Sullivan[1], Kevin Sullivan[1], Gerald Schmidt[2], Carl Crossland[2], Peter Wigley[2], Yasuyuki Kagawa[3]
[1]Versalume LLC, USA, [2]Corning Incorporated, USA, [3]Corning International K.K, Japan

LDC8-2 15:40

A High Efficiency Laser Spotlight Illuminator
T. Miwa[1], A.Takamori[2]
[1]IDEC Corp., Japan, [2]Osaka Univ., Japan

[Award Ceremony & Closing Remark]
15:50-16:10
Chair: Sunao Kurimura
National Inst. for Materials Science, Japan
Award Ceremony 15:50
Sunao Kurimura
National Inst. for Materials Science, Japan
Tetsuya Yagi
Mitsubishi Electric Corp., Japan
Shevlin Fergal
Dyoptika, Ireland
Closing Remarks 16:00
Sunao Kurimura
National Inst. for Materials Science, Japan
Tetsuya Yagi
Mitsubishi Electric Corp., Japan
Shevlin Fergal
Dyoptika, Ireland

LEDIA <Room 411+412>

[LED8] 15:45-17:00
Multicolor & White LEDs
Chairs: Yonghoon Cho
Korea Advanced Institute of Science and Technology (KAIST), Korea
Narihiro Okada
Yamaguchi University, Japan

LED8-1 15:45 *Invited*

Multi-color Flexible LED Based on Nitride Nanowires
Christophe Durand
Centre National de la Recherche Scientifique (CNRS), France

LED8-2 16:15

Phosphor-free broadband light-emitting diode
Hoi Wai Choi
The University of Hong Kong, Hong Kong

LED8-3 16:30 *Invited*

Colour-crafted phosphor-free white light emitters via in-situ nanostructure engineering
Daehong Min, Donghwy Park, Kyuseung Lee, Okhyun Nam
Korea Polytechnic University, Korea

[LED9] 17:00-17:30
Tutorial Session
Chair: Gen-ichi Hatakoshi
Waseda University, Japan

LED9-1 17:00 *Invited*

Study of Point Defects in Nitrides and Oxides by Means of Positron Annihilation
Akira Uedono
University of Tsukuba, Japan

[Closing] 17:30-17:45
Closing Remarks
Tetsuya Takeuchi
Meijyo University, Japan

LNPC <Room 317>

LNPC8-2 15:30 *Invited*

Prospects of laser-driven ultra-dense ion bunches for the generation of extremely neutron-rich isotopes
P. G. Thirolf
LMU, Germany

LNPC8-3 16:00

Production and Photoexcitation of Nuclear Isomers at ELI-NP
L. D'Alessi[1], Y. Xu[1], M. Zeng[1], S. Aogaki[1], K. Seto[1], O. Tesileanu[1], K. Homma[2,3], H. Utsunomiya[4]
[1]ELI-NP, IFIN-HH, Romania, [2]Hiroshima Univ., Japan, [3]IZEST, Ecole Polytechnique, Fance, [4]Konan Univ., Japan

LNPC8-4 16:20

Laser Driven Nuclear Astrophysics Studies at ELI-NP
F. Negoita
ELI-NP, IFIN-HH, Romania

[Closing] 16:50-16:55
Closing Remarks
K. Homma[1,2]
[1]Hiroshima Univ., Japan, [2]IZEST, Ecole Polytechnique, France

Oral, Friday, April 21 PM

LSSE <Room 316>

LSSE7-3 15:30

Study on the Earth's metallic layers using optical remote sensing observations

Takuo T. Tsuda[1], N. Saito[2], S. Nozawa[3], T. D. Kawahara[4], T. Kawabata[3], T. Takahashi[5], C. M. Hall[6], S. Wada[2], T. Nakamura[5], M. K. Ejiri[5], T. Nishiyama[5], M. Abo[7], K. Tsuno[2], J. Gumbel[8], J. Hedin[8]
[1]The University of Electro-Communications, Japan, [2]RIKEN, Japan, [3]Nagoya University, Japan, [4]Shinshu University, Japan, [5]The Arctic University of Norway, Norway, [6]National Institute of Polar Research, Japan, [7]Tokyo Metropolitan University, Japan, [8]Stockholm University, Sweden

LSSE7-4 15:50 *Invited*

Observations of the upper atmosphere using resonance scatter lidars

Takuji Nakamura[1], Mitsumu K. Ejiri[1], Makoto Abo[2], Takuya D. Kawahara[3], Takanori Nishiyama[1], T. T. Tsuda[4], K. Tsuno[5,1]
[1]National Institute of Polar Research, Japan, [2]Tokyo Metropolitan University, Japan, [3]Shinshu University, Japan, [4]The University of Electro-Communications, Japan, [5]RIKEN, Japan

LSSE7-5 16:20 *Invited*

High-speed and high-resolution LED mini-lidar on planet

Tatsuo Shiina
Chiba University, Japan

[Closing] 16:50-16:55
Closing Remarks
Toshikazu Ebisuzaki
Conference Chair of LSSE 2017
Chief Scientist, Computational Astrophysics Laboratory, RIKEN, Japan

OMC <Room 418>

[OMC9] 16:00-17:30
Optical Manipulation VIII
Chair: Hiromi Okamoto
Institute for Molecular Science, Japan

OMC9-1 16:00 *Invited*

Optical manipulation by nonlinear response of nanoparticles

Hajime Ishihara[1], Tatsuya Nakai[1], Masayuki Hoshina[1], Tetsuhiro Kudo[2]
[1]Osaka Prefecture Univ., Japan, [2]National Chiao Tung Univ., Taiwan

OMC9-2 16:30

Generation of chiral optical near-fields with non-chiral metallic nanostructures and linearly polarized light

Shun Hashiyada[1,2], Tetsuya Narushima[1,2,3], Hiromi Okamoto
[1]Institute for Molecular Science, Japan, [2]The Graduate Univ. for Advanced Studies (Sokendai), Japan, [3]PRESTO, Japan Science and Technology Agency, Japan

OMC9-3 16:45

Enhancement of linear/nonlinear optical responses of molecular vibrations using metal nanoantennas

Ikki Morichika[1], Fumiya Kusa[2], Akinobu Takegami[2], Satoshi Ashihara[1]
[1]The Univ. of Tokyo, Japan, [2]Tokyo Univ. of Agriculture and Technology, Japan

OMC9-4 17:00

Localized field control at the nano-scale

Hideki Fujiwara, Yuki Yasuda, Hiroaki Orita, Shutaro Ishida, Keiji Sasaki
Hokkaido Univ., Japan

OMC9-5 17:15

Strong electric field enhancement in a gold/silica bow-tie nano-antenna

Evgeny G. Mironov[1], Abdul Khaleque[2], Fardad Azarmi[1,3]
[1]Skolkovo Institute of Science and Technology, Russian Federation, [2]UNSW Canberra, Australia, [3]North Dakota State Univ., USA

[Closing] 17:30-17:45
Closing Remarks
Takashige Omatsu
Chiba Univ., MCRC Chiba Univ., Japan

XOPT <Room 313+314>

[XOPT10] 16:15-17:45
Optical components & systems (IV)
Chair: H. Sinn
European XFEL

XOPT10-1 16:15 *Invited*

Future directions in X-ray Optics at Diamond

Kawal Sawhney
Diamond Light Source, UK

XOPT10-2 16:45

Variable Resolving Power Soft X-ray Self-Seeding Optical Design

Yiping Feng, Gabriel Marcus, Tor Raubenheimer
SLAC National Accelerator Laboratory, USA

XOPT10-3 17:00

Overcoming the Limits of Mirror Performance at LCLS

Corey Hardin, Venkat Srinivasan, Nicholas Kelez, Daniel Morton, Peter Stefan, Josep Nicolas, Lin Zhang, Daniele Cocco
SLAC National Accelerator Laboratory, USA

XOPT10-4 17:15

KB Mirror Design for the LCLS-II SXR Beam Line

Daniel Morton, Daniele Cocco, Nicholas Kelez, Lin Zhang
Linac Coherent Light Source, SLAC National Accelerator Laboratory, USA

XOPT10-5 17:30

Studies of diamond endurance to irradiation with x-ray beams of multi kW/mm^2 power densities for XFELO application

Tomasz Kolodziej[1], Kwang-Je Kim[1], Deming Shu[1], Steven Kearney[1], Stanislav Stoupin[1], Wenjun Liu[1], Thomas Gog[1], Paulo Rigg[2], Donald Walko[1], Jin Wang[1], Ayman Said[1], Wenge Yang[3], Maria Baldini[3], Vladimir Blank[4], Sergey Terentyev[4], Yuri Shvyd'ko[1]
[1]Argonne National Laboratory, Advanced Photon Source, USA, [2]Dynamic Compression Sector, Washington State University, USA, [3]HPSynC, Advanced Photon Source, USA, [4]Technological Institute for Superhard and Novel Carbon Materials, Russia

[Closing] 17:45-18:00
Closing Remarks
Tetsuya Ishikawa
RIKEN SPring-8 Center, Japan

Poster Session <Exhibition Hall A>

Thursday, April 20

ICNN-P 13:00-15:00

ICNN-P01

Backward Phase-matching in Spatially Dispersive Metamaterials

Alexander Popov[1], Igor Nefedov[2], Sergey Myslivets[3]
[1]Birck Nanotechnology Center, Purdue University, USA, [2]ITMO University, Russian Federation, [3]Siberian Federal University, Russian Federation

ICNN-P02

Negative Photodetector Based on a Single InAs Nanowire

Bang Li, Bang Li Li, Xin Yan, Yanbin Luo, Qichao Lu, Xia Zhang, Xiaomin Ren
State Key Laboratory of Information Photonics and Optical Communications, Beijing University of Posts and Telecommunications, China

ICNN-P03

A Plasmonic Quantum Well Nanowire near-Infrared Laser

Jiamin Wang, Xin Yan, Qichao Lu, Yanbin Luo, Bang Li, Xia Zhang
State Key Laboratory of Information Photonics and Optical Communications, Beijing University of Post and Telecommunications, China

ICNN-P04

Investigation of Crosstalk Reduction for Silicon-based Arrayed Waveguide Grating

Jun Zou, Haoran Huang and Zichun Le
College of Science, Zhejiang University of Technology, 310023 Hangzhou, China

ICNN-P05

Highly Sensitive and Robust Detection of Target DNA by Digitally Counting Gold Nanoparticle Dimers

Takaha Mizuguchi, Keiko Esashika, Toshiharu Saiki
Keio University, Japan

ICNN-P06

Microwave propagation guided by one dimensional array of strongly coupled split ring resonators

Vanna.C Silalahi, Y.H Chang, Watson Kuo
Department of Physics, National Chung Hsing University, Taiwan

ICNN-P07

Coupling strength between split ring resonator and it complementary counterpart

Yu-Han Chang[1], Wei-Chen Chien[1], Yu-Zhan Lin[2], Ye-Shun Lan[3], Cen-Shawn Wu[3], Watson Kuo[1]
[1]Department of Physics, National Chung Hsing University, Taichung, Taiwan, [2]Department of Physics, National Taiwan University, Taipei, Taiwan, [3]Department of Physics, National Changhua University of Education, Changhua, Taiwan

ICNN-P08

LEDs with 3D PhC structure in the surface and their radiation properties

Matej Goraus, Dusan Pudis, Peter Gaso, Daniel Jandura, Maria Figurova
Department of Physics, University of Zilina, Slovakia

ICNN-P09

Photodiodes and LEDs with polymer PhC structure in the surface and their optical properties

D. Pudiš[1], L. Šušlik[1], J. Kováč jr.[2], M. Tłaczała[3], W. Dawidowski[3], J. Kováč[2], B. Ściana[3], M. Goraus[1], P. Gašo[1], J. Ďurišová[1], I. Zborowska-Lindert[3] and M. Figurová[1]
[1]Dept. of Physics, University of Žilina, Žilina, Slovakia, [2]Inst. of Electronics and Photonics, Slovak University of Technology, Bratislava, Slovakia, [3]Faculty of Microsystem Electronics and Photonics, Wrocław University of Science and Technology, Wrocław, Poland

ICNN-P10

Plasmonic Energy Transformation in Platinum Thin Film

Hung Ji Huang[1], Bo-Heng Liu[1], Hai-Pang Chiang[2], Tsung Sheng Kao[3], Yuan-Fong Chou Chau[4], Chi-Hung Hwang[1]
[1]Instrument Technology Research Center, National Applied Research Laboratories, Taiwan, [2]Institute of Optoelectronic Sciences, National Taiwan Ocean University & Institute of Physics, Academia Sinica, Taiwan, [3]Department of Photonics & Institute of Electro-Optical Engineering, National Chiao Tung University, Taiwan, [4]Centre for Advanced Material and Energy Sciences, Universiti Brunei Darussalam, Negara Brunei Darussalam

ICNN-P11

Ultraviolet photodetectors with ZnO:Al Nanorods

Chih-Chiang Yang[1], Kuan-Yu chen[2], Zi-Hao Wang[2], Shin-Ting Yeh[2], Yan-Kuin Su[1,2]
[1]Department of Electrical Engineering, Kun-Shan University, Tainan 710, Taiwan., [2]The Institute of Microelectronics, Department of Electrical Engineering, and the Advanced Optoelectronic Technology Center, National Cheng Kung University, Tainan 701, Taiwan

ICNN-P12

Employing Star-Shaped Gold/Silver Nanoparticles to Near Infrared Surface-Enhanced Raman Scattering (SERS)

Hai-Pang Chiang[1], Chih-Hsien Lai[2], Guo-An Wang[1], Ding Rong Yang[1], Tzyy-Jiann Wang[3], Chih-Ching Huang[1], Hai-Pang Chiang[1]
[1]National Taiwan Ocean University, Taiwan, [2]National Yunlin University of Science and Technology, Taiwan, [3]National Taipei University of Technology, Taiwan

ICNN-P13

Enhanced light-harvesting efficiency by novel conjugated anchoring groups on bi-branched organic sensitizers for dye-sensitized solar cells

Jin-Kyu Kang, Hyo Jeong Jo, Jung Eun Nam, Dae-Hwan Kim, Dae-Kue Hwang
DGIST, Korea, republic of

ICNN-P14

Coalescence of Two Gold Nanorods Driven by Linearly Polarized Light

Jiunn-Woei Liaw[1], Hsueh-Yu Chao[2], Mao-Kuen Kuo[2]
[1]Department of Mechanical Engineering, Chang Gung University, Taiwan, [2]Institute of Applied Mechanics, National Taiwan University, Taiwan

ICNN-P15

Characterization of Colloidal $CsPbBr_3$ and $CsPbBr_{1.5}I_{1.5}$ Perovskite Quantum Dots Synthesized by High Temperature Cs-oleate Injection

Chun-Yuan Huang[1], Wen-Kuei Chuang[2], Ming-Hsuan Liu[1]
[1]National Taitung University, Taiwan, [2]National Cheng Kung University, Taiwan

ICNN-P16

Magneto-Optical Quantum Switches: Spintronics in Excitons

Wen-Hsuan Kuan, Wei-Liang Wu, Kuei-Huei Lin
University of Taipei, Taiwan

ICNN-P17

Preparation of ZnO nanorods by hydrothermal method for Non-enzymatic glucose sensing

Kuan Yu Chen[1], Chih Chiang Yang[2], Zi Hao Wang[1], Cheng Ru Lin[3], Yan Kuin Su[1]
[1]Institute of microelectronics, Taiwan (R.O.C.), [2]Electrical Engineering, Taiwan (R.O.C.), [3]Microelectronic and Optoelectronic, Taiwan (R.O.C.)

ICNN-P18

Fast and Sensitive Determination of C-Reactive Protein in Human Serum Samples by a White Light Interference Spectroscopy Sensor

Panagiota Petrou[1,2], Georgios Koukouvinos[2], Konstantinos Misiakos[3], Ioannis Raptis[4], Dimitrios Goustouridis[4], Gerhard Jobst[5], Dimitra NIkita[6], Aikaterini Karapataki[6], Sotirios Kakabakos[2]
[1]INRASTES, NCSR Demokritos, Greece, [2]Immunoassays-Immunosensors Lab, INRaSTES, NCSR Demokritos, Greece, [3]Institute of Nanoscience & Nanotechnology, NCSR Demokritos, Greece, [4]ThetaMetrisis S.A., Greece, [5]Jobst Technologies GmbH, Germany, [6]Henri Dunant Hospital, Greece

ICNN-P19

Control of surface phonon polariton confinement with phase change material for tunable surface enhanced infrared spectroscopy

Masaki Nakamura
Keio University, Japan

Poster Session <Exhibition Hall A>

Thursday, April 20

ICNN-P 13:00-15:00

ICNN-P20

Plasmonic Lens Structure with variant spacing nano-slits

Yu-Lung Hsiao, and Ruei-Chang Lu
Department of Electronic Engineering, National I-Lan University, I-Lan City, I-Lan Country, Taiwan R.O.C.

ICNN-P21

Tapered fiber nanoprobes: Comparison of nano structures on tapered optical fiber tips for large EM enhancement

Anuj Dhawan, Priten Savaliya
Department of Electrical Engineering, Indian Institute of Technology, Delhi, India

LDCp3 13:00-15:00

LDCp3-1

Fiber Coupled High-Brightness Blue Direct-Diode Lasers

Shingo Uno
Shimadzu Corp., Japan

LDCp3-2

Controllable Harmonic Generation by Couplings of Horizontal- and Vertical-Polarized Components

Yiqiang Qin, Ding Zhu, Chao Zhang
Nanjing Univ., China

LDCp3-3

The development of protective eyewear for RGB laser

Yoshihisa Ishiba, Shinya Kajiri , Kenta Noda
Yamamoto Kogaku co., ltd., Japan

LDCp3-4

Energy-Harvesting Laser Phosphor Display

Masamichi Ohta, Shunsuke Itaya, Yuuki Hirai, Takamasa Kohmoto, Ichiro Fujieda
Ritsumeikan Univ., Japan

LDCp3-5

Compact Helmet Display Based on Reflection Type Holograms

Wen-Kai Lin[1, 2], Wei-Ting Liu[1], Ying-Pin Tsai[1], Tsang-Hao Hsu[1], Bor-Shyh Lin[2], Fu-Li Hsiao[1], Wei-Chia Su[1]
[1]National Changhua Univ. of Education, Taiwan, [2]National Chiao Tung Univ., Taiwan

LDCp3-6

3D Display using Optimized Binary Phase Distribution from Computer Graphics(CG) Data

Takahiro Uemae, Koichi Nitta, Osamu Matoba
Kobe Univ., Japan

LDCp3-7

Comparison between Reconstructed Full-color Images by Binary and Grayscale Phase Distributions

Syo Harada, Kouichi Nitta, Osamu Matoba
Kobe Univ., Japan

LDCp3-8

Comparative Study of Blue Laser Diode driven Ce:YAG, Ce:LuAG, Ce:GAGG, and Ce:GdYAG Single Crystal Phosphors in Application of High-Power Lightning and Display Technologies

Mustafa H. Balci[1], Fan Chen[1], A. Burak Cunbul[1], Øyvind Svensen[2], M. Nadeem Akram[1], Xuyuan Chen[1]
[1]Univ. College of Southeast Norway, Norway, [2]Barco Fredrikstad AS, Norway

LDCp3-PDP1

Laser Driven Phosphor Light Engine for High Lumen DMD Projector

A. Burak Cunbul[1], Mustafa H. Balcı[1], Xuyuan Chen[1], Øyvind Svensen[2], M. Nadeem Akram[1]
[1]Univ. College of Southeast Norway, Norway, [2]Barco Fredrikstad AS, Norway

LDCp3-PDP2

An Instrument to Measure the Photometric Quantity and Color of RGB Laser Displays

K. Hieda, T. Maruyama, T. Takesako, F. Narusawa
HIOKI E. E. CORP., Japan

LDCp3-PDP3

Spectroradiometric Measurements of Laser Projector and Tablet Display Chromaticity Coordinates

Alexandre Y. Fong and Austin Dowd
Gooch and Housego (Orlando), USA

Poster Session <Exhibition Hall A>

Thursday, April 20

LEDp2 13:15-15:15

LEDp2-1

Design of Active Plasmonic Filter with EO Material for White-LED Communication

Tatsuya Nakashio[1], Megumi Shiraishi[1], Yasushi Oshikane[1], Motohiro Nakano[1], Kensuke Murai[2], Claire Heck[2], Shoichi Mochizuki[2], Leo Fujita[1]
[1]Osaka University, Japan, [2]AIST Kansai, Japan

LEDp2-2

Understanding different droop behaviors in near-UV, blue, and green LEDs by differential carrier lifetime measurements

Lai Wang, Zhibiao Hao, Yi Luo, Changzheng Sun, Yanjun Han, Bing Xiong, Jian Wang, Hongtao Li
Tsinghua University, China

LEDp2-3

Practical method of fabrication of high quality sub-micrometer size InGaN light emitting diodes

Krzysztof Gibasiewicz[1], Jacek Kacperski[2], Irina Makarowa[2], Szymon Grzanka[3], Tadeusz Suski[4], Piotr Perlin[3]
[1]Institute of High Pressure Physics, "Unipress" Sokolowska 29/37 01-142 Warsaw, Poland, [2]TopGaN Limited, Sokolowska 29/37 01-142 Warsaw, Poland, [3]Institute of High Pressure Physics, "Unipress" and TopGaN Limited, Poland, [4]Institute of High Pressure Physics, "Unipress", Poland

LEDp2-4

Fabrication of μ-LED array structures using ICP dry-etching

Ryosuke Nawa[1], Takeyoshi Onuma[1], Tomohiro Yamaguchi[1], Ja-Soon Jang[2], Tohru Honda[1]
[1]Kogakuin University, Japan, [2]Yeungnam University, Korea

LEDp2-5

Color-tunable Electroluminescence of Organic Light-Emitting Diodes Based on Graphene Oxide Quantum Dot

Yiyang Shen[1], Hoang-Tuan Vu[1], Hsin-Chieh Yu[1], Yan-Kuin Su[2]
[1]Institute of Microelectronics and Advanced Optoelectronic Technology Center, National Cheng Kung University, Taiwan, [2]Departments of Electrical Engineering, Kun Shan University, Taiwan

LEDp2-6

Efficient White Organic Light-Emitting diodes Based on Simply Separated Fluorescent-Phosphorescent Double Emitting Layer

Hoang-Tuan Vu[1], Hsin-Chieh Yu[1], Fuh-Shyang Juang[2], Yan-Kuin Su[3], Yiyang Shen[1]
[1]Institute of Microelectronics and Advanced Optoelectronic Technology Center,National Cheng Kung University, Taiwan, [2]Graduate Institute of Electro-Optical and Materials Science, National Formosa University, Taiwan, [3]Departments of Electrical Engineering, Kun Shan University, Taiwan

LEDp2-7

The effects of indium aggregation in nitrogen-polar InGaN/GaN single and multiple quantum wells grown by a pulsed metalorganic chemical vapor deposition

Yu-Siang You[1], Shih-Wei Feng[1], Hsiang-Chen Wang[2], Jie Song[3], Han Jung[3]
[1]Department of Applied Physics, National University of Kaohsiung, Taiwan, [2]Graduate Institute of Opto-Mechatronics, National Chung Cheng University, Taiwan, [3]Department of Electrical Engineering, Yale University, USA

LEDp2-8

High temperature growth of thick InGaN layer with the indium solid composition of 10% using tri-halide vapor phase epitaxy

Naoya Matsumoto, Misaki Meguro, Kentaro Ema, Hisashi Murakami, Yoshinao Kumagai, Akinori Koukitu
Tokyo University of Agriculture and Technology, Japan

LEDp2-9

Blocking of Dislocation Propagation by Bunched Steps in GaN crystals Grown by the Na-flux Method

Ryusei Kuramoto, Masayuki Imanishi, Masatomo Honjo, Kosuke Murakami, Hiroki Imabayashi, Mamoru Imade, Masashi Yoshimura, Yusuke Mori
Osaka University, Japan

LEDp2-10

Comparison of III-polar and N-polar GaInN films grown by RF-MBE

Yusuke Nakajima, Kazuki Uehara, Tomohiro Yamaguchi, Takeyoshi Onuma, Tohru Honda
Kogakuin University, Japan

LEDp2-11

Investigate the Optoelectric Characteristics of Layer By Layer TiO_2/Graphene Composite

Chen-Tao Wang[1], Guo-Jhih Huang[2], Shan-Rong Li[3], Chu-Chi Ting[2], Sheng-Yuan Chu[1]
[1]Department of Electrical Engineering, National Cheng Kung University, Taiwan (R.O.C.), [2]Graduate Institute of Opto-Mechatronics Engineering, National Chung Cheng University, Taiwan (R.O.C.), [3]Institute of Microelectronics and Department of Electrical Engineering, National Cheng Kung University, Taiwan (R.O.C.)

LEDp2-12

Charge transfer transitions in p-type NiO films studied by optical measurements and X-ray photoelectron spectroscopy

Mizuki Ono[1], Takeyoshi Onuma[2], Kohei Sasaki[3], Hiroki Nagai[1], Tomohiro Yamaguchi[1], Masataka Higashiwaki[4], Akito Kuramata[5], Shigenobu Yamakoshi[5], Mitsunobu Sato[1], Tohru Honda[1]
[1]Kogakuin University, Japan, [2]Kogakuin University, NICT, Japan, [3]Tamura Corporation, NICT, Japan, [4]NICT, Japan, [5]Tamura Corporation, Japan

LEDp2-13

Temperature dependence of In_2O_3 growth on (0001) sapphire by HVPE

Takayuki Suga[1], Shiyu Numata[1], Rie Toghashi[1], Hisashi Murakami[1], Bo Monemar[2], Yoshinao Kumagai[1]
[1]Tokyo University of Agriculture and Technology, Japan, [2]Linköping University, Sweden

LEDp2-14

Mist CVD growth of Sn-doped Ga_2O_3 thin films and device application

Kenichiro Rikitake, Takuya Kobayashi
Kogakuin University, Japan

LEDp2-15

In-situ monitoring of mist supply in Ga_2O_3 growth by mist CVD

Kei Arakawa, Norikatsu Koide, Tetsuya Takeuchi, Motoki Iwaya, Satoshi Kamiyama, Isamu Akasaki
Meijo University, Japan

LEDp2-16

Quasi-Amorphous Structural Color Resin Films for White LED Bulbs

Chun-Feng Lai, Chung-Wen Shen, Jia-Sian Li
Feng Chia University, Taiwan

LEDp2-17

Molecular structure applicable to resin encapsulation for AlGaN-based DUV-LEDs

Yoshihiko Sakane[1], Ko Aosaki[1], Akira Hirano[2], Yosuke Nagasawa[2], Kiho Yamada[2], Shoko Nagai[2], Masamichi Ippommatsu[2], Yoshio Honda[3], Hiroshi Amano[4], Isamu Akasaki[4]
[1]Asahi Glass Co., ltd., Japan, [2]UV Craftory CO., Ltd., Japan, [3]Nagoya University, Japan, [4]Nagoya University, Meijo University, Japan

LEDp2-18

Encapsulant of Near UV- LED with Enhance Thermal Conductivity by Doping ZrO_2 Nano-particles

Yu-Cheng Lan, Chun-Liang Lin, Yun-Fang Du, Bo-Yi Guo, Tsung-Han Weng
Department of Electro-Optical Engineering and Nano Technology Research and Development Center, Kun-Shan University, Taiwan, R.O.C

LEDp2-19

Advantages of 365-nm near ultraviolet light-emitting diodes with n-doped wide wells

Fang-Ming Chen[1], Jih-Yuan Chang[2], Ya-Hsuan Shih[3], Bo-Ting Liou[4], Yen-Kuang Kuo[5]
[1]Institute of Photonics, National Changhua University of Education, Taiwan, [2]Center for Teacher Education, National Changhua University of Education, Taiwan, [3]Department of Photonics, National Cheng Kung University, Taiwan, [4]Department of Mechanical Engineering, Hsiuping University of Science and Technology, Taiwan, [5]Department of Physics, National Changhua University of Education, Taiwan

Poster Session <Exhibition Hall A>

Thursday, April 20

LEDp2 13:15-15:15

LEDp2-20

GaN-based Light-Emitting Diodes on High Light Extraction Transformed Patterned Sapphire Substrates

Cheng-Huang Kuo[1], Po-Han Wu[1], Fu-Jyun Juang[1], Yi-Syuan Lin[1], Yu-Shan Hsiao[2], Wen-Ching Hung[2]
[1]National Chiao Tung University, TAIWAN, [2]Rigidtech Microelectronics Corp., TAIWAN

LEDp2-21

Mesh Typed GaN-based Light-Emitting Diodes by using mask-less Laser etching

Wei. Lun. Tsai, Chen-Yu Chang, Fu-Jyun Juang, Yi-Syuan Lin, Cheng-Huang Kuo
National Chiao Tung University, TAIWAN

LEDp2-22

Investigation of (Al)GaN barriers in ultraviolet light-emitting diode

Shan-Rong Li[1], Chen-Tao Wang[2], Shoou-Jinn Chang[1], Sheng-Po Chang[1]
[1]Institute of Microelectronics and Department of Electrical Engineering, National Cheng Kung University, Taiwan (R.O.C.), [2]Department of Electrical Engineering, National Cheng Kung University, Taiwan (R.O.C.)

LEDp2-23

Enhanced Light Extraction of High-Voltage LEDs Using a Novel Structure

Ping-Chen Wu[1], Sin-Liang Ou[2], Ray-Hua Horng[3], Dong-Sing Wuu[1]
[1]National Chung Hsing University, Taiwan, [2]Da-Yeh University, Taiwan, [3]National Chiao Tung University, Taiwan

LEDp2-24

GaN/GaN tunnel junctions grown by MOVPE

Ryota Fuwa, Daiki Takasuka, Yasuto Akatsuka, Tetsuya Takeuchi, Motoaki Iwaya, Satoshi Kamiyama, Isamu Akasaki
Meijo University, Japan

LEDp2-25

Optimization of GaN and GaAs wafer bonding technology for fabrication of GaInN/GaInP/GaAs/Ge 4-junction solar cell

Kazuya Takahashi[1], Ryoji Shinoda[1], Syun Mitsufuji[1], Motoaki Iwaya[1], Tetsuya Takeuchi[1], Satoshi Kamiyama[1], Tomokazu Hattori[1], Isamu Akasaki[2], Hiroshi Amano[3]
[1]Department of Materials Science and Engineering, Meijo University, Japan, [2]Department of Materials Science and Engineering, Meijo University ; Akasaki Research Center, Nagoya University, Japan, [3]Akasaki Research Center, Nagoya University ; Center for Integrated Research of Future Electronics, Nagoya University, Japan

LEDp2-26

Low-temperature-grown p-side structure with tunnel junction towards long wavelength nitride-based LED

Junya Yoshinaga, Kenta Suzuki, Daiki Takasuka, Norikatsu Koide, Tetsuya Takeuchi, Motoaki Iwaya, Satoshi Kamiyama, Isamu Akasaki
Department of Materials Science and Engineering, Meijo University, Japan

LEDp2-27

Investigation on the characteristics and performance enhancement of AlGaN-based deep ultraviolet light-emitting diodes

Yen-Kuang Kuo[1], Fang-Ming Chen[2], Jih-Yuan Chang[3], Hui-Tzu Chang[2], Man-Fang Huang[2]
[1]Department of Physics, National Changhua University of Education, Taiwan, [2]Institute of Photonics, National Changhua University of Education, Taiwan, [3]Center for Teacher Education, National Changhua University of Education, Taiwan

LEDp2-28

Improved optical characteristics in AlGaN-based deep-ultraviolet light-emitting diodes by specific design on last barrier

Hui-Tzu Chang[1], Fang-Ming Chen[1], Jih-Yuan Chang[1], Ya-Hsuan Shih[2], Bo-Ting Liou[3], Man-Fang Huang[1], Yen-Kuang Kuo[1]
[1]National Changhua University of Education, Taiwan, [2]National Cheng Kung University, Taiwan, [3]Hsiuping University of Science and Technology, Taiwan

LEDp2-29

High quality $Al_{0.6}Ga_{0.4}N$ and AlN growth on AlN template with a high temperature annealing in N2 ambience

Akira Mishima[1], Yuji Tomita[1], Yoshiki Yano[1], Toshiya Tabuchi[1], Koh Matsumoto[1], Hideto Miyake[2]
[1]Taiyo Nippon Sanso corporation, Japan, [2]Mie university, Japan

LEDp2-30

Wet Chemical etching of MOVPE-AlN templates for evaluation of threading dislocations

Taro Mitsui[1], Mari Higuchi[1], Toru Nagashima[2], Toru Kinoshita[2], Reo Yamamoto[2], Bo Monemar[3], Yoshinao Kumagai[1]
[1]Tokyo Univ. of Agri. and Tech, Japan, [2]Tokuyama Corporation, Japan, [3]Linköping University, Sweden

LEDp2-31

AlN epitaxial growth with Ga supply on off-cut sapphire substrates

Takuma Ogasawara, Toshiki Yasuda, Motoaki Iwaya, Tetsuya Takeuchi, Satoshi Kamiyama, Isamu Akasaki
Meijo University, Japan

LEDp2-32

Suppression of polycrystalline formation during thick-GaN growth by Oxide Vapor Phase Epitaxy

Yoshikazu Gunji[1], Yohei Yamaguchi[1], Yuki Taniyama[1], Akira Kitamoto[1], Masayuki Imanishi[1], Mamoru Imade[1], Masashi Isemura[2], Yusuke Mori[1]
[1]Osaka University, Japan, [2]Itochu Plastics Inc, Japan

LEDp2-33

Dependences of Mask Patterns on Threading Dislocation Density during the Na-Flux Growth using Point Seed Technique

Yuki Sawada[1], Takumi Yamada[1], Kousuke Murakami[1], Masatomo Honjo[1], Hiroki Imabayashi[1], Keisuke Kakinouchi[1], Masayuki Imanishi[1], Mamoru Imade[1], Masashi Yoshimura[2], Yusuke Mori[1]
[1]Grad. Sch. of Eng., Osaka Univ., Japan, [2]ILE, Osaka Univ., Japan

Poster Session <Exhibition Hall A>

Thursday, April 20

ALPSp14 13:15-15:00

ALPSp14-01

Optical Properties of InAlN films Developed by RF MOMBE for Infrared Applications

W.-C. Chen
Instrument Technology Research Center, National Applied Research Laboratories, Taiwan, ROC

ALPSp14-02

Generation of Supercontinuum using Self-phase Modulation and Induced Phase Modulation in Fused Silica Plates Array

Y. Yamaguchi, T. Suzuki, R. Hida, and F. Kannari
Keio Univ., Japan

ALPSp14-03

Broad Bandwidth Visible Light Generation via Third-Order Nonlinear Interaction in Silica Toroid Microcavity

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

ALPSp14-04

Effects of Spatial Discretization on Scattering Characteristics of Metamaterial Invisibility Cloaks

K. Nakagawa, A. Sanada
Osaka Univ., Japan

ALPSp14-05

Application of sintered Si nanopaste with Si nano-polycrystalline to magnetic materials and vanishing of resistance at local high frequency

T. Saiki, Y. Iida
Kansai Univ., Japan

ALPSp14-06

Quantitative analysis of CW-regime, multi-pass amplifier output characteristics including optical losses

H. Chosrowjan[1], S. Taniguchi[1], T. Kitamura[1], M. Fujita[1,2], Y. Izawa[1]
[1]Inst. for laser Tech., Japan, [2]ILE., Osaka Univ., Japan

ALPSp14-07

Frequency Characteristics of Core Inductors Using Sintered Metal Nano-paste with a Metal Nano-polycrystalline Structure

S. Masuda, T. Saiki, M. Inada, T. Teramachi, and Y. Iida
Kansai Univ., Japan

ALPSp14-08

4 J, 50 Hz Output Simplified MOPA Laser System for Laser Remote Sensing

K. Mikami, N. Hasegawa, H. Okada, S. Kondo, M. Nishikino, and T. Kawachi
National. Inst. for Quantum and Radiological Sci. and Tech. Japan

ALPSp14-09 *withdraw*

ALPSp14-10

Morphological change of Si surfaces induced by plasmonic near-field ablation excited with an intense femtosecond laser pulse

G. Miyaji and M. Hagiya
Tokyo Univ. of A & T, Japan

ALPSp14-11

Longitudinally Excited CO_2 Laser with External Optical Cavity

J. Li[1], K. Uno[1], T. Akitsu[1], T. Jitsuno[2]
[1]Univ. of Yamanash., Japan, [2]Inst. of Laser Eng., Osaka Univ., Japan.

ALPSp14-12

Model for the polarization dependence of saturable absorption in single-crystalline Cr^{4+}:YAG

Y. Sato, T. Taira
Inst. for Mol. Sci., Japan

ALPSp14-13

Sub-ns, 1 J Yb:YAG TRAM multipass amplifier for OPCPA pumping

S. Tokita[1], K. Iyama[2], T. Kawashima[2], K. Fujioka[1], J. Kawanaka[1]
[1]ILE, Osaka Univ., Japan, [2]HAMAMATSU PHOTONICS K.K.,Japan

ALPSp14-14

Validity of Measurement for Time-dependent Ionization Degree of Gaseous Media during High-harmonic Generation

K. Nishimura, K. Sato, G. Ouchi, K. Toume, M. Kohga, T. Kuroda, K. Suzuki, and A. Suda
Dept. of Phys., Fac. of Science and Technology, Tokyo Univ. of Science, Japan

ALPSp14-15

Integration of Advanced Real-Time Laser Diagnostics for PW, 0.1 Hz J-KAREN-P Laser Facility at QST

K. Kondo[1], M. Nishiuchi[1], H. Kiriyama[1], A. S. Pirozhkov[1], H. Sakaki[1], N. P. Dover[1], A. Sagisaka[1], Y. Fukuda[1], K. Ogura[1], K.Nishitani[1,2], T. Miyahara[1,2], Y. Watanabe[2], M. Kando[1], K. Kondo[1]
[1]QST, [2]Kyushu Univ., Japan

ALPSp14-16

Wavelength Switching and Gain Characteristic of InGaAs/GaAs Single Quantum-Well Laser Diodes

Y. Lin[1,2,3], Y. Liu[1,2,3], S. Zhao[1,2,3], H. Qu[1,2,3], A. Qi[1,2,3], A. Liu[1,2,3], and W. Zheng[1,2,3]
[1]State Key Lab. on Info. Opt., Inst. of Semi., CAS., China, [2]Lab. of Solid State Opt. Info. Tech., Inst of Semi., China, [3]College of Mat. Sci. and Opt-Elec. Tech., Univ. of Chin. Acad. Of Sci., China

ALPSp14-17

Passively mode-locked Yb-doped fiber laser with birefringent spectral filter and its application to THz generation

J. S. Kim[1], S. P. Han[2], N. Kim[2], K. W. Moon[2], K. H. Park[2], and M. Y. Jeon[1]
[1]Dep. of Phys., Chungnam National Univ., Korea, [2]THz Photonics Creative Research Center, ETRI, Korea

ALPSp14-18

Passively Mode-Locked Erbium-Doped Fiber Laser with Triple-Scale Pulses

W.-H. Kuan, J.-Y. Wang, L.-T. Gao, K.-H. Lin
Depart. of Appl. Phys. and Chem., Univ. of Taipei, Taiwan

ALPSp14-19

Recent Progress on Development of an Optically Synchronized Green Laser for OPCPA Pumping

Y. Miyasaka, H. Kiriyama, M. Kishimoto, M. Mori, M. Kando, and K. Kondo
QST, Japan

ALPSp14-20

Three-dimensional shape measurement of snowflakes using by a multi-angle line-image scanner and cameras

Y. Saito[1], N. Tsuda[1], J. Yamada[1], and H. Minda[2]
[1]Aichi Inst. of Tech., Japan, [2]Nagoya Univ., Japan

ALPSp14-21

Theoretical Analysis of Influence of Beam Propagation for Efficiency of Laser-Diode-Pumped Ti:sapphire Lasers

K. Hayashi, M. Morioka, S. Inayoshi, T. Sato, H. Kadoya, T. Kanetake, F. Sugiki, N. Nakajima, M. Wang, and S. Kawato
Univ. of Fukui, Japan

ALPSp14-22

All fiberized mode-locked Tm fiber oscillator above 100 nJ pulse energy and amplifier above 10 W average power with ~6 μJ pulse energy

Y. Mashiko, and M. Tokurakawa
Univ. of Electro-Communications, Inst. for Laser Sci., Japan

ALPSp14-23

Continuous-wave operation of a ridge-waveguide laser-amplifier using Er-doped phosphate glass

Y. Watanabe[1], Y. Takada[1], F. Shoda[1], K. Hirosawa[1], T. Ito[2], M. Omaki[2], Z. Shen[2], A. Yokoyama[3], M. Nimura[3], and T. Yanagisawa[1]
[1]Mitsubishi Electric Corp. Information Technology R&D Center, Japan, [2]Mitsubishi Electric Corp. Advanced Technology R&D Center, Japan, [3]Mitsubishi Electric Corp. Manufacturing Engineering Center, Japan

Poster Session <Exhibition Hall A>

Thursday, April 20

ALPSp14 13:15-15:00

ALPSp14-24

1120 nm high-power fiber source for 1178 nm fiber Raman amplifier pumping

Y. Michibata, M. Chen, A. Shirakawa
Inst. for Laser Sci., Univ. of Electro-Communications, Japan

ALPSp14-25

High power nonlinear polarization rotation soliton mode-locked Tm fiber laser with huge sideband spectral structure

H. Sagara, E. Fujita, Y. Mashiko, and M. Tokurakawa
Univ. of Electro-Communications, Inst. for Laser Sci., Japan

ALPSp14-26

Characteristics of All-Optical Retiming Switches Using Cascaded Second-Order Nonlinear Effect in QPM-PPLNs: Pattern Effect of Domain Length Error

Y. Fukuchi, T. Matsuura, T. Kimura, T. Yoshida
Tokyo Univ. of Sci., Japan

ALPSp14-27

All-Optical Switches Employing Cascaded Second-Order Nonlinear Effect in Quasi-Phase Matched Lithium Niobate Devices: Effect of Random Period Error

T. Matsuura, A. Enda, Y. Fukuchi
Dep. of Electrical Eng., Tokyo Univ. of Sci., Japan

ALPSp14-28

All-Optical Gate Switches Using Cascade of Second Harmonic Generation and Difference Frequency Mixing in Quasi- Phase Matched Devices: Output Deterioration and Pattern Effect by Device Error

T. Matsuura, M. Yamamoto, and Y. Fukuchi
Dep. of Electrical Eng., Tokyo Univ. of Sci., Japan

ALPSp14-29

Generation and Measurement of Broadband Squeezed State

M. Tomita, A. Hosaka, T. Otuska, and F. Kannari
Keio Univ., Japan

ALPSp14-30

Fabrication of terahertz hollow-optical fiber with inner dielectric layer

T. Suzuki[1], T. Katagiri[1], and Y. Matsuura[2]
[1]Grad. Sch. of Eng., Tohoku Univ., Japan, [2]Grad. Sch. of Bio. Eng., Tohoku Univ., Japan

ALPSp14-31

Terahertz Magnetic Field Enhancement by a Tapered Metallic Waveguide

H. Qiu[1], H. Harada[1], K. Kato[1], T. Kurihara[1], K. Takano[1], T. Suemoto[2], M. Tani[3], N. Sarukura[1], M. Yoshimura[1], and M. Nakajima[1]
[1]ILE, Osaka Univ., Japan, [2]Toyota Physical and Chemical Research Institute, Japan, [3]Univ. of Fukui,Japan

ALPSp14-32

Ultrafast Nanofocused SPP Pulses for Nonlinear Nanoscopies

Y. Kojima, K. Tomita, and F. Kannari
Keio Univ., Japan

ALPSp14-33

Multistage Quantum Pulse Gate for a Quantum Simulator

T. Otsuka, A. Hosaka, M. Tomita, and F. Kannari
Keio Univ., Japan

ALPSp14-34

Analysis of Influence of the Pump Beam Quality for the Optical-to-optical Conversion Efficiency of Laser-diode- pumped Continuous-wave Yb:YAG Laser with a V-shaped Cavity

H.Kadoya[1], S.Inayoshi[1], M.Morioka[1], K.Hayashi[1], T.Sato[1], F.Sugiki[2], T.Kanetake[2], N.Nakajima[2], M.Wang[2], and S.Kawato[1,2,3]
[1]Grad. School of Eng., Univ. of Fukui, Japan, [2]Faculty of Eng. Univ. of Fukui,Japan, [3]Res. and edu. Program for Life Sci., Univ. of Fukui., Japan

ALPSp14-35

1.7-μm full-range, ultrahigh-resolution, spectral-domain optical coherence tomography with broadband supercontinuum source

H. Kawagoe[1], M. Yamanaka[1], S. Makita[2], Y. Yasuno[2], and N. Nishizawa[1]
[1]Dept. Quantum Eng., Nagoya Univ., Japan, [2]Computational Opt. Group, Univ. of Tsukuba, Japan.

ALPSp14-36

Optical coherence tomography in 2100-nm spectral window with a fiber laser based supercontinuum laser source

T. Sato, M. Yamanaka, and N. Nishizawa
Dept. Quantum Eng., Nagoya Univ., Japan

ALPSp14-37

Ultrafast 2D-burst Imaging and 1D-optical Streak Imaging using a linearly frequency-chirped laser pulse

T. Suzuki, T. Sato, R. Hida, Y. Yamaguchi, and F. Kannari
Keio Univ., Japan

ALPSp14-38

Adaptive Control for Reducing Photobleaching in Two-photon Excited Fluorescence

S. Honda, S. Maesako, N. Kamiyama, K. Toda, and A. Suda
Tokyo Univ. of sci., Japan

ALPSp14-39

A less invasive approach of utilizing the non-ablative fractional laser to assist cutaneous delivery of small-molecule drugs and macromolecules

J.-Y. Fang[1], C.-W. Huang[1], W.-R. Lee[2], S.-C. Shen[2]
[1]Pharmaceutics Lab., Grad. Inst. of Natural Products, Chang Gung Univ., Taiwan, [2]Grad. Inst. of Med. Sci., Taipei Med. Univ., Taiwan

ALPSp14-40

Fluorescence imaging using upconversion fluorescence emission in 480-nm wavelength region from Y_2O_3 :Tm,Yb nanoparticle

D. Sato[1], M. Yamanaka[1], T. Furukawa[2], H. Niioka[2], J. Miyake[2], and N. Nishizawa[1]
[1]Nagoya Univ., Japan, [2]Osaka Univ., Japan

ALPSp14-41

Acid Rain and UV Tolerance Test of Spinach using an Imaging LIDAR

M. Uchiumi, M. Takizawa, and M. Kin-nou
Dep. of Creative Eng., Nat. Inst. of Tec. Ariake Coll., Japan

ALPSp14-42

Development of optical amplifier based on a self-referenced 750-MHz application Yb: fiber laser frequency comb and its application

B. Xu[1,2], H. Yasui[1,2], T. R. Schibli[3], Y. Ma[4], Z. Zhang[4], K. Minoshima[1,2]
[1]Dep. of Eng. Sci., Grad. Sch. of Info., The Univ. of Electro-Communications, Japan, [2]JST, ERATO MINOSHIMA Intelligent Optical Synthesizer (IOS) Project, Japan,[3]Dep. of Phys. Univ. of Colorado at Boulder, USA, [4]Sch. of Electronics Eng. and Computer Sci., Peking Univ., China

ALPSp14-43

All polarization maintaining optical frequency comb based on Er-doped ultrashort pulse fiber laser with carbon nanotube polyimide film

H. Togashi[1], T. Nagaike[1], L. Jin[1], Y. Sakakibara[2], E. Omoda[2], H. Kataura[2], Y. Ozeki[3], and N. Nishizawa[1]
[1]Nagoya Univ., Japan, [2]AIST,Japan, [3]University of Tokyo, Japan

ALPSp14-44

500MHz frequency spaced Yb:fiber laser comb based on biased nonlinear loop mirror

T. Jiang, G. Liu, A. Wang and Z. Zhang
State Key Lab. of Adv. Optical Comm. Sys. and Networks, School of Elec. Eng. and Computer Sci., Peking Univ., China

Poster Session <Exhibition Hall A>

Thursday, April 20

CLES/LANSA-POS 13:30-14:30

CLES/LANSA-POS-01

Development of a FRP system which is a two-dimensional position-sensitive neutron detector

Setsuo Satoh
High Energy Accelerator Research Organization (KEK), Japan

CLES/LANSA-POS-02

Laser-driven deuteron acceleration and its application to fast neutron generation

Keisuke Koga[1], Akifumi Yogo[1], Shota Tosaki[1], Kazuki Okamoto[1], Yosuke Suzuki[1], Masato Kanasaki[2], Yasunobu Arikawa[1], Shinsuke Fujioka[1], Yuki Abe[1], Yusuke Kato[1], Mitsuo Nakai[1], Kunioki Mima[3], Keiji Oda[2], Tomoya Yamauchi[2], Hiroshi Azechi[1], Hiroaki Nishimura[1]
[1]Institute of Laser Engineering, Osaka University, Japan, [2]Graduate School of Maritime Sciences, Kobe University, Japan, [3]The Graduate School for the Creation of New Photonics Industries, Japan

CLES/LANSA-POS-03

Automation of production, assembly, and insertion of targets for laser source applications

Neil B. Alexander, Kurt Boehm, Lane Carlson, Eduardo Del Rio
Inertial Fusion Technology Division, General Atomics, USA

CLES/LANSA-POS-04

Multichannel gating system of neutron time-of-flight detector array for laser-driven neutron source experiments

Yuki Abe, Nozomi Nakajima, Yasunobu Arikawa, Alessio Morace, Naoyoshi Kamitsukasa, Yusuke Kato, Shuto Matsubara, Shota Tosaki, Keisuke Koga, Akifumi Yogo, Shinsuke Fujioka, Mitsuo Nakai, Takayoshi Norimatsu, Kunioki Mima, Hiroaki Nishimura, Hiroshi Azechi
Institute of Laser Engineering, Osaka University, Japan

CLES/LANSA-POS-05

Crystal growth and optical properties of organic crystals for neutron scintillator

Akihiro Yamaji[1], Shunsuke Kurosawa[2], Yuji Ohashi[1], Yuui Yokota[2], Kei Kamada[2], Akira Yoshikawa[1,2]
[1]Institute for Materials Research, Tohoku University, Japan, [2]New Industry Creation Hatchery Center, Tohoku University, Japan

CLES/LANSA-POS-06

Study of multilayer metal dielectric gratings used for of high power laser pulse compression

Shuwei Fan, Nana Chen, Liang Bai
Key Laboratory of Photonics Technology for Information of Shaanxi Province, School of Electronic & Information Engineering, Xi'an Jiaotong University, China

CLES/LANSA-POS-07

Development of the fast-neutron imaging detector for radiograph of large infrastructures

Shuto Matsubara[1], Yasunobu Arikawa[1], Yusuke Kato[1], Yuki Abe[1], Hidetaka Kishimoto[1], Nozomi Nakajima[1], Shouhei Sakata[1], Takayuki Gawa[1], Naoyoshi Kamitsukasa[1], Alessio Morace[1], Akifumi Yogo[1], Hiroaki Nishimura[1], Mitsuo Nakai[1], Hiroyuki Shiraga[1], Hiroshi Azechi[1], Yoshihide Honda[2], Yoshie Otake[3], Tomohiro Kobayashi[3]
[1]Institute of Laser Engineering, Osaka University, Japan, [2]The Institute of Scientific and Industrial Research, Osaka University, Japan, [3]Institute of Physical and Chemical Research, Japan

CLES/LANSA-POS-08

Nondestructive measurement for water and voids in concrete with compact neutron source

Yoshimasa Ikeda, Yoshie Otake, Maki Mizuta
RIKEN Center for Advanced Photonics, RIKEN, Japan

CLES/LANSA-POS-09

Development of accelerator-dirven transportable neutron source in RIKEN

Tomohiro Kobayashi[1], Yoshie Otake[1], Yasuo Wakabayashi[1], Yoshimasa Ikeda[1], Yujiro Ikeda[1], Noriyosu Hayashizaki[2]
[1]RIKEN Center for Advanced Photonics, RIKEN, Japan, [2]Laboratory for Advanced Nuclear Energy, Tokyo Institute of Technology, Japan

CLES/LANSA-POS-10

Nondestructive determination of water content in concrete by foil activation method using AmBe neutron source

Yasuhiro Nishiyama, Sachie Kusaka, Fuminobu Sato, Isao Murata
Department of Sustainable Energy and Environmental Engineering, School of Engineering, Osaka University, Japan

CLES/LANSA-POS-11

Development of the neutron counting detector by using recoil particle track analyses

Hidetaka Kishimoto, Yasunobu Arikawa, Yuki Abe, Shuto Matsubara, Yusuke Kato, Nozomi Nakajima, Shohei Sakata, Alessio Morace, Sadaoki Kojima, Seungho Lee, Kazuki Matsuo, Law King Fai Farley, Hiroki Morita, Shohei Kambayashi, Akifumi Yogo, Hiroaki Nishimura, Mitsuo Nakai, Hiroshi Azechi, Shinsuke Fujioka
Institute of Laser Engineering, Osaka University, Japan

CLES/LANSA-POS-12

Beam extraction by the laser charge exchange method using the 3-MeV LINAC in J-PARC

Hayanori Takei, Koichiro Hirano, Kazuyoshi Tsutsumi, Shin-ichiro Meigo
J-PARC Center, Japan Atomic Energy Agency, Japan

HEDSp7 13:30-15:00

Chair: H. Nakamura
Osaka University, Japan

HEDSp7-1

Testing micrometric radiography platform based on LiF X-ray crystal detector and picosecond laser produced plasma X-ray source for investigation of the Rayleigh-Taylor instabilities developing in the solid phase

Tatiana Pikuz
Osaka Univ., Japan

HEDSp7-2

Terahertz Radiation from Laser Created Plasma by Applying a Transverse Static Electric Field

Takuya Fukuda
Utsunomiya Univ., Japan

HEDSp7-3

Measurement of second harmonic signal generated from relativistic plasma in gas target

Akito Sagisaka
QST, Japan

HEDSp7-4

Single shot measurement of the plasma wave by using frequency domain holographic

Hideyuki Kotaki
QST, Japan

HEDSp7-5

High energy X-ray detector generated by laser-plasma interaction

Yukio Hayashi
QST, Japan

HEDSp7-6

Interaction of relativistically intense axisymmetrically polarized laser pulse with underdense plasma

Nobuhiko Nakanii
QST, Japan

HEDSp7-7

Neutron production at the time of laser ion generation experiments

Koichi Ogura
QST, Japan

HEDSp7-8

High quality back-ground free electron beam generation from negatively chirped laser pulse

Naveen Pathak
Osaka Univ., Japan

HEDSp7-9

Twin high power laser system for staging laser wakefield acceleration

Junpei Ogino
Osaka Univ., Japan

Poster Session <Exhibition Hall A>

Thursday, April 20

HEDSp7 13:30-15:00

HEDSp7-10

Recent status of platform for multi-stage laser wakefield acceleration

Takamitsu Otsuka
Osaka Univ., Japan

HEDSp7-11

Characterization of Intense Laser Pulse Based on Laser-Electron Beam Interaction

Shin'ichi Masuda
Osaka Univ., Japan

HEDSp7-12

Applications of few-optical cycle pulses to laser-driven particle acceleration

Kei-ichi Sueda
Osaka Univ., Japan

HEDSp7-13

Study on interferometry of plasma wakefield by using 3D Particle in Cell simulation

Hirotaka Nakamura
Osaka Univ., Japan

HEDSp7-14

Study on Laser wake-field acceleration aiming for ultra-fast diffraction imaging

Akihiro Ueno
Osaka Univ., Japan

HEDSp7-15

Study on laser wake field acceleration for stable multi-GeV electron beam generation

Hakujun Toran
Osaka Univ., Japan

HEDSp7-16

Distortion Reduction by Introducing an Initial Birefringence in Intense Terahertz Time-Domain Spectroscopy System

Jin Zhan
Osaka Univ., Japan

HEDSp7-17

Numerical Calculation of High-intensity Terahertz Radiation Generation by Laser-solid Interaction

Shota Tajima
Osaka Univ., Japan

HEDSp7-18

Ion motion effects on the interaction of PW class laser pulses and underdense plasmas

Masahiro Yano
Osaka Univ., Japan

HEDSp7-19

Scaled Experiments on Bunch Compression for High Power Ion Accelerators

Yasuo Sakai
Osaka Univ., Japan

HEDSp7-20

Ultrafast photodissociation dynamics of iodobenzene and iodocyclohexane

Chunlong Hu
P.R. China

HEDSp7-21

High Repetition Rate Targetry For Plasma Mirror Science

Francois. Sylla
Source Lab., France

HEDSp7-22

TDB

Gilles Riboulet
Amplitude Tech. , France

HEDSp7-23

TDB

Tomohiro Nishitani[1,2], Takayuki Suzuki[2]
[1]Nagoya Univ., Japan, [2]Photo-electron Soul, Japan

HEDSp7-24

TDB

Driss Oumbarek Espinos
UPMC, la Sorbonne, France

HEDSp7-25

Density gradient effect on electron transport

Hayashi Yoshiaki
Osaka Univ., Japan

Poster Session <Exhibition Hall A>

Friday, April 21

BISCp8 13:00-14:00

BISCp8-1

Defect inspection of actuator lenses using swept-source optical coherence tomography

Jaeyul Lee[1], Kibeom Park[2], Jaewon Song[1], Mansik Jeon[1], Jeehyun Kim[1]
[1]Kyungpook National Univ., Korea, Republic of, [2]Oz-tec Co., Ltd., Korea, Republic of

BISCp8-2

Three-wavelength phase-shifting interferometry selectively extracting wavelength information from wavelength-multiplexed images with arbitrary symmetric phase shifts

Tatsuki Tahara[1,2], Reo Otani[3], Kaito Omae[1], Yasuhiko Arai[1], Yasuhiro Takaki[4]
[1]Kansai Univ., Japan, [2]Japan Science and Technology Agency, Japan, [3]SIGMAKOKI Co., Ltd., Japan, [4]Tokyo Univ. of Agriculture and Technology, Japan

BISCp8-3

Analysis of common-path incoherent digital holography using dual-focusing lens with diffraction gratings

Xiangyu Quan[1], Asuka Moriyana[1], Nitta Kouichi[1], Osamu Matoba[1], Yasuhiro Awatsuji[2]
[1]Kobe Univ., Japan, [2]Kyoto Institute of Technology, Japan

BISCp8-4

Real-time three-dimensional counting and shape measurement of RBCs using digital holographic cytometry

Hideki Funamizu, Kotaro Sonoda, Ryoji Goto, Yoshihisa Aizu
Muroran Institute of Technology, Japan

BISCp8-5

Enhancing spatial resolution of digital holographic microscopy using speckle patterns generated from ring-slit apertures

Hideki Funamizu[1], Tan Qin Chen[1], Yusei Onodera[1], Jun Uozumi[2], Yoshihisa Aizu[1]
[1]Muroran Institute of Technology, Japan, [2]Hokkai-Gakuen Univ., Japan

BISCp8-6

Bio-imaging using planar lightwave circuit digital holographic microscope

Kanami Ikeda[1], Katsunari Okamoto[2]
[1]The Univ. of Electro-Communications, Japan, [2]Okamoto laboratory, Japan

BISCp8-7

Comparison of Different Wavefront Measurement Setups to Judge the Position Tolerance of Intraocular Lenses in a Model Eye

Lukas Traxler, Bernd Reutterer
Fachhochschule Technikum Wien, Austria

BISCp8-8

Holographic 3D multi-spot two-photon excitation for fast optical stimulation in brain

Yu Takiguchi[1,2], Haruyoshi Toyoda[1]
[1]Hamamatsu Photonics K.K., Japan, [2]Massachusetts Institute of Technology, USA

BISCp8-9

Non-contact local temperature measurement inside an object using an infrared point detector

Masaki Hisaka
Osaka Electro-Communication Univ., Japan

BISCp8-10

Photoacoustic imaging of hidden dental caries by using a fiber-based probing system

Takuya Koyama[1], Satoko Kakino[2], Yuji Matsuura[1]
[1]Tohoku Univ., Japan, [2]Tokyo Medical and Dental Univ., Japan

BISCp8-11

Analysis of disulphide bonds found in human hair by Raman spectroscopy

Angel Lizbeth Pina, Teodor Cordova-Fraga, Alicia S. Plascenica, Angelica Hernandez, Juan M. Ruvalcaba
Univ. de Guanajuato, Mexico

BISCp8-12

Analysis of human hair by Raman microspectroscopy

Alicia S. Plascencia, Teodor Cordova-Fraga, Angel Lizbeth Pina, Angelica Hernandez, José de Jesús Bernal Alvarado
Univ. de Guanajuato, Mexico

BISCp8-13

Aggregation-based rapid detection of Enterovirus 71 using surface-enhanced Raman spectroscopy

Miguel Reyes, Shuai He
National Univ. of Singapore, Singapore

BISCp8-14

Evaluation of bone quality in osteoporosis model mice by Raman spectroscopy

Yasumitsu Ishimaru[1], Yusuke Oshima[1], Yuuki Imai[2], Tadahiro Iimura[2], Sota Takanezawa[1], Kazunori Hino[1], Hiromasa Miura[2]
[1]Ehime Univ. Graduate School of Medicine, Japan, [2]Ehime Univ., Japan

BISCp8-15

Noninvasive imaging of oral mucosae with optical coherence tomography

Cheng-Yu Lee[1], Wei-Chuan Chen[1], Meng-Tsan Tsai[1,2]
[1]Chang Gung Univ., Taiwan, [2]Chang Gung Memorial Hospital, Taiwan

BISCp8-16

Contrast-enhanced optical coherence microangiography with acoustic-actuated microbubbles

Yu-Hsuan Liu
Chang Gung Univ., Taiwan

BISCp8-17

Dual illumination for cornea and retina imaging using spectral domain optical coherence tomography

Muhammad Faizan Shirazi[1], Ruchire Eranga H. Wijesinghe[1], Naresh Kumar Ravichandran[1], Mansik Jeon[1], Jeehyun Kim[1,2]
[1]Kyungpook National Univ., Korea, Republic of, [2]Oz-tec Co. Ltd., Korea, Republic of

BISCp8-18

Application of wearable optical coherence tomography (OCT) and Loop-mediated isothermal amplification (LAMP) techniques for In situ real-time field inspection of apple Marssonina blotch disease

Ruchire Eranga H. Wijesinghe[1], Seung-Yeol Lee[1], Naresh Kumar Ravichandran[1], Muhammad Faizan Shirazi[1], Hyosang Jeong[2], Pilun Kim[2], Hee-Young Jung[1], Mansik Jeon[1], Jeehyun Kim[1]
[1]Kyungpook National Univ., Korea, Republic of, [2]Oz-tec Co., Ltd., Korea, Republic of

BISCp8-19

Comparative study on visible-OCT imagings using a LED and a super-continuum laser with a wavelength-tunable filter

Etsuko Tokunaga, Toshiaki Iwai
Tokyo Univ. of Agriculture and Technology, Japan

BISCp8-20

Basic experiments of laser beam correction by adaptive optics microscope for the accurate manipulation of biological tissues

Masayuki Hattori[1], Yosuke Tamada[1], Shin Oya[2], Yutaka Hayano[2], Yasuhiro Kamei[1]
[1]National Institute for Basic Biology, Japan, [2]Subaru Telescope, National Astronomical Observatory of Japan, Japan

BISCp8-21

Determination of three-dimensional molecular orientation of type-I collagen by circularly-polarized second harmonic generation imaging

Guan-Yu Zhuo[1], Wei-Han Hung[1], Fu-Jen Kao[2]
[1]National Sun Yat-sen Univ., Taiwan, [2]National Yang-Ming Univ., Taiwan

Poster Session <Exhibition Hall A>

Friday, April 21

BISCp8 13:00-14:00

BISCp8-22

Study of targeted-treatment on colon cancer cell via spectroscopic imaging ellipsometry

Yu-Da Chen[1], Hao-Yun Hsu[1,2], Mai Ibrahim Khaleel[1,3,4], Ching-Hsiang Chan[1], Yia-Chung Chang[1,5], Chien-Hsun Wu[6,7], Han-Chung Wu[7]
[1]Research Ctr. for Applied Sciences - Academia Sinica, Taiwan, [2]National Taiwan Univ., Taiwan, [3]Taiwan International Graduate Program - Academia Sinica, Taiwan, [4]National Tsing Hua Univ., Taiwan, [5]National Cheng Kung Univ., Taiwan, [6]Institute of Cellular and Organismic Biology, [7]Academia Sinica, Taiwan

BISCp8-23

Differential Mueller matrix polarimetry for low concentration of glucose sensing

Quoc-Hung Phan, Yu-Lung Lo
National Cheng Kung Univ., Taiwan

BISCp8-24

Development of skin tissue phantom having a shape of sulcus cutis and crista cutis

Yutaro Nagamori[1], Tomonori Yuasa[1], Takaaki Maeda[2], Hideki Funamizu[1], Yoshihisa Aizu[1]
[1]Muroran Institute of Technology, Japan, [2]Kushiro National College of Technology, Japan

BISCp8-25

Quantitative evaluation on the depth and spread of light propagation in skin tissue using Monte Carlo simulation

Yoshihisa Aizu[1], Syoki Takahashi[1], Takaaki Maeda[2], Hideki Funamizu[1], Tomonori Yuasa[1]
[1]Muroran Institute of Technology, Japan, [2]Kushiro National College of Technology, Japan

BISCp8-26

Monte Carlo simulation of skin image using a skin model with surface texture

Yoshihisa Aizu[1], Kota Mizunuma[1], Yuto Hanabusa[1], Takaaki Maeda[2], Hideki Funamizu[1], Tomonori Yuasa[1]
[1]Muroran Institute of Technology, Japan, [2]Kushiro National College of Technology, Japan

BISCp8-27

Color reproduction of human skin by spectral reflectance using RGB images and the Wiener estimation method

Yoshihisa Aizu[1], Kiyomi Sato[1], Shota Miyazawa[1], Hideki Funamizu[1], Tomonori Yuasa[1], Izumi Nishidate[2]
[1]Muroran Institute of Technology, Japan, [2]Tokyo Univ. of Agriculture and Technology, Japan

BISCp8-28

Dual type fiber-optic radiation sensor for measuring alpha and beta particles

Sang Hun Shin[1], Young Beom Song[2], Kim Mingeon[2], Hyejin Kim[2], Wook Jae Yoo[1], Kyoung Won Jang[1], Bongsoo Lee[2]
[1]Konkuk Univ., Korea, Republic of, [2]Chung-Ang Univ., Korea, Republic of

BISCp8-29

Influence of superficial tissue thickness on noninvasive detection of fluorescent probe in the brain

Kota Asai, Takuya Togashi, Eiji Okada
Keio Univ., Japan

BISCp8-30

Enhanced non-enzymatic glucose biosensor of Ga-Doped ZnO nanorods

Peng Wan-Quan[1,2,3], Zi-Hao Wang[3,4,5], Chih-Chiang Yang[3], Chien Sheng Huang[4], Yan-Kuin Su[4], Jian Long Ruan[6]
[1]National Yunlin Univ. of Science and Technology, Taiwan, [2]National Taiwan Univ., Taiwan, [3]Kun Shan Univ., Taiwan, [4]National Cheng Kung Univ., Taiwan, [5]Tainan Univ., Taiwan, [6]National Chung-Shan Institute of Science and Technology, Taiwan

BISCp8-31

Noninvasive measurement of blood glucose level using mid-infrared quantum cascade lasers

Kiriko Yoshioka, Saiko Kino, Yuji Matsuura
Tohoku Univ., Japan

BISCp8-32

Enhanced glucose biosensor properties of gold nanoparticle-decorated ZnO nanorods

Zi-Hao Wang
National Cheng Kung Univ., Taiwan

BISCp8-33

Multi-capillary based optical sensors for highly sensitive protein detection

Yasuhira Okuyama, Takashi Katagiri, Yuji Matsuura
Tohoku Univ., Japan

BISCp8-34

Study of noncontact air-puff applanation tonometry IOP measurement on irregularly-shaped corneas

Cheliang Tsai, Wai W. Wang, Kuo-Jen Wang
Crystalvue Medical Corp., Taiwan

BISCp8-35

Further improvement of an intraocular lens holder for more physiological measurements within a mechanical eye model

Bernd Reutterer, Lukas Traxler
Fachhochschule Technikum Wien, Austria

BISCp8-36

Estimation of functional areas probed by near-infrared spectroscopy instruments

Tomonori Nitta[1], Ryohei Tsuyuki[1], Hiroshi Kawaguchi[2], Eiji Okada[1]
[1]Keio Univ., Japan, [2]AIST, Japan

BISCp8-37

pH-responsive hydrogel coated Fiber bragg grating -based chemo mechanical sensor bioreactor applications

Vayu Nandana Kishore Pabbisetti
National Institute of Technology, Warangal, India

BISCp8-38

Investigation of temporal effects on microcirculation induced by focused ultrasound

Yi-Xuan Liao, Hao-Li Liu, Meng-Tsan Tsai
Chang Gung Univ., Taiwan

BISCp8-39

Micropillar array structure for particle separation designed by direct laser lithography

Mária Pardelová, Dusan Pudis, Ivan Cimrak, Peter Gašo, Matej Goraus
Univ. of Žilina, Slovakia

BISCp8-40

Numerical consideration on trapping and guiding of nanoparticles in a flow using scattering field of laser light

Naomichi Yokoi
Asahikawa National College of Technology, Japan

BISCp8-41 *withdraw*

Poster Session <Exhibition Hall A>

Friday, April 21

IP-21PM-1 13:00-15:00

IP-21PM-1-1

Light-in-Flight Recording by Holography not Using Scattering Light

Itsuki Takamoto, Itsuki Takamoto, Daiki Yamanaka, Yusuke Tsuda, Yasuhiro Awatsuji, Kenzo Nishio
Kyoto Institute of Technology, Japan

IP-21PM-1-2

The Velocity Measurement of Moving Micro-particles in Pure Water and Salt-Water Solutions Using Digital Holographic Interferometer

Prathan Buranasiri
King Mongkut's Institute of Technology, Thailand

IP-21PM-1-3

Steganography by Use of a Clear Sphere as a Key for Decoding a Concealed Aerial Image Formed with AIRR

Kengo Fujii[1], Shusei Ito[1], Satoshi Maekawa[2], Hirotsugu Yamamoto[1]
[1]Utsunomiya University, Japan, [2]Parity Innovations, Japan

IP-21PM-1-4

Fast Three-dimensional Shape Measurement System Using a Generalized Phase Shifting Method with a Continuous Fringe-Scanning Scheme

Yuki Kawai, Nobukazu Yoshikawa
Saitama University, Japan

IP-21PM-1-5

Visualizing Gloss Area on Handwritten Strokes by Compound-Eye Polarization Images Under Coaxial Illumination

Yoshinori Akao
National Research Institute of Police Science, Japan

IP-21PM-1-6

Floating Three-Dimensional Display with a lenticular Sheet and a Dihedral Corner Reflector Array

Yuma Tokubo, Daisuke MIyazaki, Takaaki Mukai
Osaka City University, Japan

IP-21PM-1-7

Holographic Fluorescence Mapping Using Space-Division Matching Method

Hitoshi Ogawa, Ryosuke Abe, Yoshio Hayasaki
Utsunomiya University, Japan

IP-21PM-1-8

Rendering of Transparent Objects in Polygon-Based Computer Holography

Hirohito Nishi, Kyoji Matsushima
Kansai University, Japan

IP-21PM-1-9

Improvement of Cloaking Performance by Designing the Constitutive Parameter Distribution

Tatsuo Tanaka[1], Osamu Matoba[2]
[1]Asahi Kasei Corporation, Japan, [2]Kobe University, Japan

IP-21PM-1-10

Color Distortion Suppression in Color Digital Holography

Keisuke Kasai, Nobukazu Yoshikawa
Saitama University, Japan

IP-21PM-1-11

In-Line Interference Phase Imaging Using a Single-Pixel Camera

Kazuki Ota, Yoshio Hayasaki
Utsunomiya University, Japan

IP-21PM-1-12

Learning-Based Decomposition of Volumetric Scenes for Multi-Plane Displays with Focus Cues

Seungjae Lee, Jaebum Cho, Byoungho Lee
Seoul National University, Republic of Korea

IP-21PM-1-13

Surface Relief Formation of Hologram in Soda-lime Silicate Glass Transferred by Corona Discharge

Daisuke Sakai, Kohei Nakabayashi, Kenji Harada
Kitami Institute of Technology, Japan

IP-21PM-1-14

Aerial Imaging Display System by Use of AIRR and CMA

Kujime Ryosuke[1,2], Mizushina Haruki[2], Suyama Shiro[2], Yamamoto Hirotsugu[1,3]
[1]Utsunomiya University, Japan, [2]Tokushima University, Japan, [3]JST, ACCEL, Japan

IP-21PM-1-15

Extending the Floating Distance of an Aerial Heater by Use of WARM

Tomoyuki Okamoto[1], Kazuki Kawai[1], Kenta Onuki[1], Sho Onose[1], Takaho Itoigawa[1], Hirotsugu Yamamoto[1,2]
[1]Utsunomiya University, Japan, [2]JST, ACCEL, Japan

IP-21PM-1-16

Forming Two Aerial Images at Two Viewpoints by Use of a Slit Array

Tomofumi Kobori[1], Ryosuku Kujime[1], Masashi Takahashi[1], Tomoyuki Okamoto[1], Sho Onose[1], Kazuki Kawai[1], Hirotsugu Yamamoto[2]
[1]Utsunomiya University, Japan, [2]JST, ACCEL, Japan

IP-21PM-1-17

Femtosecond Laser Microdissection of Biological Tissues using Computer-Generated Hologram

Satoshi Hasegawa, Yoshio Hayasaki
Utsunomiya University, Japan

OMCp7 13:00-14:00

OMCp7-1

Tight focusing of radially polarized ultrashort light pulses: slow light and pulse compression

Jixiong Pu, Huichuan Lin, Haosen Pu, Ziyang Chen
Huaqiao Univ., China

OMCp7-2

Influence of dilution with organic solvents on emission spectra of CdSe/ZnS quantum dots

Mitsutaka Kumakura, Asuka Kinan, Takeshi Moriyasu
Univ. of Fukui, Japan

OMCp7-3

Speckle and focusing of partially coherent beams through scattering medium

Ziyang Chen, Jixiong Pu, Xuanxuan Ji, L.P. Wan
Huaqiao Univ., China

OMCp7-4

Amplification of complex fields in Nd:YAG amplifiers

Xudong Chen, Chengcheng Chang, Jixiong Pu
Huaqiao Univ., China

OMCp7-5

Effect of polymer stabilization on floating-ring-electrode LC lens

Yi-Jun Liu, Che-Ju Hsu, Chi-Yen Huang
National Changhua Univ. of Education, Taiwan

OMCp7-6

Dispersion compensation based on prism compressor

Hongying Liu, Tian Lan, Xiao-mei Chen, Guo Qiang Ni
Beijing Institute of Technology, China

OMCp7-7

Enhancement of electrocatalytic activity of octahedral Au@Pt core-shell nanoparticles by the surface plasmon excitation

Tatsuya Kameyama, Kentaro Sato, Tsukasa Torimoto
Nagoya Univ., Japan

OMCp7-8

Selection rule for a localized optical vortex in a metallic nano-complex

Masayuki Hoshina, Yokoshi Nobuhiko, Hajime Ishihara
Osaka Prefecture Univ., Japan

OMCp7-9

Micro-ring pattern formation of poly (N-isopropylacrylamide) microgels based on plasmonic optical tweezers

Mitsuhiro Deguchi[1], Shoji Tatsuya[1], Taka-Aki Asoh[1], Yuriko Matsumura[2], Yumi Wakisaka[3], Kei Murakoshi[3], Yasuyuki Tsuboi[1]
[1]Osaka City Univ., Japan, [2]Tokyo Healthcare Univ., Japan, [3]Hokkaido Univ., Japan

Poster Session <Exhibition Hall A>

Friday, April 21

XOPTp8 13:00-14:30

XOPTp8-1

Influence of the air's refractive index on autocollimator-based deflectometric form measurement of beamline optics

Ralf D. Geckeler[1], Petr Kren[2], Andreas Just[1], Matthias Schumann[1], Michael Krause[1], Harald Bosse[1]
[1]Physikalisch-Technische Bundesanstalt (PTB), Germany, [2]Czech Metrology Institute (CMI), Czech Republic

XOPTp8-2 *withdraw*

XOPTp8-3

Development of Measurement System for 1 m-long, large-curvature and ellipsoidal synchrotron mirrors

Hiroki Nakamori[1,2], Hiromi Okada[1], Shinya Aono[1], Akihiko Ueda[1], Kazuto Yamauchi[2], Takashi Tsumura[1]
[1]JTEC Corporation, [2]Osaka University, Japan

XOPTp8-4

Scanning optical probe profilometer for x-ray focusing mirrors with highly sloped surface

Hirokatsu Yumoto, Takahisa Koyama, Haruhiko Ohashi
JASRI, Japan

XOPTp8-5

Precise stitching angle determination of surface profiles measured by microscopic interferometer

Yusuke Matsuzawa, Hidekazu Mimura
The University of Tokyo, Japan

XOPTp8-6

Development of Waveftront Measurement Device for accurate Figure Evaluation of Ellipsoidal Mirror

Takahiro Saito, Yoko Takeo, Satoru Egawa, Hidekazu Mimura
The University of Tokyo, Japan

XOPTp8-7

Development of calibration method for X-ray single-grating interferometry

Takato Inoue[1], Satoshi Matsuyama[1], Shogo Kawai[1], Hirokatsu Yumoto[2], Yuichi Inubushi[2], Takahisa Koyama[2], Kensuke Tono[2], Haruhiko Ohashi[2], Takuya Katayama[3], Shunji Goto[2], Tetsuya Ishikawa[3], Makina Yabashi[3], Kazuto Yamauchi[1]
[1]Osaka University, Japan, [2]JASRI, Japan, [3]RIKEN SPring-8 Center, Japan

XOPTp8-8

Development of a multilayer KB mirror system for sub-10 nm XFEL focusing

Shogo Kawai[1], Satoshi Matsuyama[1], Takato Inoue[1], Hirokatsu Yumoto[2], Yuichi Inubushi[2], Taito Osaka[3], Takahisa Koyama[2], Kensuke Tono[2], Haruhiko Ohashi[2], Makina Yabashi[3], Tetsuya Ishikawa[3], Kazuto Yamauchi[1]
[1]Osaka University, Japan, [2]JASRI, Japan, [3]RIKEN SPring-8 Center, Japan

XOPTp8-9

Study of X-ray multilayer mid-frequency characterizations using speckle scanning techniques

Hui Jiang
Shanghai Synchrotron Radiation Facility, China

XOPTp8-10

X-ray microscope with two-lens design and liquid-metal-jet source.

Dmitry Serebrennikov[1], Yuriy Dudchik[2], Aleksandr Barannikov[1], Natalia Klimova[1], Anatoly Snigirev[1]
[1]I. Kant BFU, Russia, [2]Institute of Applied Physics Problems, Belarus

XOPTp8-11

High-magnification X-ray imaging mirror system consisting of elliptical concave and hyperbolic convex mirrors

Jumpei Yamada[1], Satoshi Matsuyama[1], Shuhei Yasuda[1], Yasuhisa Sano[1], Yoshiki Kohmura[2], Makina Yabashi[2], Tetsuya Ishikawa[2], Kazuto Yamauchi[1]
[1]Osaka University, Japan, [2]RIKEN SPring-8 Center, Japan

XOPTp8-12

Construction of a soft x-ray transmission microscope for evaluation of Wolter mirror optics

Satoru Egawa, Hiroto Motoyama, Atsushi Iwasaki, Kaoru Yamanouchi, Hidekazu Mimura
The University of Tokyo, Japan

XOPTp8-13

Replication accuracy of electroforming process for X-ray ellipsoidal mirror

Takehiro Kume, Yoshinori Takei, Satoru Egawa, Gota Yamaguchi, Hiroto Motoyama, Hidekazu Mimura
The University of Tokyo, Japan

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Fabrication of ellipsoidal mirror by Cu electroforming

Gota Yamaguchi, Takehiro Kume, Hidekazu Mimura
The University of Tokyo, Japan

XOPTp8-15

Focusing the EUV light with ellipsoidal mirror

Hiroto Motoyama, Atsushi Iwasaki, Takahiro Sato, Yoshinori Takei, Takehiro Kume, Satoru Egawa, Kaoru Yamanouchi, Hidekazu Mimura
The University of Tokyo, Japan

XOPTp8-16

Development of an adaptive x-ray focusing system based on the combination of piezoelectric bimorph mirror and mirror bender

Takumi Goto[1], Satoshi Matsuyama[1], Hiroki Hayashi[1], Junki Sonoyama[2], Kazuki Akiyama[2], Hiroki Nakamori[3], Yasuhisa Sano[1], Kazuto Yamauchi[1]
[1]Osaka University, Japan, [2]TOYAMA, Japan, [3]JTEC Corporation, Japan

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XOPTp8-18

Development of Laminar-type Varied-line-spacing Holographic Gratings for Soft X-ray

Hiroto Ogimoto, Hidekazu Mimura
The University of Tokyo, Japan

XOPTp8-19

Apodization Fresnel zone plate for improvement of imaging properties of full-field x-ray microscopy

Akihisa Takeuchi[1], Kentaro Uesugi[1], Yoshio Suzuki[2]
[1]JASRI, Japan, [2]The University of Tokyo, Japan

XOPTp8-20

High Resolution X-ray Imaging with a Structured Scintillator

Ilya Sychugov, Yashar Hormozan, Jan Linnros
KTH - Royal Institute of Technology, Sweden

XOPTp8-21

Feasibility study of X-ray thermography using phase-contrast X-ray imaging

Akio Yoneyama[1], Kazuyuki Hyodo[2]
[1]Hitachi Ltd., Japan, [2]KEK PF, Japan

XOPTp8-22

Radiography and tomography based on microfocus source for x-ray refractive optics diagnostics

Anton Narikovich[1], Valery Savin[1], Dmitriy Zverev[1], Natalya Klimova[1], Irina Snigireva[2], Anatoly Snigirev[1]
[1]Immanuel Kant Baltic Federal University, Russia, [2]European Synchrotron Radiation Facility, France

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Development of X-ray Phase-CT microscope using laboratory source

Hidekazu Takano, Yanlin Wu, Wataru Yashiro, Atsushi Momose
Tohoku University, Japan

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Millisecond Hard X-ray Phase Tomography Using Gratings

Wataru Yashiro[1,2], Kentaro Kajiwara[4], Ryosuke Ueda[2,3], Hiroyuki Kudo[2,3]
[1]Tohoku University, [2]JST-ERATO, Japan, [3]University of Tsukuba, [4]JASRI, Japan

Poster Session <Exhibition Hall A>

Friday, April 21

XOPTp8 13:00-14:30

XOPTp8-25

Development of high spatial resolution Talbot-based X-ray microscopy with wide field of view to elucidating a mechanism of bone formation

Yanlin Wu[1], Hidekazu Takano[1], Mashahito Hoshino[2], Karol Vegso[2], Koichi Matsuo[3], Wataru Yashiro[1], Atsushi Momose[1]
[1]Tohoku University, Japan, [2]JASRI, Japan, [3]Keio University, Japan

XOPTp8-26

New Developments at the Diamond-Manchester Imaging branchline at Diamond Light Source

Silvia Cipiccia, Shashidhara Marathe, Malte Ogurreck, Andrew Bodey, Ulrich Wagner, Xiaowen Shi, Darren Batey, Marie-Christine Zdora, Christoph Rau
Diamond Light Source, United Kingdom

XOPTp8-27

Performance of a soft X-ray emission spectrometer with wideband multilayer optics in 1-3.5 keV region

Takashi Imazono
National Institutes for Quantum and Radiological Science and Technology, Japan

XOPTp8-28

Determination of absorbed doses to the eye lens and thyroid gland with applied irradiation protocols in orthopantomography equipment for dental panoramic radiography

Awer Munoz[1], Modesto Sosa[1], Juan Azorin[2], Miguel Vallejo[1], Lina Ramirez[2]
[1]University of Guanajuato, Mexico, [2]Metropolitan Technological Institute, Colombia

XOPTp8-29

Identification of materials and structures using energy resolved X-ray backscatter

Daniel O'Flynn[1], Chiaki Crews[1], Nicholas Fox[2], Mark Sammons[2], Stefano Bettelli[2], Brian Allen[3], Robert Speller[1]
[1]University College London, United Kingdom, [2]Axi-Tek, United Kingdom, [3]QinetiQ, United Kingdom

XOPTp8-30

Fluid Dynamics Analysis of a Gas Device for High Repetition Rate X-ray FEL's

Bo Yang[1], Juhao Wu[2], Tor Raubenheimer[2], Yiping Feng[2]
[1]The University of Texas at Arlington, USA, [2]SLAC National Accelerator Laboratory, USA

XOPTp8-31

Experimental Observation of Gas Filamentation Effect in Gas Devices for X-ray FEL's

Yiping Feng
SLAC National Accelerator Laboratory, USA

XOPTp8-32

Transmissive Single-shot Intensity and Position Diagnostics for X-ray FEL's using Gas Fluorescence

Clemens Weninger, Diling Zhu, Matthieu Chollet, Yiping Feng
SLAC National Accelerator Laboratory, USA

XOPTp8-33

Lipid bilayer chambers for pulsed coherent X-ray solution scattering

Naoya Tani[1], Takashi Kimura[1], Akihiro Suzuki[1], Yasumasa Joti[2], Yoshitaka Bessho[3], Yoshinori Nishino[1]
[1]Hokkaido University, Japan, [2]JASRI, Japan, [3]Academia Sinica, Taiwan

XOPTp8-34

Multiple defocused coherent diffraction imaging: method for simultaneously reconstructing objects and probe using XFELs

Makoto Hirose[1,2], Kei Shimomura[1,2], Nicolas Burdet[2], Yukio Takahashi[1,2]
[1]Osaka University, [2]RIKEN SPring-8 Center, Japan

XOPTp8-35

Coherent X-ray Diffraction Imaging at SPring-8 Hyogo Beamline BL24XU

Yuki Takayama, Yuki Takami, Takamasa Miyagawa, Yasushi Kagoshima
University of Hyogo, Japan

XOPTp8-36

Measuring Temporal Profile of Femtosecond X-Ray Pulses with a Hard X-Ray Split-and-Delay Optical System at SACLA

Taito Osaka[1], Takashi Hirano[2], Yuki Morioka[2], Yasuhisa Sano[2], Yuichi Inubushi[3], Tadashi Togashi[3], Ichiro Inoue[1], Kensuke Tono[3], Satoshi Matsuyama[2], Kazuto Yamauchi[2], Makina Yabashi[1]
[1]RIKEN SPring-8 Center, Japan, [2]Osaka University, Japan, [3]JASRI, Japan

XOPTp8-37

Diamond drumhead crystals

Tomasz Kolodziej[1], Preeti Vodnala[2], Vladimir Blank[3], Sergey Terenyev[3], Yuri Shvyd'ko[1]
[1]Argonne National Laboratory, Advanced Photon Source, USA, [2]Northern Illinois University, USA, [3]Technological Institute for Superhard and Novel Carbon Materials, Russia

XOPTp8-38

Development of Micrometer-sized Liquid Enclosure Chip for Imaging of Samples in Solution by Single-shot X-ray Laser Diffraction

Takashi Kimura[1], Akihiro Suzuki[1], Yasumasa Joti[2], Yoshitaka Bessho[3], Yoshinori Nishino[1]
[1]Hokkaido University, Japan, [2]JASRI, Japan, [3]Academia Sinica, Taiwan

XOPTp8-39

Coherent X-ray Scattering at TPS: Beamline, Commissioning, and Application

Yu-Shan Huang, Jhih-Min Lin, Chun-Yu Chen, Hong-Yi Yan, Chao-Chih Chiu
National Synchrotron Radiation Research Center

XOPTp8-40

The Montel mirror for x-ray nanoprobe ready for commission at Taiwan Photon Source

Gung-Chian Yin, Shi-Hung Chang, Bo-Yi Chen, Chien-Yu Lee, Bi-Hsuan Lin, Shao-Chin Tseng, Xiao-Yun Li, Huang-Yeh Chen, Jian-Xing Wu, Mau-Tsu Tang
National Synchrotron Radiation Research Center, Taiwan

What's Happening in the Exhibition Hall?

OPTICS & PHOTONICS International Exhibition 2017 (OPIE '17)

In 1994, The Laser Society of Japan initiated Laser EXPO, which now consists of seven optics-related EXPOs; Lens Design & Manufacturing Expo, Positioning Expo, IR + UV EXPO, Medical & Imaging EXPO, Space & Astronomical Optics EXPO and Industrial Camera 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 '17.

There is no charge to attend the exhibit for conference registrants and exhibit-pass only visitors.

Highlights

19 April, 10:15-11:25, Exhibition Hall B

Technology trends in optics and photonics research

Peter F. Hallett, Director of Marketing and Industry Relations, SPIE

20 April, 10:15-11:25, Exhibition Hall B

Optics Enabled Markets of Today and Tomorrow

Melissa Russell, Chief Industry Relations Officer, OSA – The Optical Society

19-21 April at Booth No. G-25

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Cross-ministerial Strategic Innovation Promotion Program (SIP)

(Research and development of the laser coating technology to realize high value-added design and fabrication)

Advanced Laser Coating Technology for Innovation to Delight (ALCTION D)

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Actes Kyosan
AD Science
Advanced Communicatison Media
Agilent Technologies Japan
AIC
AIM
AISAY
AkiTech LEO
ALPHA-ONE ELECTRONICS
AMAKUSA OPTICAL
AMETEK
AMPLITUDE JAPAN
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Aprolink
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CCS
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CHRONIX
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Circle&Square
Coherent Japan
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CoorsTek
CORNES Technologies
Corning International
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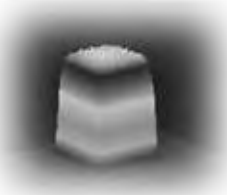

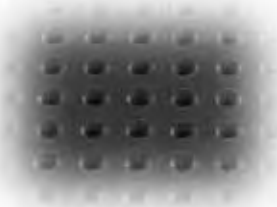

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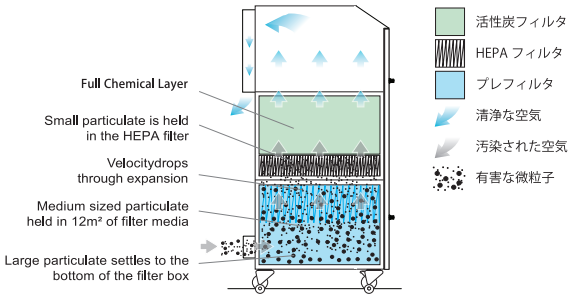
一般的に集塵機にはバイパスやトンネリングなどの現象により、フィルタ性能が十分発揮されず、不十分な汚染物質の捕捉や作業場所への匂いの排出を引き起こす危険性が存在します。実際には設計の不適切さや製造工程の問題に起因するにもかかわらず、エンドユーザは多くの場合、そのような問題を活性炭フィルタの早めの飽和といった誤った判断をしてしまいがちです。BOFA 社ではこのような問題による危険性を除去し、トラブルフリーな作業環境を提供することでエンドユーザに信頼してもらえるよう、製造・品質管理を行っております。

他社にはないユニークな**流路設計**

BOFA 社のレーザ加工用集塵装置は独自の流路設計によりフィルタ長寿命化を実現しました。従来の集塵装置は装置上部から吸気する方式なのに対し、BOFA 社では装置下部から吸気するという全く逆のアプローチを取っています。ノズルから装置下部へ吸気されたガス・汚染された空気・有害な微粒子は大きな体積を持つプレフィルタチャンバに入ると急速に減速します。これにより比較的大きな粒子はチャンバの底に落下します。（この設計が最も BOFA 社製品のユニークな点であり、フィルタの濾過効率向上と長寿命化を実現しているポイントです。）

ミドルサイズの粒子は上部に吸い上げられ、プレフィルタ※1 のプリーツ（ひだ）でトラップされます。プレフィルタを抜けた極小の粒子のみ、HEPA フィルタ※2 を通過、捕集されます。微小粒子が取り除かれた空気は最後にケミカル（活性炭）フィルタ層でニオイ及び VOC※3 等のアウトガスを除去し、装置上部から清浄な空気として排気されます。（活性炭はアプリケーションに合わせて選定されます。）



※1 プレフィルタ　：BOFA 社の DEEP PLEAT プレフィルタは 15L の密閉されたフィルタ容器内の上部に、12m² の面積を持つ、クラス F8 材料からなる 200mm の深襞層を持つ。

※2 HEPA フィルタ：High Efficiency Particulate Air フィルタの略。定格風量で粒径が 0.3 μm の粒子に対して 99.97%以上の粒子捕集率をもち、かつ初期圧力損失が 245Pa 以下の性能を持つエアフィルタ」と規定されている。

※3 VOC　　：Volatile Organic Compound の略。揮発性有機化合物。

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サイズ：W570×D640×H1190mm

AD Oracle iQ
流　速：380m³/hr
サイズ：W430×D430×H980mm

AD500 iQ
流　速：550m³/hr
サイズ：W600×D790×H1197mm

AD1500 iQ
流　速：1350m³/hr
サイズ：W600×D790×H1197mm

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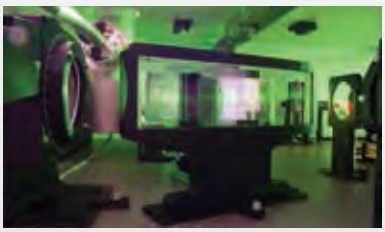

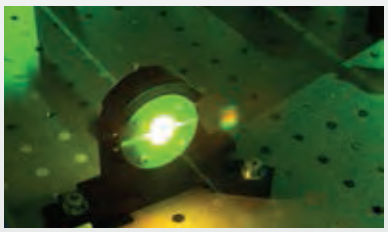

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