Conference Program

12th Asia-Pacific Laser Symposium

4 – 7 SEPTEMBER

Hakodate, Japan

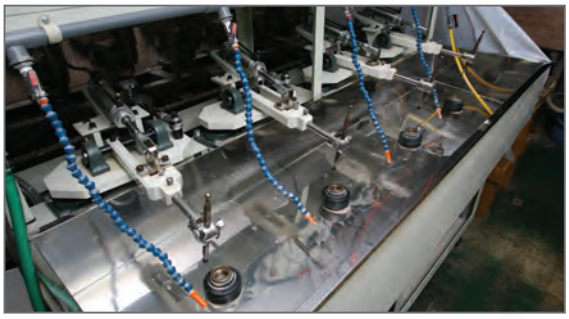
E-mail: contact@apls-2020.org

OSK OPTICAL SOCIETY OF KOREA

PERASPERAAD ASTRA LASER THE LASER SOCIETY OF JAPAN

中国光学学会 COS THE CHINESE OPTICAL SOCIETY

エドモンド・オプティクス
秋　田　工　場



Edmund Optics®の秋田工場は、球面レンズの研磨製造において50年以上の豊富な経験があります。ø3~100mmまでの精密球面レンズの製造を得意とし、組み立てや検査設備も社内に完備します。また2014年度より、プリズムや平面光学素子の製造も新たに開始しました。
2機のコーティング釜を所有し、クラス10,000対応のクリーンルームとクラス100のラミナフローブースを所有します。当社のTECHSPEC®ブランドの球面レンズ製品の多くは、本工場から出荷されます。

- 製造設備の面積は7,432m²
- ø5~100mmまでの高精密球面レンズを製造
- 多層膜と誘電体薄膜コーティングが可能な最新式コーティングチャンバーを所有
- 球面ダブレット/トリプレットレンズを接合する専用ワークステーション
- クラス10,000 クリーンルームとクラス100 ラミナフローブースを所有
- 干渉法や分光光度法を始めとする施設内の組立と試験設備
- 50年以上の球面レンズ製造経験

光学フィルターの製造も開始しました！

製造対応力

球面製造対応力	商用	精密	高精密
直径	5 - 100mm	5 - 100mm	5 - 100mm
直径公差	+0/-0.100mm	+0/-0.025mm	+0/-0.010mm
中心厚	±0.100mm	±0.050mm	±0.010mm
サグ	±0.050mm	±0.030mm	±0.010mm
曲率半径	±0.3%	±0.1%	原器固定
ニュートン (P - V)	3.0λ	1.5λ	½λ
イレギュラリティ (P - V)	1.0λ	½λ	⅒λ
偏芯 (ビーム偏角)	3′	1′	0.5′
面取り	±0.2mm @ 45°	±0.1mm @ 45°	±0.05mm @ 45°
表面品質 (キズ-ブツ)	60-40	40-20	10-5

プリズム製造対応力	商用	精密	高精密
寸法	1 - 100mm	2 - 75mm	2 - 50mm
寸法公差	±0.25mm	±0.1mm	±0.05mm
イレギュラリティ	1.0λ	0.5λ	0.05λ
角度精度	±3′	±30″	±1″
ピラミダル精度	3′	1′	5″
面取り公差	±0.2mm @ 45°	±0.1mm @ 45°	±0.05mm @ 45°
表面品質 (キズ-ブツ)	60-40	40-20	10-5

平行平面板製造対応力	
寸法	10 - 150mm (t=1 - 20mm)
基板面精度	<λ/30
平行度	<2″
表面粗さ (rms)	<0.2nm

Edmund optics | japan

www.edmundoptics.jp

数量見積りは、当社に今すぐお問い合わせください！

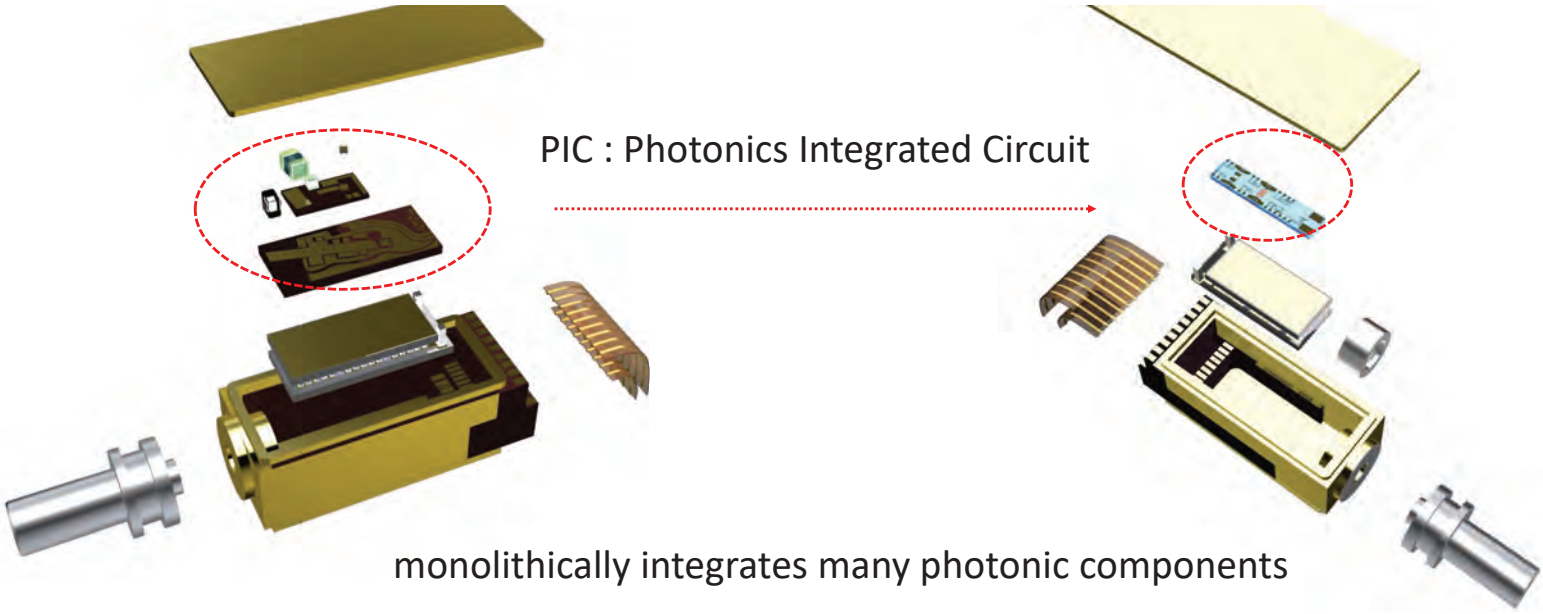
エドモンド・オプティクス・ジャパン株式会社
東京オフィス　〒113-0021　東京都文京区本駒込 2-29-24　パシフィックスクエア千石 4F
秋　田　工　場　〒012-0801　秋田県湯沢市岩崎字壇ノ上 3 番地
TEL (03)-3944-6210　FAX (03)-3944-6211　E-MAIL sales@edmundoptics.jp

光集積回路向けエンジニアリングサービス
= Photonics Integrated Circuit / Engineering Services =

HITACHI
Inspire the Next

・Optical Communication / Fiber optics

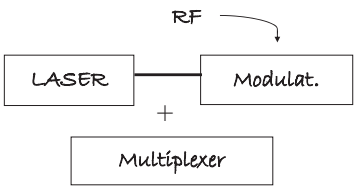
＊Product image for illustration purposes only.



monolithically integrates many photonic components

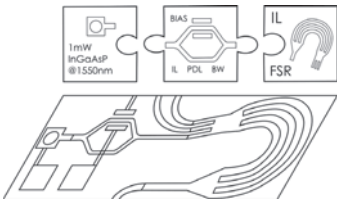
・Introduction of Engineering Services / Our Capability

1. Concept



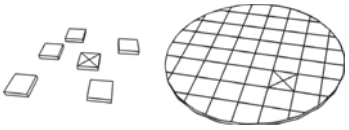
- Cost estimate for development
- Assess and advise on PIC options, architecture & platform

2. Design/layout



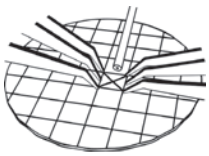
- Component Modeling and Layout
- Photonic Circuit simulation

3. Fabrication

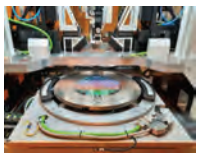


- Fabless brokering & supply chain management
  (abundant foundry network)

4. Packaging/Testing



- Fiber Array/Test Board Assy
- Characterization by chip, wafer level



Iteration/Move to Production

株式会社 日立ハイテク

公益財団法人
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HAKODATE 函館市

Conference Program

4 – 7 September, 2023
Premier Hotel-CABIN PRESIDENT-Hakodate,
Hakodate, Hokkaido, JAPAN

APLS 2023

The 12th Asia-Pacific Laser Symposium

Sponsored and organized by

The Laser Society of Japan **The Optical Society of Korea** **The Chinese Optical Society**

https://www.apls-2020.org/

PREFACE

We are happy to announce that the 12th Asia-Pacific Laser Symposium (APLS 2023) will take place during September 4-7, 2023 at Hakodate, Hokkaido, Japan.

APLS was initiated in 1998 and has been held bi-annually in Korea, China, and Japan to provide an international forum for the recent progress of lasers and photon sources covering the basic science to industrial applications.

APLS 2023 will be organized by the Laser Society of Japan and co-organized by the Optical Society of Korea, and Institute of Physics, Chinese Academy of Sciences.

As always, a key aspect of international symposium is the chance to network with colleagues from around the world. We welcome you to actively participate in all aspects of the symposium and hope that you will benefit from these interactions.

We hope that you will enjoy your time at APLS 2023 and this opportunity to explore the rest of Hakodate, one of the most popular tourist destinations in Hokkaido.

Students are especially welcome to attend the symposium and help shape the future laser research community in the Asia-Pacific region.

Fumihiko Kannari, Conference Chair
Chang Hee Nam, Conference Co-Chair
Ruxin Li, Conference Co-Chair

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Ruxin Li, *Shanghai Institute of Optics and Fine Mechanics*, *China*

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Ichiro Shoji, *Japan*
Ken-ichi Hirosawa, *Japan*
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Lianghong Yu, *China*
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Yasuyuki Ozeki, *Japan*
Shinichi Imai, *Japan*
Ryo Okamoto, *Japan*
Masashi Yoshimura, *Japan*
Takafumi Ono, *Japan*
Fabian Rotermund, *Korea*
Nan Ei Yu, *Korea*
Andy Kung, *Taiwan*
Shining Zhu, *China*

Nano & Micro Photonics

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Takashige Omatsu, *Japan*
Toshiharu Saiki, *Japan*
Atsushi Kubo, *Japan*
Yoshimasa Kawata, *Japan*
Xiaoyong Hu, *China*
Jiafang Li, *China*
Young-Mi Bahk, *Korea*
Min-Seok J, *Korea*
Kwang Jun Ahn, *Korea*

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Masayoshi Tonouchi, *Japan*
Shinichi Watanabe, *Japan*
Hiroaki Minamide, *Japan*
Kodo Kawase, *Japan*
Ikufumi Katayama, *Japan*
Jae-Hyung Jang, *Korea*
Zengxiu Zhao, *China*
Tae-In Jeon, *Korea*

Laser Material Processing

Masaki Hashida, *Japan*
Mitsuhiro Terakawa, *Japan*
Yoshiki Nakata, *Japan*
Masahiro Tsukamoto, *Japan*
Godai Miyaji, *Japan*
Masayuki Okoshi, *Japan*
Masayuki Fujita, *Japan*
Koji Sugioka, *Japan*
Hongbo Sun, *China*
Feng Chen, *China*
Dong-Sik KIM, *Korea*

Laser Application in Medicine & Biology

Shunichi Sato, *Japan*
Yuji Matsuura, *Japan*
Yoshiaki Yasuno, *Japan*
Masato Ohmi , *Japan*
Yoshihisa Yamaoka, *Japan*
Izumi Nishidate, *Japan*
Kyong Jin Cho, *Korea*
Pilhan Kim, *Korea*
Guoqing Chang, *China*
Xiaosong Li, *China*

Laser Metrology, Imaging & Informatics

Yoshio Hayasaki, *Japan*
Osamu Matoba, *Japan*
Kaoru Minoshima, *Japan*
Takeshi Yasui, *Japan*
Katsumasa Fujita, *Japan*
Atsushi Uchida, *Japan*
Hiroaki Yoshioka, *Japan*
Jungwon Kim, *Korea*
Haifeng Jiang, *China*
Lijian Zhang, *China*
Daihyuk Yu, *Korea*

Laser Spectroscopy and Physical Chemistry

Ryuji Itakura, *Japan*
Tomoya Okino, *Japan*
Huailiang Xu, *China*
Bing Zhang, *China*
Hohjai Lee, *Korea*

SCOPE

- ✓ Solid-state & Fiber Lasers
- ✓ Ultra-high Intensity Lasers
- ✓ Ultrafast Phenomena
- ✓ Nonlinear Optics
- ✓ Advanced Laser Materials
- ✓ Quantum Optics
- ✓ Nano & Micro Photonics
- ✓ Terahertz Generation & Applications
- ✓ Laser Material Processing
- ✓ Laser Application in Medicine & Biology
- ✓ Laser Metrology and Imaging
- ✓ Laser Manipulation
- ✓ Laser Spectroscopy
- ✓ Laser Chemistry

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Hakodate International Tourism and Convention Association

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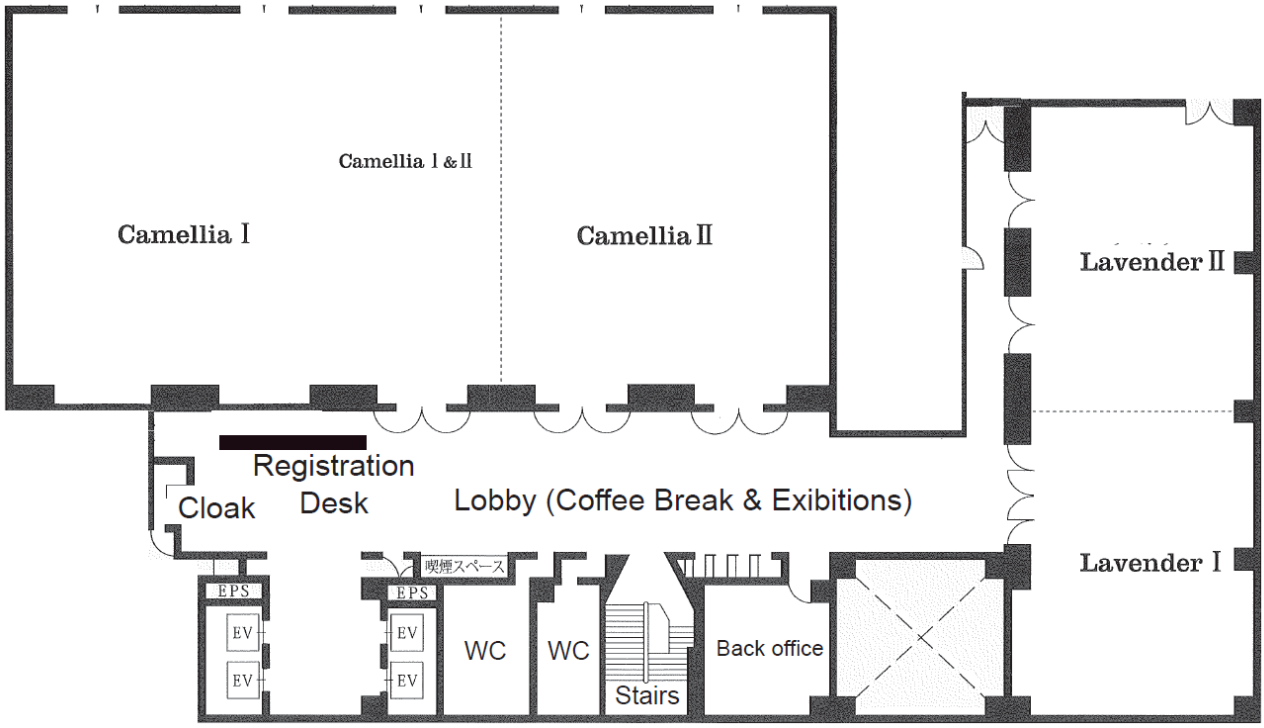

REGISTRATION

Registration Fees

	On/Before 31 July, 2023	After 1 August, 2023	On-site
Full regular	60,000 JPY	70,000 JPY	75,000 JPY
Full student	25,000 JPY	30,000 JPY	35,000 JPY

Registration hours

Mon: 10:30 AM – 5:00 PM
Tue: 8:45 AM – 5:00 PM
Wed: 8:45 AM – 5:00 PM
Thu: 8:45 AM – 11:30 AM

WI-FI INFO

SSID: CABIN_Hakodate_Guest
PASS:**********

ONLINE PROGRAM

https://confit.atlas.jp/guide/event/apls2023/top

INFORMATION FOR PRESENTERS

Oral presentation

Contributed: Total 15 min (12 min presentation / 3 min Q&A)

Invited: Total 30 min (25 min presentation / 5 min Q&A)

Poster presentation

Size: W900 x H2100

On-site conference

No hybrid nor video presentation

WELCOME RECEPTION, EXCURSION & BANQUET

Welcome reception

Date: September 4 (Monday) 5:30 PM – 7:30 PM
Place: Camellia I
Buffet-style dinner

Banquet

Date: September 7 (Thursday) 7:00 PM – 9:15 PM
Place: Camellia I&II
Seated full course dinner

Excursion

Date: September 7 (Thursday)
14:15 Meeting time (at the Hotel lobby)
14:30 Leave Hotel (with bus)
15:30-16:30 Goryokaku Park & Goryokaku Tower
16:45-17:45 Hakodate Bugyosho (Hakodate Magistrate's Office)
18:00-18:30 Hakodate Mountain Summit Observatory
18:50 Return to Hotel

Goryokaku was constructed in 1864. It is called Goryokaku because of its star shape. From the observation deck of Goryokaku Tower, which stands adjacent to Goryokaku Park, you can see not only the star shape of Goryokaku, but also a panoramic view of Hakodate city and the Tsugaru Strait.

At the end of the Edo period, it was relocated from the current Motomachi Park to Goryokaku and was dismantled after the Battle of Hakodate. A partial restoration was completed in 2010, and the interior is open to the public as a historical restoration building.

Hakodate Mountain, from which you can overlook the city of Hakodate, boasts a spectacular view created by its unique topography. It has been listed as a "superb view" with three stars in the Michelin Guide Book. The observation deck at the summit of the 334 m-high mountain is popular as a spot where you can enjoy a magnificent panorama and beautiful night views.

NOTE: The Banquet and Excursion are graciously sponsored by our sponsoring companies and funds. While these events are included in the registration fee, seats are limited. So, attendees are required to R.S.V.P. during the registration process to secure a spot. Should you have previously omitted to indicate your intent to partake but now wish to do so, please liaise with the registration desk at your earliest convenience.

APLS2023 SCHEDULE-AT-A-GLANCE

September 4, Monday

Time	Camellia II
13:00-13:15	Opening remark
13:15-15:00	Plenary Session
15:30-15:30	Coffee Break
15:30-17:30	Opening Session
17:30-19:30	Welcome Reception (Camillia I)

September 5, Tuesday

Time	Camellia II	Lavender I	Lavender II
9:00-10:15	Laser Metrology, Imaging & Informatics [HTu1]	Solid-state, Fiber Lasers, and Advanced Laser Materials [ATu1]	Laser Application in Medicine & Biology [GTu1]
10:15-10:30	Coffee Break		
11:15-12:30	Terahertz Generation & Applications [ETu1]	Laser Metrology, Imaging & Informatics [HTu2]	Nonlinear Optics and Quantum Optics [CTu1]
12:30-13:30	Lunch Break		
13:30-15:00	Nano & Micro Photonics [DTu1]	Laser Application in Medicine & Biology [GTu2]	Ultra-high Intensity Lasers and Ultrafast Phenomena [BTu1]
15:00-15:30	Coffee Break		
15:30-17:00	Laser Spectroscopy & Physical Chemistry [ITu1]	Laser Material Processing [FTu1]	Solid-state, Fiber Lasers, and Advanced Laser Materials [ATu2]
17:00-18:30	Poster Session 1 (Camellia I)		

September 6, Wednesday

Time	Camellia II	Lavender I	Lavender II
9:00-10:15	Solid-state, Fiber Lasers &Advanced Laser Materials [AW1]	Nano & Micro Photonics [DW1]	Laser Application in Medicine & Biology [GW1]
10:15-10:30	Coffee Break		
10:30-12:00	Nonlinear Optics and Quantum Optics [CW1]	Ultra-high Intensity Lasers and Ultrafast Phenomena [BW1]	Laser Material Processing [FW1]
12:00-13:30	Lunch Break		

APLS2023 SCHEDULE-AT-A-GLANCE

September 6, Wednesday (cont.)

Time	Camellia II	Lavender I	Lavender II
13:30-15:00	Ultra-high Intensity Lasers and Ultrafast Phenomena [BW2]	Nano & Micro Photonics [DW2]	Laser Metrology, Imaging & Informatics [HW1]
	Coffee Break		
15:00-17:00	Laser Material Processing [FW2]	Terahertz Generation & Applications [EW1]	Laser Spectroscopy & Physical Chemistry [IW1]
17:00-18:30	Poster Session 2 (Camellia I)		

September 7, Thursday

Time	Lavender I	Lavender II
9:00-10:15	Laser Metrology, Imaging & Informatics [HTh1]	Nonlinear Optics and Quantum Optics [CTh1]
10:15-10:30	Coffee Break	
10:30-12:00	Solid-state, Fiber Lasers & Advanced Laser Materials [ATh1]	Terahertz Generation & Applications [ETh1]
	Lunch Break Excursion	
19:00-19:15	Closing Session (Camellia I & II)	
19:15-21:15	Conference Banquet (Camellia I & II)	

(online program)

(online program)

Opening & Plenary Session [PL]

Time: 13:00-15:00 **Room:** Camellia II (**Chair:** Fumihiko Kannari)

13:00-13:15	**[PL-01] Opening remark** *Fumihiko Kannari, General Chair of APLS2023, (Keio University)
13:15-13:50 (plenary)	**[PL-02] Jitter-free Ultrafast Electron Diffraction Technology for Exploring Structural Dynamics in Atoms and Molecules** *Young Uk Jeong[1,2], Hyun Woo Kim[1,2], Junho Shin[3], Hyeon Sang Bark[4], Key Young Oang[1,2], In Hyung Baek[1,2], Kyu-Ha Jang[1], Kitae Lee[1,2], Fabian Rotermund[5], Jungwon Kim[5], Thomas Feurer[6], Nikolay Vinokurov[7] (1. Korea Atomic Energy Research Institute, 2. University of Science and Technology, 3. Samsung Electronics, 4. GIST, 5. KAIST, 6. University of Bern, 7. Budker Instituite of Nuclear Physics)
13:50-14:25 (plenary)	**[PL-03] Ultrafast dynamics of cold molecules in strong laser fields** *Jian Wu[1] (1. East China Normal University)
14:25-15:00 (plenary)	**[PL-04] Exploring "Nuclear Photonics" with High Power Lasers** *Akifumi Yogo[1] (1. Institute of Laser Engineering, Osaka University)

Opening Session [OP]

Time: 15:30-17:30 **Room:** Camellia II (**Chair:** Satoshi Ashihara)

15:30-16:00 (invited)	**[OP-01] High-performance ultraintense laser at CoReLS** Seong Ku Lee[1,2], Jae Hee Sung[1,2], Jin Woo Yoon[1,2], Il Woo Choi[1,2], Chang Hee Nam[1,3] (1. Center for Relativistic Laser Science, Institute for Basic Science, 2. Ultraintense Laser Laboratory, Advanced Photonics Research Institute, GIST, 3. Department of Physics and Photon Science, GIST)
16:00-16:30 (invited)	[**OP-02] On-Chip FMCW LiDAR with Si Photonics and Slow Light Grating** *Toshihiko Baba[1] (1. Yokohama National University)
16:30-17:00 (invited)	**[OP-03] Microcavity Raman lasing: from fundamentals to application** *Yun-Feng Xiao[1] (1. Peking University)
17:00-17:30 (invited)	**[OP-04] Lead Halide Perovskite Plasmonic Nanolasers with Ultralow Threshold** *Yu-Jung LU Lu[1,2] (1. Academia Sinica, 2. National Taiwan University)

Welcome Reception

Time: 17:30-19:30 **Room:** Camellia I

17:30-19:30	**Welcome reception**

Laser Metrology, Imaging & Informatics [HTu1]

Time: 9:00-10:15 **Room:** Camellia II (**Chair:** Yoshio Hayasaki)

9:00-9:30 (invited)	**[HTu1-01] Single-pulse three-dimensional imaging using ultrafast all-optical information conversion with chirped optical frequency comb** *Kaoru Minoshima[1], Takashi Kato[1] (1. University of Electro-Communications)
9:30-9:45	**[HTu1-02] Background-free Correlation Spectroscopy using Infrared Mode-locked Laser** *Kokoro Fujiwara[1], Wenqing Song[1], Ikki Morichika[1], Satoshi Ashihara[1] (1. Institute of Industrial Science, the University of Tokyo)
9:45-10:00	**[HTu1-03] Optical generation and detection of GHz transverse acoustic waves in solids assisted by a two-dimensional metallic grating** *Koji Momiyama[1], Motonobu Tomoda[1], Hayato Takeda[1], Gwenaëlle Vaudel[2], Vitalyi Gusev[2], Osamu Matsuda[1] (1. Hokkaido University, 2. Le Mans University)
10:00-10:15	**[HTu1-04] High-precision absolute distance measurement using a cascaded coherent link between envelope and the carrier phase of an optical comb pulse** *Kanyo Akuzawa[1], Takashi Kato[1], Kaoru Minoshima[1] (1. The University of Electro-Communications)

Solid-state, Fiber Lasers & Advanced Laser Materials [ATu1]

Time: 9:00-10:15 **Room:** Lavender I (**Chair:** Taisuke Miura)

9:00-9:15	**[ATu1-01] Fabrication of AlGaN-based vertical UV-B devices using substrate exfoliation with heated and pressurized water** *Eri Matsubara[1], Toma Nishibayashi[1], Ryosuke Kondo[1], Ryoya Yamada[1], Yoshinori Imoto[1], Koki Hattori[1], Sho Iwayama[1], Motoaki Iwaya[1], Tetsuya Takeuchi[1], Satoshi Kamiyama[1], Hideto Miyake[2] (1. Meijo University, 2. Mie University)
9:15-9:30	**[ATu1-02] Deep-ultraviolet optical isolator based on synthetic quartz glass** *Yuki Tamaru[1], Atsushi Fuchimukai[1], Chen Qu[1], Hiyori Uehara[2], Taisuke Miura[1], Ryo Yasuhara[2] (1. Gigaphoton Inc., 2. National Institute for Fusion Science)
9:30-9:45	**[ATu1-03] Fabrication and fundamental optical properties of perovskite semiconductor thin films for solar-pumped lasers** *Sodai Watanabe[1], Taiki Sakaguchi[1], Hiroyuki Ando[1], Daisuke Nakamura[2], Masato Soutome[3], Takashi Kondo[2,3], Ichiro Shoji[1] (1. Chuo University, 2. The University of Tokyo, 3. RCAST)
9:45-10:00	**[ATu1-04] Development of YAG/Yb:YAG/YAG composite microchip lasers using room-temperature bonding** *Yuki Uematsu[1], Kohei Ogura[1], Hayato Kobayashi[1], Ichiro Shoji[1] (1. Chuo University)
10:00-10:15	**[ATu1-05] Thermal characteristic of over 100-J class, 10-Hz rep. rate cryogenic gas cooled LD pumped Yb:YAG ceramics laser amplifier** *Takaaki Morita[1], Takashi Sekine[1], Yuki Muramatsu[1], Yuma Hatano[1], Yoshinori Tamaoki[1], Yuki Ikeya[1], Yoshinori Kato[1], Toshiyuki Kawashima[1] (1. HAMAMATSU PHOTONICS K.K.)

Laser Application in Medicine & Biology [GTu1]

Time: 9:00-10:15 **Room:** Lavender II (**Chair:** Yuji Matsuura)

9:00-9:15	**[GTu1-01] Detection of transition state in living cells using Raman Spectroscopy and Dynamical Network Biomarker Theory** *Akinori Taketani[1], Jun Tahara[1], Shota Koshiyama[1], Keiichi Koizumi[1], Makoto Kadowaki[1], Yusuke Oshima[1], Shota Yonezawa[1], Takayuki Haruki[1], Akinori Wada[2], Tsutomu Sato[2] (1. University of Toyama, 2. Toyama University Hospital)
9:15-9:30	**[GTu1-02] Combination of two-photon photoacoustic microscopy and adaptive optics to improve spatial resolution at deep structures in living tissues** *Yoshihisa Yamaoka[1], Shunsuke Suetsugu[2], Yusuke Notsuka[2], Takashi Kaneko[2], Makoto Kurihara[3], Nubuyuki Hashimoto[4] (1. Komatsu University, 2. Saga University, 3. Citizen Watch Co. Ltd. , 4. Japan Women's University)
9:30-10:00 (invited)	**[GTu1-03] Optical imaging and spectroscopic techniques toward accurate pathological diagonosis and surgical treatment** *Yusuke Oshima[1,2] (1. University of Toyama, 2. Oita University)
10:00-10:15	**[GTu1-04] Size distribution of DNA fragmented by a femtosecond near-infrared laser filament in water** Ken Akamatsu[1], *Tomoyuki Endo[2], Hiroshi Akagi[2], Hirohiko Kono[3], Ryuji Itakura[2] (1. Institute for Quantum Life Science, QST, 2. Kansai Photon Science Institute, QST, 3. Tohoku University)

(online program)

Terahertz Generation & Applications [ETu1]

Time: 10:30-12:00 **Room:** Camellia II (**Chair:** Shinichi Watanabe)

10:30-11:00 (invited)	**[ETu1-01] New Class of Nonlinear response in 2D materials under intense THz fields** *Koichiro Tanaka[1], Kento Uchida[1] (1. Kyoto University)
11:00-11:15	**[ETu1-02] THz generation with self-induced nonlinearity in air plasma and its application to the spectroscopy of spintronics materials** *Takahiro TERAMOTO[1,2], Ke Wang[2], Chen Gong[2], Iwao Kawayama[1], Hiromaru Murakami[2], Masayoshi Tonouchi[2] (1. Kyoto University, 2. Osaka University)
11:15-11:30	**[ETu1-03] Intense Narrowband THz Emission from Nanoplasma Sheet Target** *MANOJ KUMAR[1], MinSup Hur[1] (1. Ulsan National Institute of Science and Technology)
11:30-11:45	**[ETu1-04] Measuring terahertz electric-field waveforms of continuous wave terahertz sources using single-shot terahertz time-domain spectroscopy** *Koya Takahashi[1], Takashi Arikawa[2,3], Ryo Tamaki[1,4], Ikufumi Katayama[1] (1. Yokohama National University Graduate School, 2. University of Hyogo, 3. JST PRESTO, 4. KISTEC)
11:45-12:00	**[ETu1-05] Frequnecy-tunable vortex source at terahertz frequnecies** *Soma Makihara[1], Ryo sakurai[1], Takashige Omatsu[1,2], Katsuhiko Miyamoto[1,2] (1. Graduate School of Engineering, Chiba University, 2. Molecular Chirality Research Center, Chiba University)

Laser Metrology, Imaging & Informatics [HTu2]

Time: 10:30-12:00 **Room:** Lavender I (**Chair:** Atsushi Uchida)

10:30-11:00 (invited)	**[HTu2-01] Optical Waveform Synthesizer** *Shaobo FANG[1,2], Yuzhe Liu[1,2] (1. Institute of Physics, Chinese Academy of Sciences, 2. University of Chinese Academy of Science)
11:00-11:15	**[HTu2-02] Solving multi-armed bandit problems using a chaotic microresonator comb** *Jonathan Cuevas[1], Kaoru Minoshima[2], Naoya Kuse[1] (1. Tokushima University, 2. The University of Electro-Communications,)
11:15-11:30	**[HTu2-03] Demonstration of Quantum Spectroscopy Method using 2D Spectrum of Telecom-band Frequency Entangled Photons towards Quantum Remote Sensing** *Masahiro Ishizeki[1], Takeru Naito[1], Takahisa Kuwana[1], Akifumi Asahara[1,2], Ryosuke Shimizu[1,2], Kaoru Minoshima[1,2] (1. Graduate School of Informatics and Engineering, The Univ. of Electro-Communications (UEC), 2. Institute for Advanced Science, The Univ. of Electro-Communications)
11:30-11:45	**[HTu2-04] Generation of frequency-swept optical pulse train based on sum frequency generation for sub-Gfps snapshot imaging** *Ryota Tamemoto[1], Asami Honda[1], Syunta Kogie[1], Keisaku Yamane[1], Masato Suzuki[2], Yasunori Toda[1], Takasige Omatsu[3,4], Ryuji Morita[1] (1. Hokkaido University, 2. Nagaoka University of Technology, 3. Chiba University, 4. Molecular Chirality Research Center)
11:45-12:00	**[HTu2-05] High-speed volumetric fluorescence imaging by wavefront modulation for both excitation beam and fluorescence signals** *Daisuke Kume[1,2], Yuichi Kozawa[2], Yuki Uesugi[2], Shunichi Sato[2] (1. Department of Material Science, Graduate school of Engineering, Tohoku University, 2. Institute of multidisciplinary Research for Advanced Materials, Tohoku University)

Nonlinear Optics and Quantum Optics [CTu1]

Time: 10:30-12:00 **Room:** Lavender II (**Chair:** Ryo Okamoto)

10:30-11:00 (invited)	**[CTu1-01] Machine-learning enhanced quantum state tomography and its applications to the gravitational wave detectors** *Ray-Kuang Lee[1] (1. National Tsing Hua University)
11:00-11:15	**[CTu1-02] Generation of heralded optical 'Schrödinger cats' by photon addition** *Yi-Ru Chen[1], Hsien-Yi Hsieh[1], Jingyu Ning[1], Hsun-Chung Wu[1], Hua Li Chen[2], Zi-Hao Shi[1], Popo Yang[1], Ole Steuernagel[1], Chien-Ming Wu[1], Ray-Kuang Lee[1,2,3,4] (1. Institute of Photonics Technologies, National Tsing Hua University, Hsinchu 30013, Taiwan, 2. Department of Physics, National Tsing Hua University, Hsinchu 30013, Taiwan , 3. Physics Division, National Center for Theoretical Sciences, Taipei 10617, Taiwan, 4. Center for Quantum Technology, Hsinchu 30013, Taiwan)
11:15-11:30	**[CTu1-03] Picosecond pulsed squeezing at 844 nm with a PPLN waveguide** *Zicong Xu[1], Kenichi Oguchi[1], Sho Nitanai[1], Yuki Sano[1], Yoshitaka Taguchi[1], Yasuyuki Ozeki[1] (1. The University of Tokyo)
11:30-11:45	**[CTu1-04] Simultaneous Trapping of Two Optical Pulses in an Atomic Ensemble as Stationary Light Pulses** *Yoon-Ho Kim[1] (1. Pohang University of Science and Technology)
11:45-12:00	**[CTu1-05] Performance enhancement of spatial photonic Ising machine through parallel processing via space-division multiplexing** *Suguru Shimomura[1], Hiroshi Yamashita[1], Ken-ichi Okubo[2], Yusuke Ogura[1], Hideyuki Suzuki[1], Jun Tanida[1] (1. Osaka University, 2. Sanyo-Onoda City University)

(online program)

Nano & Micro Photonics [DTu1]

Time: 13:30-15:00 **Room:** Camellia II (**Chair:** Masanobu Haraguchi)

13:30-14:00 (invited)	**[DTu1-01] Spectroscopic visualization of surface lattice resonance dispersion in two-dimensional plasmonic lattice structures by using Fourier-plane scanning measurement** *Changwon Seo[1] (1. University of Ulsan)
14:00-14:15	**[DTu1-02] Two-dimensional direct-print of metallic microdots with optical vortex induced forward transfer** *Sayaka Kai[1], Rong Wei[1], Haruki Kawaguchi[1], Kanta Takahashi[1], Keisaku Yamane[2], Ken-ichi Yuyama[3], Satoyuki Kawano[4], Katsuhiko Miyamoto[1,5], Takashige Omatsu[1,5] (1. Chiba University, 2. Hokkaido University, 3. Osaka Metropolitan University, 4. Osaka University, 5. Molecular Chirality Research Center)
14:15-14:30	**[DTu1-03] Creation of vortex reliefs with multiple spiral arms of azo-polymers using hybrid OAM beams** *Fanny Getzlaff[1], Daisuke Suzuki[1], Adam Vallés[2,3], Katsuhiko Miyamoto[1,2], Takashige Omatsu[1,2] (1. Chiba University, Graduate School of Advanced Integration Science, 2. Chiba University, Molecular Chirality Research Center, 3. Tha Barcelona Institute of Science and Technology, ICFO-Institute de Ciències Fotòniques)
14:30-14:45	**[DTu1-04] Laser-induced Stigmergy in Active Colloidal System** *Bokusui Nakayama[1], Hikaru Nagase[2], Hiromori Takahashi[2], Yuta Saito[3], Shogo Hatayama[3], Kotaro Makino[3], Eiji Yamamoto[2], Toshiharu Saiki[2] (1. Graduate School of Science, Kyoto University, 2. Graduate School of Science and Technology, Keio University, 3. Device Technology Research Institute, National Institute of Advanced Industrial Science and Technology)
14:45-15:00	**[DTu1-05] Enhanced Nonlinear Optics for Micro-photonic Devices Incorporated with Graphene Oxide Films** *Yuning Zhang[1], Xiaoyong Hu[1], jiayang Wu[2], baohua Jia[3], David J Moss[2], Qihuang Gong[1] (1. Peking University, 2. Swinburne University of Technology, 3. RMIT University)

Laser Application in Medicine & Biology [GTu2]

Time: 13:30-14:45 **Room:** Lavender I (**Chair:** Izumi Nishidate)

13:30-14:00 (invited)	**[GTu2-01] High-throughput Raman microscopy for detecting intracellular molecules** *Katsumasa Fujita[1] (1. Osaka University)
14:00-14:15	**[GTu2-02] Remote Plasmonic-Enhanced Raman Spectroscopy for Highly Sensitive Biosensing with High Mechanical and Chemical Stabilities** *Takeo Minamikawa[1], Sota Inoue[1], Sora Yamamoto[1], Taishi Amano[1], Akihiro Shiota[1], Shota Miyamoto[1], Takeshi Yasui[1], Masahiro Kawasaki[2], Mitsuo Kawasaki[2] (1. Tokushima University, 2. Kyoto University)
14:15-14:30	**[GTu2-03] Scanless two-photon patterned illumination with high axial resolution** *Kenta Inazawa[1,2,3], Keisuke Isobe[1,2], Takayuki Michikawa[1,4], Namiki Kana[4], Atsushi Miyawaki[1,4], Katsumi Midorikawa[1] (1. RIKEN Center for Advanced Photonics, 2. Graduated School of Biostudies, Kyoto University, 3. Hamamatsu Photonics K.K., 4. RIKEN Center for Brain Science)
14:30-14:45	**[GTu2-04] Multimodal fluorescence and Raman imaging of cryo-fixed cells** *Masahito Yamanaka[1], Kosuke Tsuji[1], Yasuaki Kumamoto[1,2], Shoko Tamura[3], Kenta Mizushima[1], Kakeru Kono[1], Hanae Hirano[1], Takumi Kunimoto[1], Kentaro Nishida[1], Kentaro Mochiduki[3], Yoshinori Harada[3], Hideo Tanaka[3], Katusmasa Fujita[1,2,4] (1. Department of Applied physics, Graduate School of Engineering, Osaka University, 2. Institute for Open and Transdisciplinary Research Initiatives, Osaka University, 3. Department of Pathology and Cell Regulation, Graduate School of Medical Science, Kyoto Prefectural University of Medicine, 4. Advanced Photonics and Biosensing Open Innovation Laboratory, AIST-Osaka University)

Ultra-high Intensity Lasers and Ultrafast Phenomena [BTu1]

Time: 13:30-15:00 **Room:** Lavender II (**Chair:** Hiromitsu Kiriyama)

13:30-14:00 (invited)	**[BTu1-01] Performance and recent experimental progress of SULF 10PW laser system** *Lianghong Yu[1], Xiaoyan Liang[1], Zebiao Gan[1], Cheng Wang[1], Yanqi Liu[1], Yi Xu[1], Yuxin Leng[1], Ruxin Li[1] (1. Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Science)
14:00-14:30 (invited)	**[BTu1-02] Coherent beam combining for low repetition femtosecond lasers based on chirped pulse amplification (CPA) structures** *Peng Chun[1], Xunzheng Li[2], Hui Zhao[2], Xiaoyan Liang[1] (1. Shanghai institute of optics and fine mechanics (SIOM), 2. ShanghaiTech University)
14:30-14:45	**[BTu1-03] Chirped Pulse Compression in a Gradient Density Plasma for Next-generation, Compact Exawatt Lasers** *MinSup Hur[1] (1. Physics Dept., UNIST)
14:45-15:00	**[BTu1-04] High contrast sub-10 fs pulses from cross-polarized wave generation in multiple thin BaF_2 plates** *Xianzhi Wang[1,2,3], Zhaohua Wang[1,2,3], Jiajun Li[1,2], Jiawen Li[1,2], Zhiyi Wei[1,2,3] (1. Institute of Physics, Chinese Academy of Sciences, 2. University of Chinese Academy of Sciences, 3. Songshan Lake Materials Laboratory)

(online program)

Laser Spectroscopy & Physical Chemistry [ITu1]

Time: 15:15-17:00 **Room:** Camellia II (**Chair:** Huailiang Xu)

15:15-15:45 (invited)	**[ITu1-01] Time-resolved Spectroscopic Studies on Fundamental Processes in Photofunctional Materials** *Ken Onda[1] (1. Kyushu University)
15:45-16:00	**[ITu1-02] Long-lived Charge Separation in Two-Dimensional Perovskites Revealed by Ultrafast Laser Spectroscopy** *Zhou Lu[1], Chunyi Zhao[1], Jingwen Bao[1], Guanxin Yao[1], Xianyi Zhang[1] (1. Anhui Normal University)
16:00-16:15	**[ITu1-03] Observation and Regulation of Triplet Excited State in Epigenetically Modified Nucleic Acid** *Jinquan Chen[1] (1. East China Normal University)
16:15-16:30	**[ITu1-04] Generation of high-repetition-rate, ultrashort optical pulses in the visible for two-dimensional electronic spectroscopy** *Nobuhisa Ishii[1], Masaaki Tsubouchi[1], Motoyasu Adachi[2], Ryuji Itakura[1] (1. Kansai Photon Science Institute, National Institutes for Quantum Science and Technology, 2. Institute for Quantum Life Science, National Institutes for Quantum Science and Technology)
16:30-16:45	**[ITu1-05] Ultrafast Ring-opening of α-Phellandrene Studied by Time-Resolved Photoelectron Spectroscopy** *Zhiyi Zhou[1], Taro Sekikawa[1] (1. Department of Applied Physics, Faculty of Engineering, Hokkaido University)
16:45-17:00	**[ITu1-06] Particle Sorting with Mid-infrared Optical Force Enhanced by Molecular Vibrational Resonance** Yoshua Albert Darmawan[1], Takuma Goto[1], Taiki Yanagishima[2], Takao Fuji[1], *Tetsuhiro Kudo[1] (1. Toyota Technological Institute, 2. Kyoto University)

Laser Material Processing [FTu1]

Time: 15:00-17:00 **Room:** Lavender I (**Chair:** Daniela Serien)

15:00-15:30 (invited)	**[FTu1-01] Present Status and Trend of Femtosecond Laser Processing for Next Generation Display, Micro-LED Display Manufacturing in Korea** *Sung-Hak CHO[1] (1. KIMM (Korea Institute of Machinery & Materials))
15:30-15:45	**[FTu1-02] Ultrafast Laser Filamentation in Various Carbon-based Solvents** Han Yi Tan[1], Guang Liang Ong[1], Chen Hon Nee[1], Teck Yong Tou[1], Seong Ling Yap[2], *Seong Shan Yap[3] (1. Faculty of Engineering, Multimedia University, Malaysia., 2. Plasma Technology Research Centre, Department of Physics, Faculty of Science, University of Malaya, Kuala Lumpur, Malaysia., 3. Department of Physics, Xiamen University Malaysia.)
15:45-16:15 (invited)	**[FTu1-03] Study on initial process of femtosecond soft x-ray laser ablation** *THANH HUNG DINH[1], Masahiko Ishino[1], Noboru Hasegawa[1], Yoshiteru Yonetani[1], Matayasu Hata[1], Masaharu Nishikino[1] (1. National Institutes for Quantum Science and Technology, Kansai Photon Science Institute)
16:15-16:30	**[FTu1-04] Formation of pn Junctions by Doping Using Excimer Laser Annealing** *Ren Aoki[1], Keita Katayama[1], Daisuke Nakamura[1], Hisato Yabuta[1], Hiroshi Ikenoue[1], Taizoh Sadoh[1] (1. Kyushu University)
16:30-16:45	**[FTu1-05] Laser welding quality evaluation by using thermal radiation images and machine learning** *Ryuma Takabatake[1], Toshifumi Kikuchi[1], Keita Katayama[1], Mitsuhiro Higashihata [1], Daisuke Nakamura[1], Hiroshi Ikenoue[1] (1. Kyushu University)
16:45-17:00	**[FTu1-06] Correlation between spatter and blue laser intensity in welding of pure copper with blue-IR hybrid laser** *Shumpei Fujio[1], Mao Sudo[1], Yuji Sato[2], Keisuke Takenaka[2], Masahiro Tsukamoto[2] (1. Graduate School of Engineering, Osaka University, 2. Joining and Welding Research Institute, Osaka University)

Solid-state, Fiber Lasers & Advanced Laser Materials [ATu2]

Time: 15:15-17:00 **Room:** Lavender II (**Chair:** Jiangfeng Zhu)

15:15-15:30	**[ATu2-01] 28.5 W 142 fs Kerr-lens Mode-locked Yb:CALGO bulk Oscillator** *Xuan Tian[1], Wenlong Tian[1], Qian Li[1], Geyang Wang[1], Fengchen Zhang[1], Yang Yu[2], Zhiyi Wei[3], Jiangfeng Zhu[1] (1. School of Optoelectronic Engineering, Xidian University, 2. Academy of Advanced Interdisciplinary Research, Xidian University, 3. Beijing National Laboratory for Condensed Matter Physics and Institute of Physics, Chinese Academy of Science)
15:30-15:45	**[ATu2-02] High power Kerr-lens mode-locked oscillator based on the novel Yb:CaLuGdYALO4 crystal** *Qian Li[1], Xuan Tian[1], Fengchen Zhang[1], Yang Yu[2], Wenlong Tian[1], Xiaodong Xu[3], Zhiyi Wei[4], Jun Xu[5], Jiangfeng Zhu[1] (1. School of Optoelectronic Engineering, Xidian University, 2. Academy of Advanced Interdisciplinary Research, Xidian University, 3. Jiangsu Normal University, 4. Chinese Academy of Science, 5. Tongji University)
15:45-16:00	**[ATu2-03] Comparison of Mode-locked Tm^{3+}:$YScO_3$ Mixed Sesquipoxide Laser and Tm^{3+}:Lu_2O_3/Tm^{3+}:Sc_2O_3 Combined Active Gain Media Laser** Anna Suzuki[1,2,3], Sascha Kalusniak[4], Steffen Ganschow[4], Christian Kränkel[4], *Maski Tokurakawa[1,2] (1. Institute for Laser Science, University of Electro-Communications, 2. Center for Neuroscience and Biomedical Engineering, University of Electro-Communications, 3. Photonics and Ultrafast Laser Science, Ruhr-University Bochum, 4. Leibniz-Institut für Kristallzüchtung)
16:00-16:15	**[ATu2-04] High efficiency femtosecond optical parametric amplifier pumped by an Yb solid state regenatieve amplifier** *CHUAN BAI[1], WELONG TIAN[1], GEYANG WANG[1], YUTONG ZHANG[1], LI ZHENG[1], YANG YU[1], ZHIYI WEI[2], JIANGFENG ZHU[1] (1. XIDIAN UNIVERSITY, 2. Beijing National Laboratory for Condensed Matter Physics and Institute of Physics)
16:15-16:30	**[ATu2-05] Soliton Mode-locking Dynamics in Compact Femtosecond Lasers with Yb-doped Gain Crystals** *Deok Woo Kim[1], Ji Eun Bae[1], Kwang Hoon Ko[2], Fabian Rotermund[1] (1. Department of Physics, Korea Advanced Institute of Science and Technology (KAIST), 2. Quantum Optics Division, Korea Atomic Energy Research Institute (KAERI))
16:30-16:45	**[ATu2-06] Generation of 105-MW soliton at 1180 nm in air-filled anti-resonant hollow-core fiber** *Yang Yu[1], Yutong Zhang[2], Wenlong Tian[2], Jiangfeng Zhu[2], Zhiyi Wei[3] (1. Academy of Advanced Interdisciplinary Research, Xidian University, 2. School of Optoelectronic Engineering, Xidian University, 3. Beijing National Laboratory for Condensed Matter Physics and Institute of Physics, Chinese Academy of Science)
16:45-17:00	**[ATu2-07] Femtosecond thulium-doped fiber amplifier with a grism pair compressor** *Kaito Okada[1], Takao Fuji[1] (1. Toyota Technological Institute)

(online program)

Poster Session1 (17:00-18:30)

Room: Camellia I

PFTu-01	**[PFTu-01] Generation of nanoparticles by pulsed laser deposition using non-thermal ablation and thermal ablation** *Takuma Hamachi[1], Keita Katayama[1], Daisuke Nakamura[1], Hiroshi Ikenoue[2] (1. Kyushu University, 2. Kochi University of technology)
PFTu-02	**[PFTu-02] Silicon laser doping of β-Ga_2O_3 by KrF excimer laser irradiation** *Misa Beppu[1], Yoshiaki Kakimoto[1,2], Daisuke Nakamura[1], Tetsuya Goto[3], Hiroshi Ikenoue[4] (1. Graduate School of Information Science and Electrical Engineering, Kyushu University, 2. Department of Gigaphoton NEXT GLP, Kyushu University, 3. New Industry Creation Hatchery Center, Tohoku University, 4. Kochi University of Technology)
PFTu-03	**[PFTu-03] Laser ablation of titanium in water with nano second pulses** *Kazuki Seki[1], Mikuru Okazaki[2], Shigeru Yamaguchi[1], Masaki Hashida[3,4] (1. Tokai University, Graduate School of Science, Course of Physics, 2. Tokai University, Graduate school of Engineerling, Course of Mechanical Engineering, 3. Tokai University, Research Institute of Science and Technology, 4. Kyoto University, Institute of Chemical Research)
PFTu-04	**[PFTu-04] Uniform LIPSS on Si Solar Cells Induced with Polarized XeCl Excimer Laser Pulses** *Mitsuhiro Kusaba[1], Masaki Hashida[2] (1. Osaka Sangyo University, 2. Tokai University)
PFTu-05	**[PFTu-05] Efficiency of Beam Shaping Using Spatial Frequency Filtering Combined with Aspheric Lens Pair** *Satoshi Yagi[1], Yuto Hirakawa[2], Yoshiki Nakata[1] (1. Osaka University, 2. KYOCERA Corporation)
PGTu-01	**[PGTu-01] Biological Tissue Analysis by Photothermal Deflection Spectroscopy using Mid-infrared light** *Hiroto Ito[1], Saiko Kino[1], Yuji Matsuura[1] (1. Graduate School of Biomedical Engineering, Tohoku Univ.)
PGTu-02	**[PGTu-02] Opto-thermal trapping by a 3 μm Er:ZBLAN fiber laser** *Masaya Shimizu[1], Roukuya Mamuti[1], Takao Fuji[1], Tetsuhiro Kudo[1] (1. ToyotaTechnological Institute)
PGTu-03	**[PGTu-03] *In-situ* Optical Measurement of Bamboo Leaf Health Status Using 1310-nm TD-OCT System** *Jumar Cadondon[1], Hiyam Halapit[2], Edgar Vallar[2], Tatsuo Shiina[3], Maria Cecilia Galvez[2] (1. University of the Philippines Visayas, 2. De La Salle University Manila, 3. Chiba University)
PGTu-04	**[PGTu-04] Molecular Compositional Study of Lipid Droplets in Hyperglycaemic Live Hepatic Cells Using Confocal Raman Micro-spectroscopy** *Pradjna Novedya Paramitha[1], Bibin Bintang Andriana[1], Kosuke Hashimoto[1], Hidetoshi Sato[1] (1. KGU)
PGTu-05	**[PGTu-05] Classification of Myeloma Cell on Raman Spectroscopy with Machine Learning** *Noritaka Fujisawa[1], Akinori Taketani[2], Akinori Wada[2,3], Tsutomu Sato[2,3], Keiichi Koizumi[2,4], Takashi Katagiri, Yusuke Oshima[2,5] (1. Graduate School of Science and Engineering, University of Toyama, 2. Research Center for Pre-Disease Science, University of Toyama, 3. Faculty of Medicine, University of Toyama, 4. Institute of Natural Medicine, University of Toyama, 5. Faculty of Engineering, University of Toyama)
PGTu-06	**[PGTu-06] Following Mouse Embryonic Stem Cell (mESC) Activity in The Absence of Carbon Dioxide Concentration during Incubation using Raman Spectroscopy** *Faizal -[1] (1. Kwansei Gakuin University)
PGTu-07	**[PGTu-07] Molecular Analysis of Intracellular Lipid Droplets Produced by Fatty Acid Uptake by Using Raman Spectroscopy** *Tsuyoshi Takashina[1], Hayata Tadamasa[1], Katsuya Sato[1], Takeshi Yasui[1], Takeo Minamikawa[1] (1. Tokushima University)
PHTu-01	**[PHTu-01] Replication of Optical Chaotic Dynamics Using Reservoir Computing** *Atsuya Kawakami[1], Kazutaka Kanno[1], Atsushi Uchida[1] (1. Saitama Univerity)
PHTu-02	**[PHTu-02] Three-Dimensional Imaging of Dislocations in GaN Substrate by Light Needle Microscopy with Spatially Transposed Detection** Yuki Miura[1,2], *Yuichi Kozawa[1], Yuuki Uesugi[1], Shunichi Sato[1] (1. Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, 2. Department of Materials Science, Graduate School of Engineering, Tohoku University)

Poster Session1 (17:00-18:30)

Room: Camellia I

PHTu-03	**[PHTu-03] An Approach to Output Layer Optimization in Photonic Delay-Based Reservoir Computing** *Felix Köster[1], Kazutaka Kanno[1], Atsushi Uchida[1] (1. Saitama University)
PHTu-04	**[PHTu-04] Improved Parallel Two-step Phase-shifting Digital Holography by Averaging of Complex Amplitudes in the Spatial Domain** *Ryuju Todo[1], Tomoyoshi Inoue[1,2], Ryuki Yamaguchi[1], Shun Notte[1], Kenzo Nishio[1], Sudheesh Kumar Rajput[1], Osamu Matoba[3], Yasuhiro Awatsuji[1] (1. Kyoto Institute of Technology, 2. Japan Society for the Promotion of Science, 3. Kobe University)
PHTu-05	**[PHTu-05] Measurement of relative timing jitter in a high-coherece bidirectional dual-comb fiber laser** *Yoshiaki Nakajima[1], Kouske Kubota[1], Ryusei Uchiyama[1], Takumi Yumoto[1], Wataru Kokuyama[2] (1. Toho University, 2. AIST)
PHTu-06	**[PHTu-06] Control of lens position using laser-generated sound in laser drilling** Sotaro Komatsu[1], Kaede Yamauchi[1], Takuma Miura[1], Kota Kumagai[1], *Yoshio Hayasaki[1] (1. Utsunomiya University)
PHTu-07	**[PHTu-07] Reconstructing images of two adjacent objects behind diffusers by digital holography** *Masaaki Kiyosumi[1], Wataru Watanabe[1] (1. Ritsumeikan Univ.)
PHTu-08	**[PHTu-08] Broadband visible dual-comb spectroscopy using spectral stitching of nonlinearly generated light by waveguide-type PPLN crystals** *Ryota Nagasaki[1], Ruichen Zhu[1], Takashi Kato[1], Akifumi Asahara[1], Kaoru Minoshima[1] (1. The University of Electro-Communications)
PHTu-09	**[PHTu-09] Experimental Investigation on Dynamics among Longitudinal Modes in a Multimode Semiconductor Laser** *Ryugo Iwami[1], Kazutaka Kanno[1], Atsushi Uchida[1] (1. Saitama University)
PITu-01	**[PITu-01] Orientation-angle-resolved photoelectron angular distribution for dissociative ionization of methanol in an intense ultraviolet laser field** *Shinichi Fukahori[1,2,3,4], Tomohito Otobe[1], Hiroshi Akagi[1], Kaoru Yamanouchi[2], Ryuji Itakura[1] (1. Kansai Photon Science Institute, QST, 2. Department of Chemistry, School of Science, The Univ. of Tokyo, 3. Department of Integrated Sciences, Graduate School of Arts and Sciences, The Univ. of Tokyo, 4. Komaba Institute for Science, The Univ. of Tokyo)
PITu-02	**[PITu-02] Ultrafast Spectroscopy Reveals Electron transportation in Heterojunction Photocatalysts** Dongdong Wang[1,2], Ye Wang[1,2], Yanmei Wang[1,2], *Song Zhang[1,2] (1. Innovation Academy for Precision Measurement Science and Technology, Chinese Academy of Sciences, 2. University of Chinese Academy of Sciences)
PITu-03	**[PITu-03] Wavelength dependence in selective optical manipulation by mid-infrared lasers** *Takuma Goto[1], Yoshua Albert Darmawan[1], Takao Fuji[1], Tetsuhiro Kudo[1] (1. Toyota Technogical Institute)
PITu-04	**[PITu-04] EIT Signal Observation from Optical Fiber Pigtailed Rb Vapor Cell** *Seung Kwan Kim[1], Sun Do Lim[1], Young Kie Kim[2], Gyeongmin Ju[3], Han Seb Moon[3], Jae-Keun Yoo[1], In-Ho Bae[1], Young-Pyo Hong[1], No-Weon Kang[1] (1. KRISS, 2. KS-Photonics, 3. PNU)
PITu-05	**[PITu-05] Revealing ultrafast dynamics of tetracene molecules with sub-8-fs UV impulsive Raman spectroscopy** *Takahiro TERAMOTO[1,2], Jun Liu[3,4], Juan Du[3,4], Takayoshi Kobayashi[5,6] (1. Kyoto University, 2. Osaka University, 3. Shanghai Institute of Optics and Fine Mechanics, 4. University of Chinese Academy of Sciences, 5. The University of Electro-Communications, 6. National Chiao-Tung University)

Solid-state, Fiber Lasers & Advanced Laser Materials [AW1]

Time: 9:00-10:15 **Room:** Camellia II (**Chair:** Shigeki Tokita)

9:00-9:30 (invited)	**[AW1-01] Experimental exploration on the cascaded Raman conversion based on conventional silica fibers** Hansol Kim[2], *Yoonchan Jeong[1] (1. ECE/ISRC/BK21Four, Seoul National University, 2. ECE/ISRC, Seoul National University)
9:30-9:45	**[AW1-02] Pedesal Suppressed Spectral Peak Generation using Nonlinear Fiber Loop Mirror and Mollecular Gas Cell** *Norihiko Nishizawa[1], Kwangyun Jung[1], Shotaro Kitajima[1] (1. Nagoya University)
9:45-10:00	**[AW1-03] Development of all-polarization-maintaining dual-comb fiber laser toward THz dual-comb spectroscopy** *Takumi Yumoto[1], Ryusei Uchiyama[1], Wataru Kokuyama[2], Yu Tokizane[2,3], Takeshi Yasui[3,4], Shinichi Matsubara[5], Yoshiaki Nakajima[1] (1. Toho University, 2. NMIJ/AIST, 3. Tokushima University, 4. Institute of Post-LED Photonics, 5. JASRI)
10:00-10:15	**[AW1-04] Development of optical coherence tomography in 2 μm wavelength region using an all-fiberized ultrashort Tm-Ho co-doped fiber laser** *RONGJIE ZHANG[1], Junya Yamamoto[1], Futa Osaki[1], Shotaro Kitajima[1], Ying Zhou[2], Takeshi Saito[2], Yuichi Sakakibara[2], Norihiko Nishizawa[1] (1. NAGOYA University, 2. National Institute of Advanced Industrial Science and Technology)

Nano & Micro Photonics [DW1]

Time: 9:00-10:15 **Room:** Lavender I (**Chair:** Wataru Inami)

9:00-9:30 (invited)	**[DW1-01] On-chip chalcogenide glass resonators, waveguides, and thier mid-infrared applications** *Hansuek Lee[1], Daewon Suk[1], Kiyoung Ko[1], Soobong Park[1], Dohyeong Kim[1], Seong Cheol Lee[1], Kwang-Hoon Ko[2], Fabian Rotermund[1], Duk-Yong Choi[3] (1. Korea Advanced Institute of Science and Technology, 2. Korea Atomic Energy Research Institute, 3. Australian National University)
9:30-9:45	**[DW1-02] Versatile optical skyrmion generator based on a single-path polarization interferometer** *Rihito Tamura[1], Praveen Kumar[1], A. Srinivasa Rao[1,2], Katsuhiko Miyamoto[1,2], Takashige Omatsu[1,2] (1. Chiba University, 2. Molecular Chirality Research Center)
9:45-10:00	**[DW1-03] Study of Polarization Insensitive Rib Waveguide using Lithium Niobate on Insulator** Toijam Sunder Meetei[1], *Nan Ei YU[1] (1. Advanced Photonics Research Institute, Gwangju Institute of Science and Technology)
10:00-10:15	**[DW1-04] Plasmonic Coupling Structure with Niobium Pentoxide waveguide for High-Speed and Wide-Steering Optical Phased Array** *Maaya Tsukamoto[1], Shun Kamada[2], Toshihiro Okamoto[1], Kenzo Yamaguchi[1], Masanobu Haraguchi[1] (1. Tokushima university, 2. National Institute of Information and Communications Technology)

Laser Application in Medicine & Biology [GW1]

Time: 9:00-10:15 **Room:** Lavender II (**Chair:** Yoshihisa Yamaoka)

9:00-9:15	**[GW1-01] Calibration-free and Noninvasive Optical Measurement Technique of Biological Compositions** *Yoshiaki Shimomura[1], Shigeto Ueda[2] (1. Industrial Technology Center of Nagasaki, 2. JR Tokyo General Hospital)
9:15-9:30	**[GW1-02] Development of rigid-endoscope optical coherence tomography system using KTN optical beam scanner** *Masato Ohmi[1], Kentaro Wada[1], Shogo Yagi[2] (1. Osaka University, 2. NTT Advanced Technology Corpopration)
9:30-9:45	**[GW1-03] High resolution and low speckle OCT imaging using quasi-supercontinuum laser source** *Ying Chen[1], Shotaro Kitajima[1], Norihiko Nishizawa[1] (1. Nagoya University)
9:45-10:00	**[GW1-04] Real-time Chlorophyll-a Pigment Monitoring of Blue-green Algae Using 385-nm Pulsed LED Fluorescence LiDAR System** *Jumar Cadondon[1], Edgar Vallar[2], Tatsuo Shiina[3], Maria Cecilia Galvez[2] (1. University of the Philippines Visayas, 2. De La Salle University Manila, 3. Chiba University)
10:00-10:15	**[GW1-05] Non-contact real-time vital signs estimation from facial video captured by a red-green-blue camera** *Izumi Nishidate[1], Nodoka Nagao[1], Haruta Suzuki[1], Riku Yasui[1], Yasuaki Kokubo[2] (1. Tokyo University of Agriculture and Technology, 2. Yamagata University)

(online program)

Nonlinear Optics and Quantum Optics [CW1]

Time: 10:30-12:00 **Room:** Camellia II (**Chair:** Sunao Kurimura)

10:30-11:00 (invited)	**[CW1-01] Nonlinear-optical waveguide in Ta_2O_5 for visible supercontinuum** *ChaoKuei Lee[1] (1. Department of Photonics, National Sun Yat-sen University)
11:00-11:15	**[CW1-02] Growth of Large $CsLiB_6O_{10}$ Crystal and Application to Deep Ultraviolet Generation at 266 nm** *Masashi Yoshimura[1], Yoshinori Takahashi[1,2], Ryota Murai[1,2], Yusuke Mori[3], Kenta Kohno[4], Hiroki Tanaka[4], Kimihiko Shibuya[4], Junichi Nishimae[5] (1. ILE, Osaka Univ, 2. SOSHO CHOKO Inc, 3. Grad Sch of Eng, Osaka Univ, 4. Spectronix Co, 5. Mitsubishi Electric Co)
11:15-11:30	**[CW1-03] 800 nm pumped High Efficient Supercontinuum Generation From Ta_2O_5 Nonlinear Waveguides** *Guan Hong Li[1], Chieh Huang[1], Feng Jung Kao[1], Shao Long Gan[1], Min Hsiung Shih[2], Hao Chung Kuo[2], Yi Jen Chiu[1], Chao Kuei Lee[1] (1. Department of Photonics, National Sun Yat-Sen University, 2. Department of Photonics, National Yang Ming Chiao Tung University)
11:30-11:45	**[CW1-04] Inactivation of Bacteria in liquid medium by Pulsed Deep UV Laser Radiation at 266 and 213 nm** *Kazuhiro Dainaka[1], Yoshiya Yasuda[1], Koichi Murayama[2], Riri Miura[2], Hideharu Horikoshi[3], Masayoshi Isezaki[1], Nobuhiro Umemura[1] (1. Chitose Institute of Science and Technology, 2. Hokkaido University of Education, Asahikawa campus,, 3. TOSOH SGM Corp.)
11:45-12:00	**[CW1-05] Thermal stress inhibition of high-power continuous-wave second-harmonic generation in periodically poled $LiTaO_3$ crystals** *Susumu Kato[1] (1. National Institute of Advanced Industrial Science and Technology (AIST))

Ultra-high Intensity Lasers and Ultrafast Phenomena [BW1]

Time: 10:30-12:00 **Room:** Lavender I (**Chair:** Lianghong Yu)

10:30-11:00 (invited)	**[BW1-01] Generation of high-energy electron beam with large charge in laser acceleration** *Masaki Kando[1,2,3], Zhan Jin[2,3], Kai Huang[1,3], Nobuhiko Nakanii[1,3], Zhenzhe Lei[2,3], Yoshio Mizuta[2,3], Akexabdre F. Rondpierre[2,3], Toshiya Muto[4], Driss Oumbarek-Espinos[2,3], Naveen Pathak[2], Yanjun Gu[2,3], Shingo Sato[2,3], Alexei G. Zhidkov[2], Shigeru Yamamoto[5,3], Tomonao Hosokai[2,3] (1. Kansai Institute for Photon Science, National Institutes for Quantum Science and Technology, 2. SANKEN, Osaka University, 3. RIKEN SPring-8 Center, 4. Tohoku University, 5. High Energy Accelerator Research Organization)
11:00-11:30 (invited)	**[BW1-02] Laser proton accelerator and radiation-induced cancer vaccine** *Xueqing Yan[1] (1. Peking University)
11:30-11:45	**[BW1-03] High harmonic spin-orbital angular momentum conversion of light in uniaxial solids** *Kohei Nagai[1], Takuya Okamoto[1], Yasushi Shinohara[1], Haruki Sanada[1], Katsuya Oguri[1] (1. NTT Basic Research Laboratories)
11:45-12:00	**[BW1-04] Generation of high-repetition-rate, intense few-cycle infrared pulses for soft x-ray high harmonic generation** *Nobuhisa Ishii[1], Momoko Maruyama[1], Ryuji Itakura[1] (1. Kansai Photon Science Institute, National Institutes for Quantum Science and Technology)

Laser Material Processing [FW1]

Time: 10:30-12:00 **Room:** Lavender II (**Chair:** Feng Chen)

10:30-11:00 (invited)	**[FW1-01] Manipulation and creation of NV centers in diamond by laser irradiation** *Norikazu Mizuochi[1] (1. Kyoto University)
11:00-11:15	**[FW1-02] Laser Microprocessing of Glass Interface by a Tightly Focused Vector Beam** *Yukine Tsuru[1,2], Yuichi Kozawa[1], Yuki Uesugi[1], Shunishi Sato[1] (1. Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, 2. Department of Materials Science, Graduate School of Engineering, Tohoku University)
11:15-11:45 (invited)	**[FW1-03] Laser Direct Writing of Conductive Micropatterns and Device Applications** *Akira Watanabe[1] (1. Tohoku University)
11:45-12:00	**[FW1-04] Controlling grain size of LTPS films for high-performance TFTs formed by excimer laser annealing** *Shu Nishida[1], Keita Katayama[1], Daisuke Nakamura[1], Tetsuya Goto[2], Hiroshi Ikenoue[3] (1. Kyushu University, 2. Tohoku University, 3. Kochi University of Technology)

(online program)

Nano & Micro Photonics [BW2]

Time: 13:30-14:45 **Room:** Camellia II (**Chair:** Katsuya Oguri)

13:30-13:45	**[BW2-01] Megahertz operation of extreme-ultraviolet continuum generation** *Takuya Okamoto[1], Kohei Nagai[1], Yoji Kunihashi[1], Haruki Sanada[1], Ming-Chang Chen[2], Katsuya Oguri[1] (1. NTT Basic Research Laboratories, 2. National Tsing Hua University)
13:45-14:00	**[BW2-02] Multicenter and multiple elastic rescattering in CO_2 molecules probed by carrier-envelope phase mapping** *Tomoya Mizuno[1], Tianqi Yang[1], Takayuki Kurihara[1], Teruto Kanai[1], Oleg Tolstikhin[2], Toru Morishita[3], Jiro Itatani[1] (1. The University of Tokyo, 2. Moscow Institute of Physics and Technology, 3. The University of Electro-communications)
14:00-14:15	**[BW2-03] Spatial Evolution of Seeds with Different Intensity in Backward Raman Amplification** *Jiajun Li[1,2], Xianzhi Wang[1], Zhaohua Wang[1,2,3], Xu Zhang[1,2], Jiawen Li[1,2], Zhiyi Wei[1,2,3] (1. Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, 2. Department of Physics, University of Chinese Academy of Sciences, 3. Songshan Lake Materials Laboratory)
14:15-14:30	**[BW2-04] Two-dimensional *f-2f* interferometry using sub-cycle optical vortex pulses** *Yu-Chieh Lin[1], Katsumi Midorikawa[1], Yasuo Nabekawa[1] (1. Attosecond Science Research Team, RIKEN)
14:30-14:45	**[BW2-05] First-principles calculation for electron energy distribution of an insulator excited by intense laser pulse** *Yasushi Shinohara[1,2], Haruki Sanada[1], Katsuya Oguri[1] (1. NTT Basic Research Laboratories, 2. The University of Tokyo)

Nano & Micro Photonics [DW2]

Time: 13:30-15:00 **Room:** Lavender I (**Chair:** Takashige Omatsu)

13:30-14:00 (invited)	**[DW2-01] Meta-optics: Meta-lens for imaging, sensing and quantum optics** *Mu Ku Chen[1], Xiaoyuan Liu[1], Din Ping Tsai[1] (1. Department of Electrical Engineering, City University of Hong Kong)
14:00-14:15	**[DW2-02] Dispersion characteristics of strongly coupled organic microcavity with 2D photonic structure fabricated with nanoimprint lithography** *Takuya Enna[1], Yugi Adachi[1], Tsukasa Hirao[1], Shun Takahashi[1], Kenichi Yamashita[1] (1. Kyoto institute of technology)
14:15-14:30	**[DW2-03] Polarization switching of room-temperature polariton condensation modes in a $CsPbBr_3$ microcavity** *Takaya Inukai[1], Yuta Moriyama[1], Tsukasa Hirao[1], Yusuke Ueda[1], Shun Takahashi[1], Kenichi Yamashita[1] (1. Kyoto Institute of Technology)
14:30-14:45	**[DW2-04] Preannealing of $LaAlO_3$ Buffer Layer to Enhance UV Emission of Gd^{3+}-Doped $YAlO_3$ Perovskite Thin Film for EXA Microscopy** *Kei Hosomi[1], Wataru Inami[1], Yoshimasa Kawata[1] (1. Shizuoka University)
14:45-15:00	**[DW2-05] Angular distribution of suprathermal ions in a laser-produced tin plasma extreme ultraviolet light source by using double laser pulses** *Tsukasa Sugiura[1], Takeru Niinuma[1], Masaki Kume[1], Hayato Yazawa[1], Hiroki Morita[1], Takeshi Higashiguchi[1] (1. Utsunomiya University)

Laser Metrology, Imaging & Informatics [HW1]

Time: 13:30-15:00 **Room:** Lavender II (**Chair:** Takeshi Yasui)

13:30-14:00 (invited)	**[HW1-01] Computational imaging with randomness** *Ryoichi Horisaki[1] (1. The University of Tokyo)
14:00-14:15	**[HW1-02] Reinforcement Learning Using Optical Spatiotemporal Dynamics from Spatial Light Modulator** Kensei Morijiri[1], Kento Takehana[1], Kazutaka Kanno[1], *Atsushi Uchida[1] (1. Saitama University)
14:15-14:30	**[HW1-03] Deep learning based spectral imaging objects behind a diffuser using a monochrome camera** *Wataru Watanabe[1], TAKUMI TSUKADA[1] (1. Ritsumeikan University)
14:30-14:45	**[HW1-04] Evaluation of All-in-focus Image Recovery using Phase Retrieval Method** *Osamu Matoba[1] (1. Kobe University)
14:45-15:00	**[HW1-05] Coded light source generation with femtosecond-laser-excitations for computational broadband imaging** *Kota Kumagai[1], Hsin-hui Huang[2], Koji Hatanaka[3], Yoshio Hayasaki[1] (1. Center for Optical Research and Education, Utsunomiya University, 2. Optical Sciences Center, Swinburne University of Technology, 3. Research Center for Applied Sciences, Academia Sinica)

(online program)

Laser Material Processing [FW2]

Time: 15:15-17:00 **Room:** Camellia II (**Chair:** Thanh-Hung Dinh)

15:00-15:30 (invited)	**[FW2-01] 3D printing of pure proteinaceous microstructures** *Daniela Serien[1], Koji Sugioka[2], Aiko Narazaki[1] (1. AIST, 2. RIKEN RAP)
15:30-15:45	**[FW2-02] Femtosecond Laser-Induced Bifurcation of Surface Ripple Structures on Polyimide** Soon Yie Kok[1], *Chen Hon Nee[2], Teck Yong Tou[3], Seong Ling Yap[4], Seong Shan Yap[5] (1. Soon Yie Kok, Faculty of Engineering, Multimedia University, Cyberjaya, Selangor, Malaysia., 2. Chen Hon Nee, Faculty of Engineering, Multimedia University, Cyberjaya, Selangor, Malaysia., 3. Teck Yong Tou, Faculty of Engineering, Multimedia University, Cyberjaya, Selangor, Malaysia., 4. Seong Ling Yap, Plasma Technology Research Centre, Department of Physics, Faculty of Science, University of Malaya, Kuala Lumpur, Malaysia., 5. Seong Shan Yap, Physics Department, Xiamen University Malaysia, Sepang, Selangor, Malaysia.)
15:45-16:15 (invited)	**[FW2-03] Nature-Inspired Superwettability Achieved by Femtosecond Lasers** *Feng Chen[1], Qing Yang[1] (1. Xi'an Jiaotong University)
16:15-16:30	**[FW2-04] Measurement of pulsed laser ablation threshold for LIPPS formation** *Mikuru Okazaki[1], Masaki Hashida[2,3], Satoru Iwamori[1,2] (1. Tokai University, Graduate school of engineering, 2. Tokai University, Research Institute of Science and Technology, 3. Kyoto University, Institute of Chemical Research)
16:30-16:45	**[FW2-05] Pump probe measurement of the periodic surface structure formation by 11.4 μm laser** *Shin-ichiro Masuno[1], Masaki Hashida[1,2], Heishun Zen[3], Mitsuhiro Kusaba[4], Shigeki Tokita[1] (1. Institute for Chemical Research, Kyoto University, 2. Research Institute of Science and Technology, Tokai University, 3. Institute of Advanced Energy, Kyoto University, 4. Department of Electronics, Information and Communication Engineering, Osaka Sangyo University)
16:45-17:00	**[FW2-06] Influence of Incident Angle for Laser-induced Periodic Surface Structures Formation on Glass Substrate Using a 266 nm Femtosecond Laser** *Daisuke Yano[1], Kenta Suzuki[1], Shoichi Kubodera[1] (1. Soka University)

Terahertz Generation & Applications [EW1]

Time: 15:15-17:00 **Room:** Lavender I (**Chair:** Ikufumi Katayama)

15:15-15:45 (invited)	**[EW1-01] THz Spectroscopic Analysis on Electrical Properties of Materials** Zhi-Wei Huang[1], Ting-Jui Kuo[1], Fan-Ting Tseng[1], *Hyeyoung Ahn[1] (1. National Yang Ming Chiao Tung Univ)
15:45-16:00	**[EW1-02] Terahertz cellular imaging using point terahertz sources** *Kazunori Serita[1], Fumiya Sakamoto[1], Takahisa Matsuzaki[1], Hironaru Murakami[1], Masayoshi Tonouchi[1] (1. Osaka University)
16:00-16:15	**[EW1-03] Enhanced Terahertz Gas Spectroscopy using Long-range Multipass Gas Cell** *Tae-In Jeon[1], Mun-Won Park[1], Sung-Woo Cho[1], Gyeong-Ryul Kim[1] (1. Korea Maritime and Ocean University)
16:15-16:30	**[EW1-04] Identification of valuable woods based on terahertz time domain spectroscopy** Qixue Zhao[1,2], *Chen Gong[1,3], Jian Zuo[1,2], Yulei Shi[1,2], Jianxin Feng[3] (1. Key Laboratory of Terahertz Optoelectronics, Ministry of Education, Capital Normal University, Beijing 100048, China, 2. Department of Physics, Capital Normal University, Beijing, 100048, China, 3. Beijing Broad Hengtong Technology Development Co., Ltd, Beijing 100176, China)
16:30-16:45	**[EW1-05] Detection of SARS-CoV-2 spike glycoprotein in artificial saliva using a terahertz chemical microscope** *Sayaka Tsuji[1], Xue Ding[1], Mana Murakami[1], Hirofumi Inoue[1], Jin Wang[1], Toshihiko Kiwa[1] (1. Okayama University)
16:45-17:00	**[EW1-06] Study on Demethylation of Cancer DNAs using High-power THz Waves** *Chaeyoon Kim[1], Seong Cheol Lee[1], Donghak Oh[1], Seung Won Jin[2], Hee-Jin Yang[2], Bumki Min[1], Fabian Rotermund[1] (1. Korea Advanced Institute of Science and Technology, 2. SMG-SNU Boramae Medical Centre)

Laser Spectroscopy & Physical Chemistry [IW1]

Time: 15:15-17:00 **Room:** Lavender II (**Chair:** Ryuji Itakura)

15:15-15:30	**[IW1-01] Real-time observation of the Woodward-Hoffmann rules for 1,3-cyclohexadiene by femtosecond soft X-ray transient absorption** *TARO SEKIKAWA[1], Nariyuki Saito[2], Yutaro Kurimoto[1], Nobuhisa Ishii[3], Tomoya Mizuno[2], Teruto Kanai[2], Jiro Itatani[2], Kenichiro Saita[4], Tetsuya Taketsugu[4] (1. Depart. of Appl. Phys., Hokkaido Univ., 2. Inst. for Solid State Phys., Univ. of Tokyo, 3. Kansai Photon Science Inst., QST, 4. Depart. of Chem., Hokkaido Univ.)
15:30-15:45	**[IW1-02] Ultrafast Nonradiative Relaxation Dynamics and Energy Flow of Excited Difluoroanilines** *Yanmei Wang[1], Ling Cao[1], Song Zhang[1] (1. Innovation Academy for Precision Measurement Science and Technology, Chinese Academy of Sciences)
15:45-16:00	**[IW1-03] Coherence between the vibrational states in H_2^+ and the continuum state of e^- via attosecond photoionization** *Yasuo Nabekawa[1], Katsumi Midorikawa[1] (1. RIKEN Center for Advanced Photonics)
16:00-16:15	**[IW1-04] Multifragment 3D Ion Momentum Imaging for Investigating Ultrafast Dynamics of Polyatomic Molecules** *Tomoya Okino[1], Katsumi Midorikawa[1] (1. RIKEN)
16:15-16:30	**[IW1-05] Accurate Velocity Measurment of Molecuar Beams via Laser Pump-Probe Scheme for the Study of Chemical Reaction Dynamics** Yurun Xie[1], Jie Han[1], Yue Xiao[1], Heyang Liu[1], Liping Wen[1], Zhichao Li[1], Xueming Yang[1], *Tiangang Yang[1] (1. Department of Chemistry, Southern University of Science and Technology)
16:30-16:45	**[IW1-06] Observation of Rovibrational Dynamics of Gas-Phase Molecules with High-Energy Mid-Infrared Pulses** *Hiroki Tsusaka[1], Ikki Morichika[1], Satoshi Ashihara[1] (1. Institute of Industrial Science, The University of Tokyo)
16:45-17:00	**[IW1-07] Broadband dispersion spectroscopy using interferometric phase modulation** *Wenqing Song[1], Kokoro Fujiwara[1], Zheyuan Zhang[1], Ikki Morichika[1], Satoshi Ashihara[1] (1. IIS, The University of Tokyo)

(online program)

Poster Session2 (17:00-18:30)

Room: Camellia I

PAW-01	**[PAW-01] Short-cavity Violet Laser Diode with Suppressed Mode-partition-noise for 64 QAM DMT up to 21-Gbps** *Chih-Hsien Cheng[2], Po-Lun Chen[1], Atsushi Matsumoto[2], Kouichi Akahane[2], Gong-Ru Lin[1] (1. National Taiwan University, 2. National Institute of Information and Communications Technology)
PAW-02	**[PAW-02] Development of Solid-State 248nm Light Source for Hybrid KrF Laser** *Hironori Igarashi[1], Yoshihiko Murakami[1], Taisuke Miura[1], Kouji Kakizaki[1] (1. Gigaphoton Inc.)
PAW-03	**[PAW-03] Evaluation of Magneto-Optic Characteristics of Erbium Sesquioxide Ceramics** *Hikaru Kumai[1], Hiroaki Furuse[2], Hiyori Uehara[1,3], Masato Ota[1,3], Ryo Yasuhara[1,3] (1. SOKENDAI, 2. NIMS, 3. NIFS)
PAW-04	**[PAW-04] Development of a 4 MHz Kerr lens Mode locked Ti:sapphire Oscillator for Non relativistic Ultrafast Electorn Diffration** *Ki-Han Lee[1,2], In Hyung Baek[1], Kyu-Ha Jang[1], Kitae Lee[1], Kyungwan Kim[2], Young Uk Jeong[1] (1. Korea Atomic Energy Research Institute, 2. Chungbuk National University)
PAW-05	**[PAW-05] Yb:YAG thin-disk chirped pulse amplification (CPA) laser system for intense mid-infrared pulse generation** *Ryoma Sato[1], Ayaka Ogiwara[1], Hiroki Morita[1], Kazuyuki Sakaue[2], Takeshi Higashiguchi[1] (1. Utsunomiya University, 2. The University of Tokyo)
PAW-06	**[PAW-06] Development of a Combiner-Free High-Average-Power Erbium-Ytterbium-Doped Fiber Laser for Pumping Mid-IR Lasers** *Reza Amani[1], Yasuo Mizutani[2], Atsushi Iwasaki[1], Masakazu Washio[3], Kaoru Yamanouchi[1] (1. Center for Attosecond Laser Science, Graduate School of Science, The University of Tokyo, 2. Technology Division, Shinko Electric Wire Co. Ltd., 3. Waseda Research Institute for Science and Engineering, Waseda University)
PAW-07	**[PAW-07] Design of femtosecond Pr:ZBLAN fiber amplifier for multi-photon microscopy** *Fumihiro Hondo[1], Kouki Yamaizumi[1], Takao Fuji[1] (1. Toyota Technological Institute)
PAW-08	**[PAW-08] Hole drilling for metal jet nozzle using an ultrashort pulse laser** *Ayaka Ogiwara[1], Tatsuya Soramoto[1], Ryoma Sato[1], Juri Ogawa[1], Hiroki Morita[1], Kazuyuki Sakaue[2], Takeshi Higashiguchi[1] (1. Utsunomiya University, 2. The University of Tokyo)
PBW-01	**[PBW-01] KTA-based femtosecond sub-mJ mid-infrared optical parametric amplifier in the 3-4 mm region** *Takayuki KURIHARA[1], Tianqi Yang[1], Tomoya Mizuno[1], Teruto Kanai[1], Jiro Itatani[1] (1. Institute for Solid State Physics, The University of Tokyo)
PBW-02	**[PBW-02] Coaxial delay beamline for XUV-IR pump-probe measurements and spectroscopy** *Ryoma Ishikawa[1], Kaito Nishimiya[1], Karin Takahashi[2], Yuxi Fu[3], Akira Suda[1] (1. Suda laboratory Department of Physics, Faculty of Science and Technology, Tokyo University of Science, 2. Faculty of Information Design, Tokyo Information Design Professional University, 3. Center for Attosecond Science and Technology, Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences)
PBW-03	**[PBW-03] High-thermal load resistance optics with a water-cooled SiC ceramic substrate** *Yasuhiro Miyasaka[1], Kotaro Kondo[1], Hiromitsu Kiriyama[1] (1. National Institutes for Quantum Science and Technology)
PCW-01	**[PCW-01] Spatially non-degenerate optical parametric amplification as noise source in squeezing using waveguides** *Yuki Sano[1], Yoshitaka Taguchi[1], Kenichi Oguchi[1], Yasuyuki Ozeki[1] (1. The University of Tokyo)
PCW-02	**[PCW-02] Extract correlation functions among degradation sources in frequencydependent squeezed states with neural network** *Hsien Yi Hsieh[1] (1. Institute of photonics technologies, National Tsing Hua University, Taiwan)
PCW-03	**[PCW-03] Phase-insensitive matrix norm for programmable unitary transformer with photon counters at the outputs** *Yoshitaka Taguchi[1], Yunzhuo Wang[2], Ryota Tanomura[1], Takuo Tanemura[1], Yasuyuki Ozeki[1] (1. The University of Tokyo, 2. Preferred Networks Inc)
PCW-04	**[PCW-04] Polarization Sensitive Photoresponse in an NbN-based Plasmonic Superconducting Single-Photon Detector** *Feng-Yang Tsai[1,2] (1. Academia Sinica, 2. National Taiwan University)

Poster Session 2 (17:00-18:30)

Room: Camellia I

PCW-05	**[PCW-05] LBO-based broadband visible NOPA pumped by Yb:KGW amplifier system** *Ahmed Ramadan Ibrahim[1], Takayuki Kurihara[1], Jiro Itatani[1], Teruto Kanai[1] (1. The Institute for Solid State Physics, The University of Tokyo, 5-1-5 Kashiwanoha, Kashiwa, Chiba 277-8581, Japan.)
PCW-06	**[PCW-06] Linewidth Narrowing of Mid-infrared Distributed Feedback Laser using Self-injection Locking to an Optical Cavity** *Kwang-Hoon Ko[1], Byung Jae Chun[1], Yong-Ho Cha[1], Fabian Rotermund[2], Hyunmin Park[1] (1. Korea Atomic Energy Research Institute, 2. Korea Advanced Institute of Science and Technology)
PDW-01	**[PDW-01] Thermoelectric conversion using nanostructure** *Ayaka Yomoda[1], Ryo Sugano[1], Wakana Kubo[2], Takasumi Tanabe[1] (1. Keio University, 2. Tokyo University of Agriculture and Technology)
PDW-02	**[PDW-02] Study on the temperature characteristics of prismatic coupling in microcavity** *Tomoya Yamakawa[1], Yuta Mototani[1], Shota Kimura[2], Yosuke Hashimoto[2], Tomohiro Araki[2], Shun Fujii[3], Takasumi Tanabe[1] (1. Department of Electronics and Electrical Engineering, Keio University, 2. Research and Development Directorate, Japan Aerospace Exploration Agency, 3. Department of Physics, Faculty of Science and Technology, Keio University)
PDW-03	**[PDW-03] Dispersion engineering of crystalline whispering-gallery microresonators for mid-infrared frequency comb generation** *RYOMEI TAKABAYASHI[1], Shun Fujii[2], Takasumi Tanabe (1. Department of Electronics and Electrical Engineering, Faculty of Science and Technology, Keio University, 2. Department of Physics, Faculty of Science and Technology, Keio University)
PDW-04	**[PDW-04] Measurement and Accuracy Evaluation of Electron Beam Emittance for a Terahertz Free-Electron Laser** *Myung Jin Bae[1,2], Sangyoon Bae[3], Hyun Woo Kim[1], Kitae Lee[1,2], Young Uk Jeong[1,2] (1. Korea Atomic Energy Research Institute, 2. University of Science & Technology, 3. Rare isotope Accelerator complex for ON-line experiment)
PDW-05	**[PDW-05] SiN/Si Heterogeneous Integration with Butt-coupling** *Ryo Sugano[1], Ryo Otake[1], Ryo Nishihata[1], Shun Fujii[2], Takasumi Tanabe[1] (1. Department of Electronics and Electrical Engineering, Faculty of Science and Technology, Keio University, 2. Department of Physics, Faculty of Science and Technology, Keio University)
PDW-06	**[PDW-06] Investigation of growth condition dependence on the surface morphology of n-GaN cap layer in multi-quantum-shell lasers** *Mizuki Takahashi[1], Yuki Yamanaka[1], Shiori Ii[1], Ayaka Shima[1], Soma Inaba[1], Kosei Kubota[1], Yuta Hattori[1], Tetsuya Takeuchi[1], Motoaki Iwaya[1], Satoshi Kamiyama[1] (1. Meijo University)
PEW-01	**[PEW-01] High-Frequency Injection-Seeded Backward Terahertz-wave Parametric Oscillator** *Joselito Echavez Muldera[1], Kouji Nawata[1,2], Yuma Takida[1], Deepika Yadav[1], Hiroaki Minamide[1] (1. Tera-Photonics Research Team, RIKEN Center for Advanced Photonics, 2. Department of Information and Communication Engineering, Tohoku Institute of Technology)
PEW-02	**[PEW-02] TM-mode High-Index-Contrast Three-Dimensional Coupled Wave Theory as A Semi-Analytical Method: Contributing to Surface Emitting Terahertz Quantum Cascade Laser** *Mingxi Chen[1,2], Chiko Otani[1,2], Hideki Hirayama[2] (1. Tohoku University, 2. RIKEN RAP)
PEW-03	**[PEW-03] Generation of stronger terahertz pulse by superposing forward and backward radiation** *Jialiang Huang[1], Jun She[1], Hongsong Qiu[1], Caihong Zhang[1], Biaobing Jin[1] (1. Nanjing University)
PEW-04	**[PEW-04] 1.5-μm Laser-Pumped Injection-Seeded Terahertz-Wave Parametric Generator With 0.14-mW Average Output Power** *Yuma Takida[1], Mio Nishida[2], Takashi Notake[1], Kenichi Hirosawa[2], Nobuo Ohata[2], Hiroaki Minamide[1] (1. RIKEN, 2. Mitsubishi Electric Corp.)
PEW-05	**[PEW-05] Generation of sub-terahertz signals using two semiconductor lasers with highly asymmetric mutual coupling** *Chin-Hao Tseng[1], Sheng-Kwang Hwang[1,2] (1. Department of Photonics, National Cheng Kung University, Tainan, Taiwan, 2. Advanced Optoelectronic Technology Center, National Cheng Kung University, Tainan, Taiwan)

Poster Session 2 (17:00-18:30)

Room: Camellia I

PEW-06	**[PEW-06] Terahertz radiation and resultant surface profile during femtosecond laser ablation process** *Kohki Kumagai[1], Ryo Tamaki[1,2], Gaku Asai[3], Yuichi Takigawa[3], Jun Takeda[1], Ikufumi Katayama[1] (1. Yokohama National University, 2. KISTEC, 3. Nikon Corporation)
PEW-07	**[PEW-07] Study on the application of Landau-Lifshitz-Looyenga model for the detection of porosity of traditional Chinese medicine based on terahertz technology** Xu Li[1,2], *Chen Gong[1,3], Jian Zuo[1,2], Yulei Shi[1,2] (1. Key Laboratory of Terahertz Optoelectronics, Ministry of Education, Capital Normal University, Beijing,100048, China, 2. Department of Physics, Capital Normal University, Beijing, 100048, China, 3. Beijing Broad Hengtong Technology Development Co., Ltd, Beijing 100176, China)
PEW-08	**[PEW-08] Evolution of cooling aqueous NaCl solutions studied by terahertz time-domain spectroscopy** Wenyue Zhao[1,2], *Chen Gong[1,3], Jian Zuo[1,2], Yulei Shi[1,2] (1. Key Laboratory of Terahertz Optoelectronics, Ministry of Education, Capital Normal University, Beijing,100048, China, 2. Department of Physics, Capital Normal University, Beijing, 100048, China, 3. Beijing Broad Hengtong Technology Development Co., Ltd, Beijing 100176, China)
PEW-09	**[PEW-09] Plasma cleaning of a biosensor surface evaluated by a terahertz chemical microscopy** *CHANGJIANG LIU[1], Xue Ding, Jin Wang, Toshihiko Kiwa (1. Graduate School of Interdisciplinary Science and Engineering in Health Systems, Okayama University)

(online program)

Laser Metrology, Imaging & Informatics [HTh1]

Time: 9:00-10:15 **Room:** Lavender I (**Chair:** Osamu Matoba)

9:00-9:15	**[HTh1-01] Dual-comb biosensing of SARS-CoV-2 nucleocapsid protein antigen** Shogo Miyamura[1], Ryo Oe[1], Takuya Nakahara[1], Shuji Taue[2], Yu Tokizane[1], Takeo Minamikawa[1], Taira Kajisa[3], *Takeshi Yasui[1] (1. Tokushima University, 2. Kochi University of Technology, 3. Toyo University)
9:15-9:30	**[HTh1-02] Achieving the Multi-parameter Quantum Cramér-Rao Bound with Antiunitary Symmetry** *Ben Wang[1], Kaimin Zheng[1], Qian Xie[1], Aonan Zhang[1], Liang Xu[2], Lijian Zhang[1] (1. Nanjing University, 2. Zhejiang Lab)
9:30-9:45	**[HTh1-03] Real-time THz waveform visualization by stamping on MeV electron bunch** *In Hyung Baek[1], Hyun Woo Kim[1], Hyeon Sang Bark[1], Key Young Oang[1], Junho Shin[1], Kyu-Ha Jang[1], Kitae Lee[1], Fabian Rotermund[2], Nikolay A. Vinokurov[3], Young Uk Jeong[1] (1. Korea Atomic Energy Research Institute, 2. Korea Advanced Institute of Science and Technology, 3. Budker Institute of Nuclear Physics)
9:45-10:00	**[HTh1-04] 96-GHz FMCW microwave generation using optically injected semiconductor lasers for radar applications** *Chin-Hao Tseng[1], Sheng-Kwang Hwang[1,2] (1. Department of Photonics, National Cheng Kung University, Tainan, Taiwan, 2. Advanced Optoelectronic Technology Center, National Cheng Kung University, Tainan, Taiwan)
10:00-10:15	**[HTh1-05] Time-domain Brillouin depth-mapping of sound velocity and refractive index in transparent samples using automated angle scanning** *Motonobu Tomoda[1], Akihisa Kubota[1], Osamu Matsuda[1], Yoshihiro Sugawara[2], Oliver B. Wright[1] (1. Hokkaido University, 2. FUJIFILM Corporation)

Nonlinear Optics and Quantum Optics [CTh1]

Time: 9:00-10:15 **Room:** Lavender II (**Chair:** Chao-Kuei Lee)

9:00-9:15	**[CTh1-01] Mid-Infrared Self-Difference Frequency Generation in Electronically Tuned Cr:ZnSe Laser** *Masaki Yumoto[1,2,3], Kentaro Miyata[1], Yasushi Kawata[1], Satoshi Wada[1] (1. Photonics Control Technology Team, RIKEN, 2. Mid-Infrared Laser Source Laboratory, RIKEN, 3. Innovative Laser Processing Group, National Institute of Advanced Industrial Science and Technology (AIST))
9:15-9:30	**[CTh1-02] Energetic Picosecond 10.2-μm Pulses Generated in a BGGSe Nonlinear Crystal for High-Intensity Seeding of Terawatt CO2 Amplifiers** *Ya-Po Yang[1,2], Jheng-Yu Lee[1,2], Jyhpyng Wang[1,2] (1. Academia Sinica, 2. NCU)
9:30-9:45	**[CTh1-03] Interlayer anharmonicity probed by coherent interlayer vibrations in Bi2Se3 thin films** *Eon-Taek Oh[1], Tae Gwan Park[1], Hong Ryeol Na[2], Seung-Hyun Chun[2], Sunghun Lee[2], Fabian Rotermund[1] (1. Department of Physics, Korea Advanced Institute of Science & Technology (KAIST), 2. Department of Physics and Astronomy, Sejong University)
9:45-10:00	**[CTh1-04] Thickness-dependent ultrafast carrier dynamics in exfoliated α-In2Se3** *Seong-Eun Lim[1], Eon-Taek Oh[1], Eunji Hwang[1], Woohyun Cho[1], Hee Jun Yang[1], Fabian Rotermund[1] (1. Korea Advanced Institute of Science and Technology)
10:00-10:15	**[CTh1-05] Characteristics of Off-Axis Integrated Cavity Output Spectroscopy at 4.5 μm for Trace Isotope Analysis of Gaseous Sample** *Kwang-Hoon Ko[1], Yonghee Kim[1], Taek-Soo Kim[1], Lim Lee[1], Hyunmin Park[1] (1. Korea Atomic Energy Research Institute)

Solid-state, Fiber Lasers & Advanced Laser Materials [ATh1]

Time: 10:30-12:00 **Room:** Lavender I (**Chair:** Ichiro Shoji)

10:30-11:00 (invited)	**[ATh1-01] Development of high power mid-infrared lasers and their applications** *Shigeki Tokita[1], Ryo Yasuhara[2] (1. Kyoto University, 2. NationalInstitute for Fusion Science)
11:00-11:15	**[ATh1-02] Dispersion-Managed Ultrafast Laser Based on Thulium-Doped ZBLAN Fibers** *Hiroki Kawase[1], Junya Takano[1], Takao Fuji[1] (1. Laser Science Laboratory, Toyota Technological Institute)
11:15-11:45 (invited)	**[ATh1-03] Mid-infrared broadband femtosecond degenerate OPO based on ZnGeP2** *Xiangbao Bu[1], Ikki Morichika[1], Satoshi Ashihara[1] (1. Institute of Industrial Science, The University of Tokyo)
11:45-12:00	**[ATh1-04] Analysis of Frequency-Modulation Mode-Locking with Large Intra-Cavity Chromatic Dispersion** *Zheyuan Zhang[1], Xiangbao Bu[1], Wenqing Song[1], Ikki Morichika[1], Satoshi Ashihara[1] (1. Institute of Industrial Science, the University of Tokyo)

Terahertz Generation & Applications [ETh1]

Time: 10:30-12:00 **Room:** Lavender II (**Chair:** Tae-In Jeon)

10:30-11:00 (invited)	**[ETh1-01] Recent progress in nonlinear organic crystals for efficient THz wave generation** *Fabian Rotermund[1] (1. Department of Physics, KAIST)
11:00-11:15	**[ETh1-02] Terahertz quantum tunneling plasmonics for reproducible morphology** Gangseon Ji[1], Seonhye Eom[1], Jae Deock Jeon[2], Ji-Yun Lee[1], Sang Woon Lee[2], *Hyeong-Ryeol Park[1] (1. Ulsan National Institute of Science and Technology (UNIST), 2. Ajou University)
11:15-11:30	**[ETh1-03] Simultaneous Generation and Manipulation of Terahertz Waves via Nonlinear Metasurfaces** Yongchang Lu[1], Qingwei Wang[1], Xi Feng[1], Li Niu[1], Xueqian Zhang[1], Quan Xu[1], Yanfeng Li[1], Jianqiang Gu[1], Chunmei Ouyang[1], Zhen Tian[1], Weili Zhang, *Jiaguang Han[1] (1. Tianjin University)
11:30-11:45	**[ETh1-04] Injection-seeded THz Parametric Source with Collinear Setup** *Sota Mine[1], Naoya Yamamoto[1], Kodo Kawase[1], Kosuke Murate[1] (1. Nagoya University)
11:45-12:00	**[ETh1-05] Terahertz circular dichroism imaging** *Takumi Yoichi[1], Shota Tsuji[1], Souma Makihara[1], Seigo Ohno[2], Takeo Minari[3], Takashige Omatsu[1,4], Katsuhiko Miyamoto[1,4] (1. Graduate School of Engineering, Chiba University, 2. Department of Physics, Tohoku University, 3. Research Center for Functional Materials, National Institute for Materials Science, 4. Molecular Chirality Research Center, Chiba University)

Closing Session

Time: 19:00-19:15 **Room:** Camellia I & II (**Chair:** Kana Iwakuni)

19:00-19:15	**Closing Session**

Conference Banquet

Time: 19:15-21:15 **Room:** Camellia I & II

19:15-21:15	**Conference Banquet**

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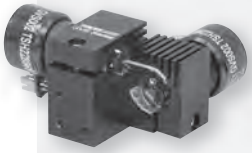

特　長

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- 正弦波制御：250 Hz
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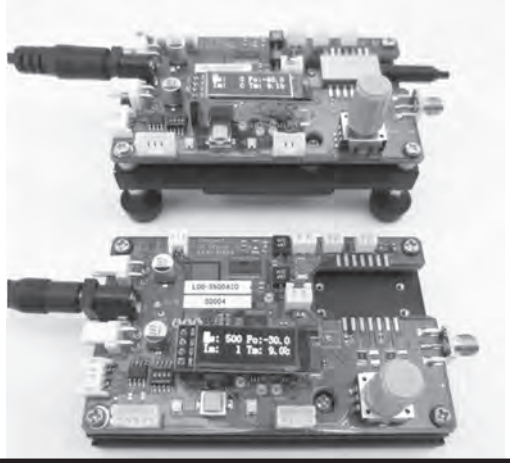

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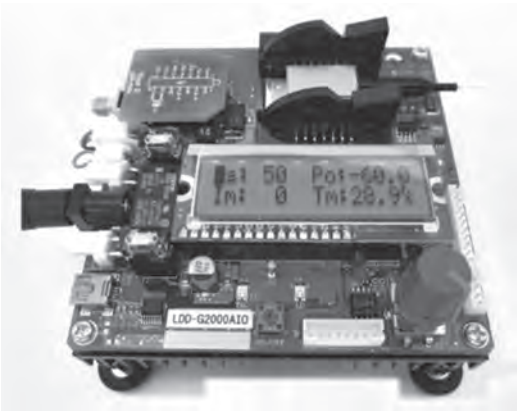

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マルチチャンネル狭線幅波長可変レーザ	TLG-320
小型フェムト秒パルスファイバレーザ	PFL-200
広帯域ASE光源	ASE-200

光増幅器

ファイバー光増幅器	SFA-200
エコアンプ	EFA-200C
高出力ファイバー光増幅器	HPA-200
低ノイズファイバー光増幅器	LNA-220

光計測器・制御器

光周波数多重コヒーレントOTDR	FOTDR-300
Siウェハ厚み測定器	SIT-200
電動型光遅延器	ADL-200
偏波コントローラ	MLC Series
ハンディ型光パワーメータ	OPM-110
ハンディ型光ファイバ端面検査機	FIM-650

電子計測器

電気パルスジェネレータ	EPG-210
28Gbps x 4ch ビット誤り率測定器	BERT-250E
10Gbps ビット誤り率測定器	SeBERT-100

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ダイレクトダイオードポンピング技術により
小型コンパクトなフェムト秒レーザーを実現！

わずか420mm(L) x 255mm(W) x 87mm(H)です

波長：800±10 nm
FWHM ：>50nm / >20nm / >12nm
パルス幅：<15fs / <40fs / <70fs
パルスエネルギー：5nJ / 6.25nJ / 3.75nJ
アベレージパワー：>400mW/>500mW/>300mW
繰り返し：80MHz±1MHz
パワー安定度(rms@24時間)：<0.5%

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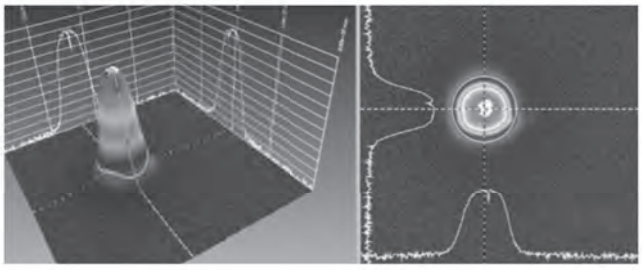
650Wモデル新発売！ CO^2レーザー

更なる技術革新　高安定・長寿命が強みです



ビームプロ

選べる出力 100W～650W

波長 9.3μm/10.6μm

InnoLas Photonics

高出力Q-Switchナノ秒レーザー

波長 1342nm/1064nm/532nm

パルス幅15nsec、パルスエナジー最大1000μJ

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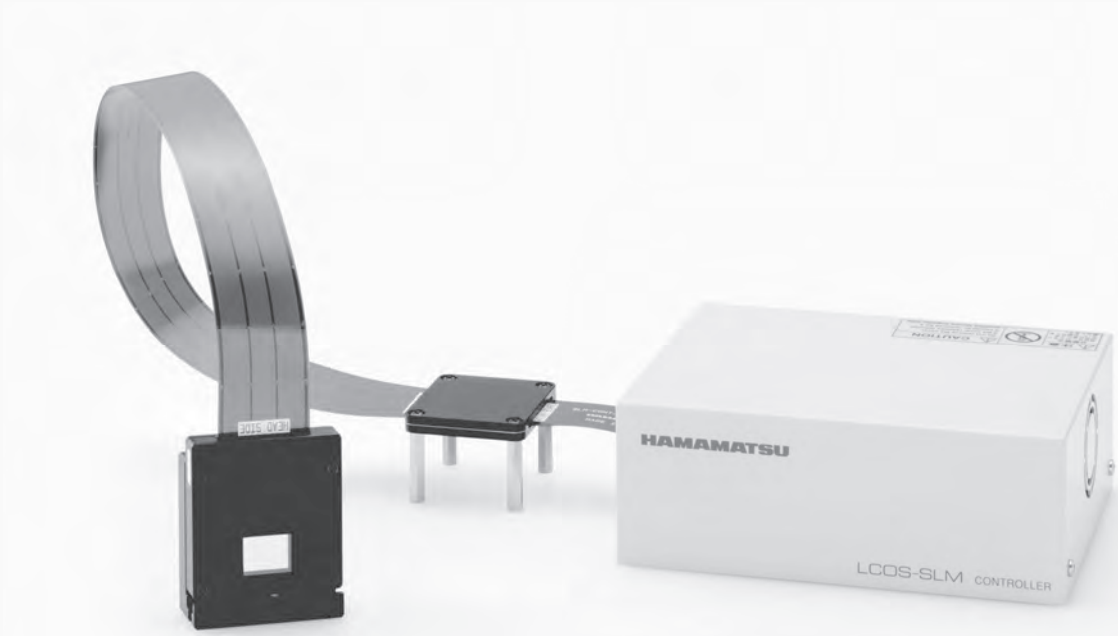

LCOS-SLM X15213 series

Processing example

2D code marking on chip resistance

Features

- High diffraction effciency
- High light utilization effciency
- High power handling capability
- Covers various wavelength ranges (400 nm to 2050 nm)

Applications

- Laser processing
- Laser marking
- Optical tweezers
- Pulse shaping

The LCOS-SLM X15213 series is a reflective liquid crystal device that can control the wavefront of light with high effciency and high precision by phase modulation. Unlike conventional intensity modulation techniques using masks to block out light to form a desired optical pattern, the LCOS-SLM redistributes the light to generate light patterns effciently by using phase holograms.

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Hanamura Optics Corp.

半導体レーザーチップ

Everbright社は、LD用チップ、ライダー&3Dセンシング用チップ、光通信向けVCSEL&APDチップと、
その応用製品としてのLDバー、LDスタックからLD発振器までを製造しています。

ハイパワーLDチップ

LDバーチップ	
808nm	50W - 500W
940nm	200W - 700W
915nm	24W - 35W
976nm	24W - 35W

シングルエミッタチップ	
915nm	24W - 35W
976nm	24W - 35W

ライダー&3Dセンシング用チップ

Time-of-Flight TOF Series	
808nm	1W / 3W
850nm	4W
940nm	2W / 3W

LiDAR EEL Series	
905nm	125W - 1200W

VCSELチップ

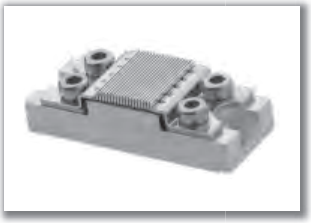
934nm	1.5W
942nm	1.6W
946nm	1.8W

高速光通信APDチップ

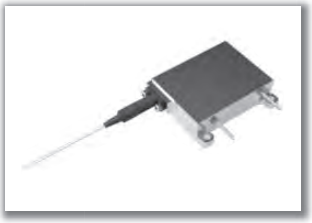
波長帯域	1260nm～1620nm

その他の製品

LDバーチップ



LDスタック



LDモジュール

LD発振器

製造元　Suzhou Everbright Photonics Co., Ltd.
Address: No.56, Lijiang Road, SND, Suzhou, China
TEL：+86-512-66896988
E-mail : Sales@everbrightphotonics.com

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TECHNOLOGIES

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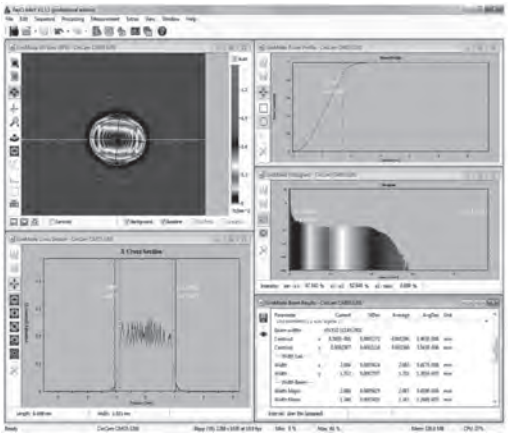
高出力レーザ集光点ビームプロファイラ

小型 CinSpot FBP-2KF 登場!

42μm（FBP-1KF）64μm（FBP-2KF）までのスポット計測が可能です。



リニアステージとの組み合わせで M^2 を自動計測!

波長域：350nm-1100nm /インターフェース：USB
外形寸法：98mm×98mm×65mm

※焦点サイズ 3μm まで計測できる CinSpot シリーズもございます。

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- ●PAM4
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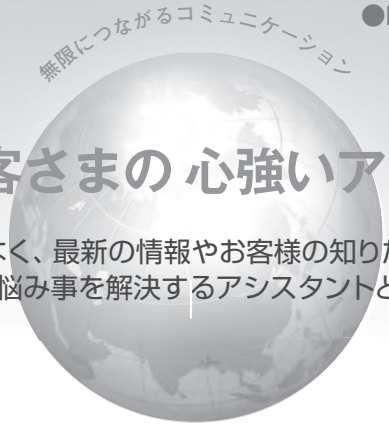
- ●モード多重伝送
- ●携帯電話検知器
- ●OCT
- ●光センシング
- ●蛍光顕微鏡



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OPTIPOP Rシリーズ共通
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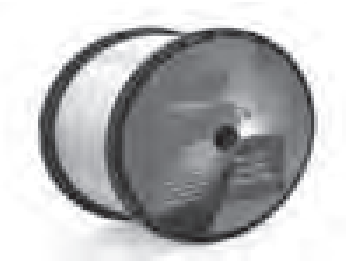
・光ファイバ



Optical Fiber, SMF/MMF(Corning)

・レーザー光源

Benchtop Broadband Light source(Superlum)

DPSS Laser, 335~1550nm(CNI Laser)

・光変調器

780~2200nm, 強度/位相変調器(Exail)

・光増幅器

+13~43dBm, EDFA(Amonics)

・各種測定器

Optical Backscatter Reflectometer
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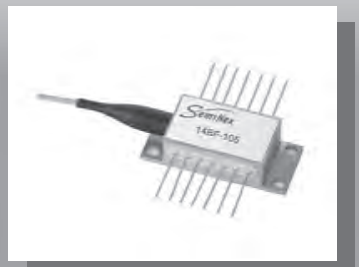
For achieving DX (digital transformation), point-cloud data is indispensable. LiDAR is the key technology of point-cloud. "Kokyo" provides excellent 1550 nm LDs especially suitable for LiDAR.

1. ITF :

Powered by ITF Technologies' years of experience in fiber laser and telecom component design, comes our lidar laser source, a 1550nm laser made with self-driving vehicle LIDARs in mind.
With high performance, compact design and adaptable control electronics, we offer a solution exceeding the requirements for your LIDAR system.
Eye-safe lasers: it' s the future of LIDAR systems optical sources.



2. Seminex :

SemiNex' s 1550nm Laser Diodes are an excellent choice for customers seeking state-of-art performance for LiDAR applications.
Not only Single Junction but also Triple Junction is available.
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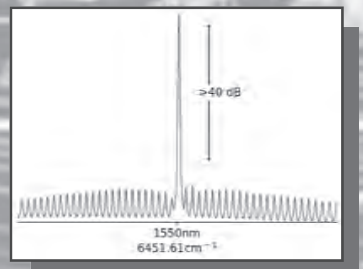
3. NEL :

NEL's 1550nm CW light sources are distributed feedback lasers (DFB).
Features of these devices include a wide array of applications, and the option of both high power and narrow linewidth models.



4. Eblana :

Eblana' s 1550nm ADF series laser is a high performance, high power single wavelength source, available in a 14-pin butterfly package with PM fibre pigtail.
The high output power and low RIN and linewidth of this laser make it perfect for DWDM applications in combination with an external modulator.

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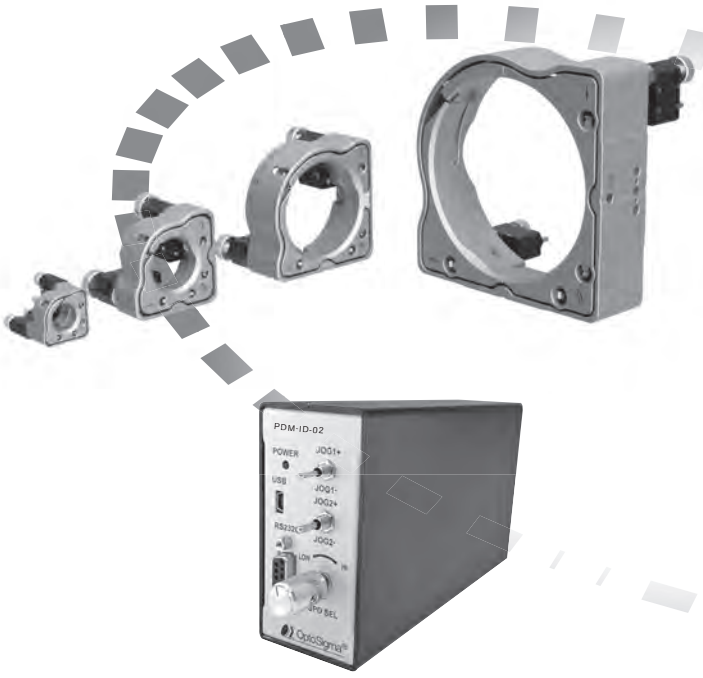

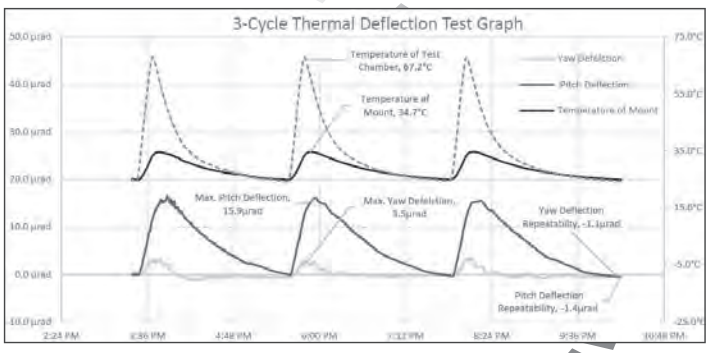

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詳細PDFはこちら

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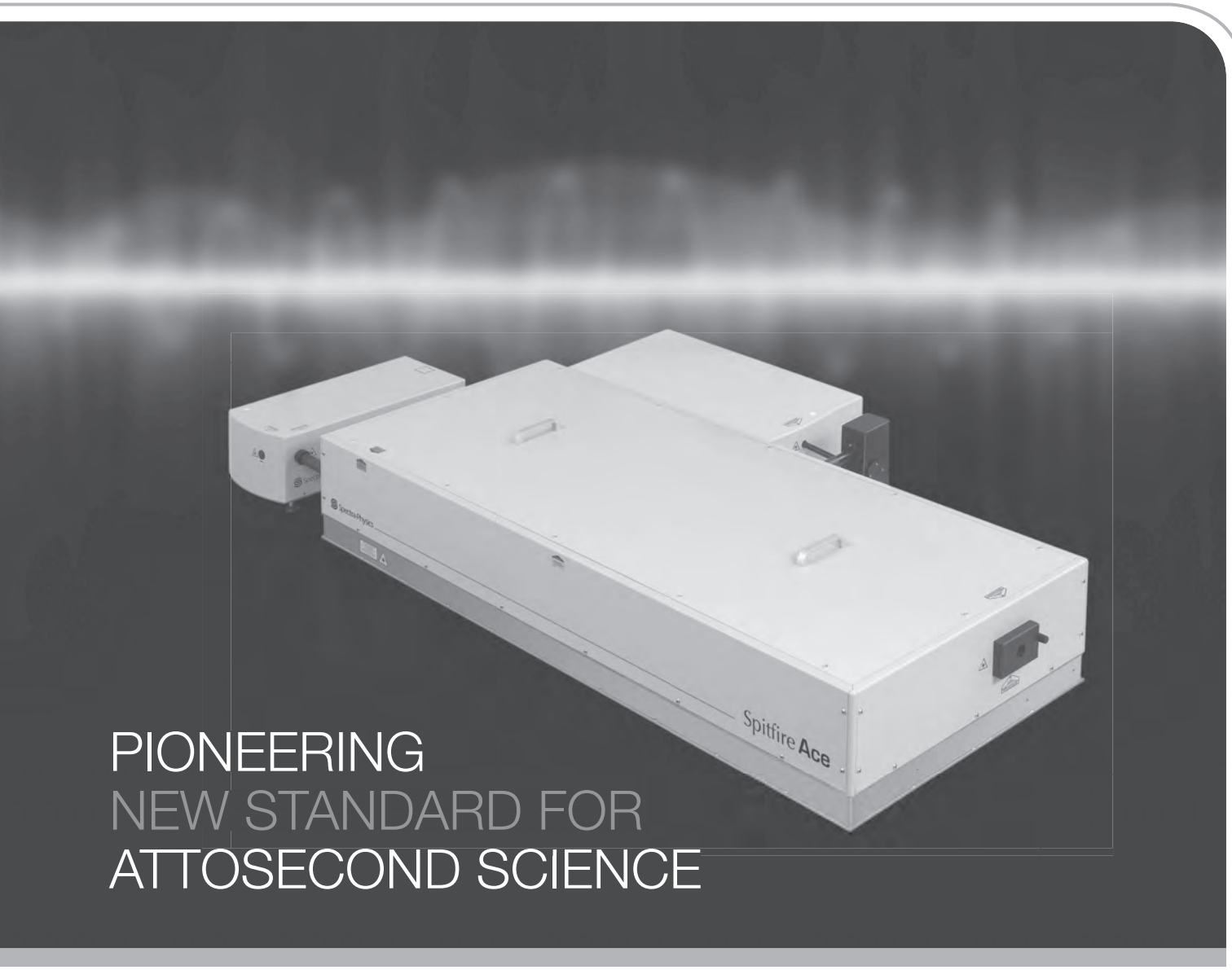

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Fiber Laser Technology

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2007 年の創立以来、Connet Laser Technology はファイバーレーザー、ファイバーアンプの開発を行って参りました。LIDAR, 光ファイバーセンサー、光ファイバー通信などの用途に製品・サービスを提供しています。異なる波長、高出力ファイバーアンプ、CW またはパルスといったラインアップを取り揃え、お客様のニーズに応えて参ります。

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コヒーレント LIDAR をはじめとしたリモートセンシング用途に適したラインアップです。

波長	1µm・1.5µm・2µm
線幅	5kHz ～
パルス幅	0.5 ～ 2000ns
繰り返し	～ 3MHz
平均パワー	～ 5W
ピークパワー	～ 25kW

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ピコ秒・サブピコ秒のモードロックファイバーレーザーです。全 PM ファイバー構成です。

波長	1µm・1.5µm
線幅	1 ～ 10nm
パルス幅	0.2 ～ 50ps
繰り返し	20 ～ 80MHz
平均パワー	～ 200mW

CW 単一周波数

CoSF-D

自社製 DFB ファイバーレーザーは < 1kHz ～の狭線幅、低ノイズ、高品質ビームです。

波長	1µm・1.5µm・2µm
線幅	< 1kHz ～
平均パワー	5mW ～ 50W
RIN	～ -140dB/Hz @10MHz
温度チューニング	
ピエゾ変調（オプション）	

CW 高出力

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100W @1µm・20W @1.5µm・40W @2µm
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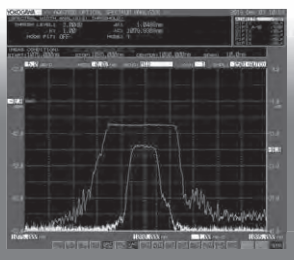
Connet の高出力ダブルクラッドファイバーブラッググレーティング（ファイバーレーザーキャビティミラー）は、高出力 CW・パルスファイバーレーザー用に特別に設計された古典的な位相マスク書き込み技術を採用しました。シングルモードファイバーから LMA ファイバーまで、全てファイバーに使うことができ、パワーハンドリングは 3kW 以上です。



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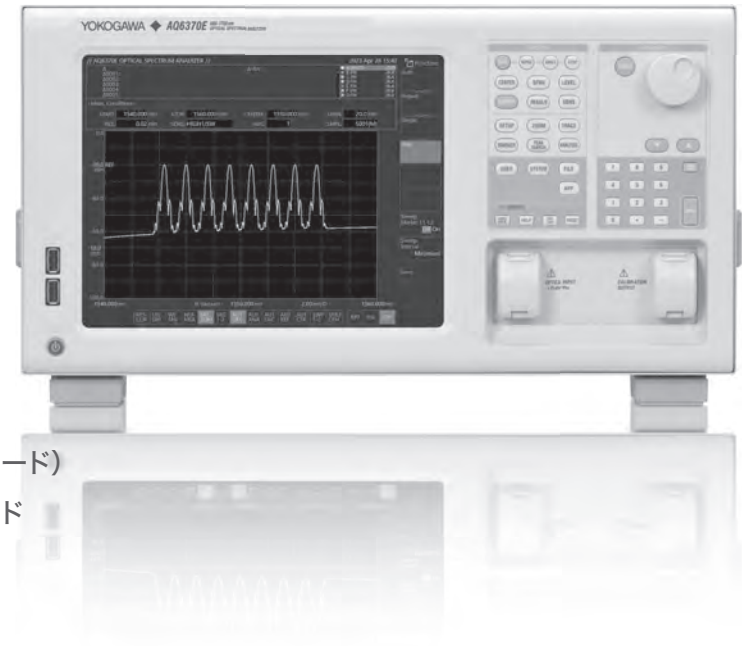
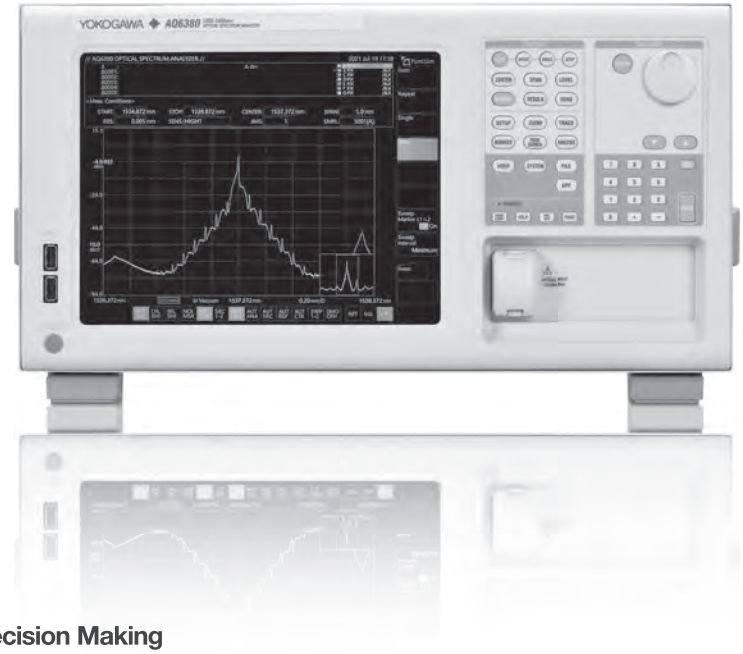
AQ6370E

Optical Spectrum Analyzer



- 600～1700nmの広い波長範囲
- 20pmの高波長分解能
- ±8pm typ.の高波長確度
- よりシャープなスペクトル測定（HCDRモード）
- 従来比 最大2倍の高速SMSR測定モード
- フリースペース構造の光入力部
- DUT指向のテストアプリ（APP）
- iTLA測定解析機能
- 簡単で直観的なタッチパネル操作

開発製造に対応する高性能モデル



- 5pmの波長分解能を実現
- 従来比最大20倍の高速測定
- 65dBの近傍ダイナミックレンジ
- ±5pmの波長確度
- APPモード

AQ6380

Optical Spectrum Analyzer

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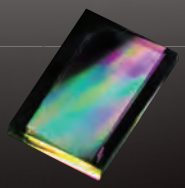

PP-LN

PP-Mg:SLT waveguide

PP-KTP waveguide

EO device

Electro-optics device

RTP EO crystals and devices

BBO for EO

DUV (deep ultraviolet) laser

Semiconductor inspection, UV Raman spectroscopy

Frequad-W

Frequad-HP,M,C

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OPTOQUEST

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Applications
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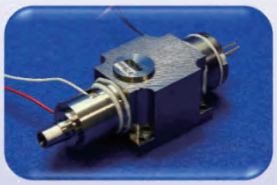
- Laser peening
- Laser induced breakdown
- Laser cleaner

External Cavity Diode Laser



Features
- Narrow wavelength
- High stability
- Compact and lightweight
- Wavelength tuning with piezo

Applications
- Atom laser cooling
- Interferometry
- Spectroscopy
- Holography

Super-continuum Light Source

Features
- Unique pulse seeder
- Broadband light source
- High stability
- Single mode fiber output (SMF)

Applications
- Inspection of optical parts
- Spectroscopic analysis
- OCT
- Analyze gases

RGB SHG Laser

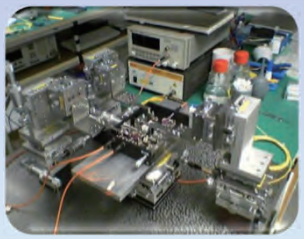
Features
- High stability for all fiber setup
- Good beam quality
- Good pointing stability
- Compact and lightweight

Applications
- Flow cytometry
- Fluorescence microscope
- Particle image velocimetry
- DNA sequencing

Contract development for customers

System

Sub-system



Sub-assembly

Integration

Contact

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