

October 30, Tue

	Room A 1F • 134	Room B 1F • 122	Room C 1F • 121
9:00			
9:30			
10:00	9:30 - 10:30 Applied Optics 3D Display 1	9:30 - 10:30 Applied Optics Spectral Imaging 1	9:30 - 10:30 Optical Science Photonic Devices
10:30			
11:00			
11:30	11:00 - 12:15 Applied Optics 3D Display 2	11:00 - 12:15 Applied Optics Polarization Imaging	11:00 - 12:15 Optical Science Metamaterials
12:00			
12:30			
13:00			
13:30			
14:00	13:30 - 15:15 Applied Optics Digital Holography and Computational Imaging	13:30 - 15:30 Applied Optics Scattering Imaging, Sensors, and Devices	13:30 - 15:30 Optical Science Plasmonics
14:30			
15:00			
15:30			
16:00			
16:30	16:00 - 17:00 Applied Optics Design and Imaging System	16:00 - 17:00 Optical Science Quantum Computation and Materials	16:00 - 17:00 Optical Science Laser processing and Vortex
17:00			
17:30	17:10 - 17:50 Plenary Session		
18:00			
18:30	18:15 - 20:00 Reception of Joint Symposia on Optics		
19:00			
19:30			
20:00			

October 31, Wed

	Room A 1F・134講義室	Room B 1F・122講義室	Room C 1F・121講義室	Room D 1F・120講義室	Room E 1F・119講義室	Room P B1F・多目的講義室
9:00						
9:30	9:00 - 10:15 Applied Optics Display Technologies	9:00 - 12:10	9:00 - 10:15 Optical Science Mid Infrared Light and Imaging	9:00 - 12:00 【シンポジウム】		
10:00		バイオ光学・ バイオフォニクス、 医用光学 (1) 一般講演12件		TPS招待講演		10:00 - 11:50 ポスターセッション
10:30				第21回光設計賞 記念講演		情報光学・ 情報フォニクス
11:00	11:00 - 12:15		11:00 - 12:15 Optical Science Phonon Engineering and Photonic Devices			
11:30	Applied Optics Spectral Imaging 2					
12:00						
12:30						
13:00						
13:30		13:00 - 14:30 光計測 (1) エネルギー・環境・ グリーンフォニクス、 生活フォニクス 一般講演6件		13:00 - 14:30 情報光学・ 情報フォニクス (1) 一般講演6件		13:00 - 14:30 ポスターセッション バイオ光学・ バイオフォニクス、 医用光学 Poster Session Annual Joint Symposia on Optics
14:00						
14:30						
15:00	<p style="text-align: center;">【A会場】 14:45 - 17:40 【プレナリーセッション】 光学論文賞・光学奨励賞・光みらい奨励金・光設計賞 授与式 OSA,SPIE,EOS特別講演／基調講演 14:45 - 15:25 授与式 15:30 - 16:00 OSA 16:00 - 16:30 SPIE 16:30 - 17:00 EOS 17:00 - 17:40 基調講演</p>					
15:30						
16:00						
16:30						
17:00						
17:30						
18:00	<p style="text-align: center;">18:00 - 20:00 OPJ懇親会</p>					
18:30						
19:00						
19:30						
20:00						

Tuesday, October 30 [Room A]

9:30 - 10:30
Applied Optics
3D Display 1

- 30aAJ1 [Invite]
Issues and a new approach for digital holographic display implementation
○Jinwoong Kim¹, Hyun-Eui Kim¹, Yongjun Lim¹, Keehoon Hong¹, Joongki Park¹, Joonku Hahn², Young-ju Kim³
¹Media Research Division, Electronics and Telecommunications Research Institute, Korea, ²Kyungpook National University, Korea, ³Yunam Optics Inc., Korea
- 30aAJ2 **Interference Fringes of HMD Waveguide using Holographic Optical Elements**
○Chanhyung Yoo, Kiseung Bang, Byoung-ho Lee
¹School of Electrical Engineering, Seoul National University
- 30aAJ3 **Computer-generated holography based on deep learning**
○Ryoichi Horisaki, Jun Tanida
Osaka University

11:00 - 12:15
Applied Optics
3D Display 2

Chair: Hitotsugu Yamamoto (Utsunomiya Univ.)

- 30aAJ4 [Invite]
Developments of holographic display with large screen size and viewing zone
○Yasuhiro Takaki
Tokyo University of Agriculture and Technology, Japan
- 30aAJ5 **360-degree viewable holographic display implemented by reflective image-forming optical system**
○Keehoon Hong¹, Young-Ju Kim², Hayan Kim¹, Yongjun Lim¹, Jinwoong Kim¹
¹Electronics and Telecommunications Research Institute (ETRI), ²Yunam Optics Inc.
- 30aAJ6 **Retro-reflector with bale-shaped holes removes the moiré fringes on the aerial light-field image formed in front of you**
○Masaki Yasugi^{1,2}, Kengo Fujii¹, Kazuki Shimose¹, Shusei Ito¹, Kazuki Kawai¹, Masao Nakajima³, Toru Iwane³, Yukihiro Takeda⁴, Hirotsugu Yamamoto^{1,2}
¹Utsunomiya Univ., ²JST, ACCEL, ³Nikon Corporation, ⁴Nippon Carbide Industries Co., Inc.
- 30aAJ7 **Hologram synthesis from Light field using non-hogel based approach**
○Mehdi Askari, Jae-Hyeung Park
Inha University

13:30 - 15:15
Applied Optics
Digital Holography and
Computational Imaging

Chair: Yasuhiro Awatsuji (Kyoto Inst. Tech.)

- 30pAJ1 **Measurement of Particle-Size Distribution Based on Particle Image Elongations Reconstructed by Phase Retrieval Holography**
○Yasuhiro Nakatani¹, Yohsuke Tanaka², Shigeru Murata²
¹Graduate School of Science and Technology, Kyoto Institute of Technology, ²Faculty of Mechanical Engineering, Kyoto Institute of Technology
- 30pAJ2 **Multiwavelength digital holography multiplexing**
○Martin Hernandez¹, Alfonso Padilla², Yoshio Hayasaki¹
¹Utsunomiya University Center for Optical Research & Education, ²Polytechnic University of Tulancingo
- 30pAJ3 **Single-shot simultaneous 3D multi-plane imaging**
○Manoj Kumar¹, Xiangyu Quan¹, Yasuhiro Awatsuji², Osamu Matoba¹
¹Graduate School of System Informatics, Kobe University, ²Faculty of Electrical Engineering and Electronics, Kyoto Institute of Technology
- 30pAJ4 **Multi-spectral burst digital holography**
○Yu-Hsuan Huang, Yoshio Hayasaki
Utsunomiya University Center for Optical Research & Education
- 30pAJ5 **Deep-learning-based phase retrieval for pure phase objects in computational ghost imaging**
○Koshi Komuro¹, Alexandre Goy², Takanori Nomura³, George Barbastathis^{2,4}
¹Graduate School of Systems Engineering, Wakayama University, ²Department of Mechanical Engineering, Massachusetts Institute of Technology, ³Faculty of Systems Engineering, Wakayama University, ⁴Singapore-MIT Alliance for Research and Technology (SMART) Centre
- 30pAJ6 **Focal depth extension owing to the pupil filter calculated from the iterative phase retrieval algorithm**
○Katsuhiko Uno
Faculty of Engineering, Ibaraki University
- 30pAJ7 **Computer-generated-hologram-based holographic data storage using a transport of intensity equation**
○Naru Yoneda¹, Yusuke Saita², Koshi Komuro¹, Teruyoshi Nobukawa¹, Takanori Nomura²
¹Graduate school of systems engineering, Wakayama University, ²Faculty of systems engineering, Wakayama University

16:00 - 17:00
Applied Optics
Design and Imaging System

Chair: Kenji Konno (Konica Minolta, INC.)

30pAJ8 [Invite]
Multichannel freeform in imaging and nonimaging optics

○Juan C. Minano^{1,2}, Pablo Benitez^{1,2},
Juan C. Gonzalez², Pablo Zamora¹,
Dejan Grabovičkić¹, Marina Buljan¹,
Bharathwaj Narasimhan¹, Jesus Lopez¹,
Milena Nikolić¹, Eduardo Sanchez¹
¹Limbak, USA, ²Universidad Politecnica de
Madrid, Spain

30pAJ9 [Invite]
A comprehensive study of odd-order aspheres~Mathematical fundamentals of odd-order asphere and its applications to optical design and fabrication~

○Takao Tanabe
Showa Optorotics Co., Ltd., Japan

17:10 - 17:50
Plenary Session

Chair: Osamu Matoba (Kobe Univ.)

30pPL1 Can light twist matters ?

○Takashige Omatsu
Chiba Univ., Japan

Tuesday, October 30 (Room B)

9:30 - 10:30
Applied Optics
Spectral Imaging 1

Chair: Masahiro Yamaguchi (Tokyo Tech)

30aBJ1 [Invite]
Recent progress in hyperspectral imaging spectrometry

○Michal E. Pawlowski¹, Tomasz S. Tkaczyk^{1,2}
¹William Marsh Rice University, Bioengineering
Department, USA, William Marsh Rice University,
²Department of Electrical and Computer Engineering,
USA

30aBJ2 [Invite]
RGB camera-based imaging of in vivo tissue physiology and functions

○Izumi Nishidate¹, Kawauchi Satoko²,
Shunichi Sato², Manabu Sato³,
Yoshihisa Aizu⁴, Kyuichi Niizeki³,
Yasuaki Kokubo⁵
¹Graduate School of Bio-Applications and Systems
Engineering, Tokyo University of Agriculture and
Technology, ²Division of Bioinformation and
Therapeutic Systems, National Defense Medical
College Research Institute, ³Graduate School of
Science and Engineering, Yamagata University,
⁴College of Design and Manufacturing Technology,
Muroran Institute of Technology, ⁵Department of
Neurosurgery, Faculty of Medicine, Yamagata
University

11:00 - 12:15
Applied Optics
Polarization Imaging

Chair: Yukitoshi Otani (Utsunomiya Univ.)

30aBJ3 [Invite]
Optimizing information content of polarization images with signal and image processing techniques

○François Goudail
Laboratoire Charles Fabry, Institut d'Optique
Graduate School, CNRS, Université Paris-
Saclay, France

30aBJ4 Polarization holographic imaging using speckle pattern illumination

○Vinu R V¹, Ziyang Chen², Jixiong Pu²,
Yukitoshi Otani¹, Rakesh Kumar Singh³
¹Center for Optical Research and Education
(CORE), Utsunomiya University, ²College of
Information Science and Engineering, Fujian
Provincial Key Laboratory of Light Propagation
and Transformation, Huaqiao University, China,
³Department of Physics, Indian Institute of
Technology (BHU), India

30aBJ5 Experimental validation of Berry phase introduced by three mirrors using spectroscopic Mueller matrix polarimetry

○Suchandra Banerjee¹, Russell Chipman²,
Nathan Hagen³, Yukitoshi Otani³
¹Innovation systems and Engineering, Utsunomiya
University, ²College of Optical Sciences, University
of Arizona, ³Department of Optical Engineering,
Center for Optical Research and Education,
Utsunomiya University

30aBJ6 Circular Dichroism Microscopy to Explore Local Chiroptical Properties

○Tetsuya Narushima, Hiromi Okamoto
Institute for Molecular Science

13:30 - 15:30
Applied Optics
**Scattering Imaging,
Sensors, and Devices**

Chair: Osamu Matoba (Kobe Univ.)

30pBJ1 [Invite]
Focusing of light energy inside a scattering medium by enhancing the time-gated multiple light scattering

○Seungwon Jeong¹, Ye-Ryoung Lee¹,
Wonjun Choi¹, Wonshik Choi¹
¹Center for Molecular Spectroscopy and Dynamics,
Institute for Basic Science · Department of Physics,
Korea University

30pBJ2 [Invite]
Tunable Focus Liquid-Crystal Lenses with Multiple Ring-Electrodes and Highly-Resistive Film

○Marenori Kawamura
Akita University

30pBJ3 Diffractive lens for controlling the focal length and depth of focus by using binary structure of grating and diffractive condenser lens for laser processing application

○Atsushi Motogaito¹, Yosuke Iguchi²,
Shuji Kato³
¹Graduate School of Engineering, Mie University ·
Iga Regional Satellite Campus, Mie University,
²Graduate School of Engineering, Mie University,
³Faculty of Engineering, Mie University

- 30pBJ5 Computing refractive index of materials from thin film optical properties**
 ○Saswatee Banerjee¹, Tetsuya Hoshino², James B. Cole³, Sadao Aoki², Masahide Itoh²
¹Technopro Engineering, ²University of Tsukuba, ³Airforce Institute of Technology
- 30pBJ6 Decollimation Amplification Approach for an Improved Reflection Mode Confocal System**
 ○King Ung Hii
 Swinburne University of Technology

16:00 - 17:00

Optical Science

Quantum Computation and Materials

- 30pBJ7 [Invite] Physical Implementation of Natural Intelligence in Colloidal Particle Systems**
 ○Toshiharu Saiki
 Keio University, Japan
- 30pBJ8 Simulated quantum annealing using a photon-counting random number generator for stochastic majority voting and cooperative spin manipulation of replicas**
 ○Akio Yoshizawa
 National Institute of Advanced Industrial Science and Technology
- 30pBJ9 Femtosecond radiative decay of q coupled excitons by radiation-induced interaction in ZnO thin films**
 Masayoshi Ichimiya^{1,2}, Takuya Matsuda³, Takashi Kinoshita³, Masaaki Nakayama⁴, Hajime Ishihara^{2,3}, ○Masaaki Ashida¹
¹School of Engineering, The University of Shiga Prefecture, ²Graduate School of Engineering Science, Osaka University, ³Graduate School of Engineering, Osaka Prefecture University, ⁴Graduate School of Engineering, Osaka City University

Tuesday, October 30 (Room C)

9:30 - 10:30

**Optical Science
 Photonic Devices**

Chair: Takashige Omatsu (Chiba Univ.)

- 30aCJ1 [Invite] Topological confinement of light in photonic crystals**
 ○Satoshi Iwamoto¹, Yasutomo Ota², Yasuhiko Arakawa²
¹IIS, Univ. of Tokyo, ²NanoQUINE, Univ. of Tokyo
- 30aCJ2 [Invite] Non-Hermitian dynamics of light near exceptional points**
 ○Seok Ho Song¹, Jae Woong Yoon¹, Youngsun Choi¹, Pierre Berini²
¹Department of Physics, Hanyang University, Korea, ²Centre for Research in Photonics, University of Ottawa, Canada

11:00 - 12:15

**Optical Science
 Metamaterials**

Chair: Fajardo Valeria Rodriguez

(Univ. of the Witwatersrand)

- 30aCJ3 [Invite] Peptide encoded gigantic chirality evolution in 3D plasmonic helicoids**
 ○Junsuk Rho
 Pohang University of Science and Technology
- 30aCJ4 Spectral properties of chiral electromagnetic near fields created by chiral plasmonic nanostructures**
 ○Shun Hashiyada¹, Kensaku Endo², Tetsuya Narushima¹, Yoshihiko Togawa², Hiromi Okamoto¹
¹Institute for Molecular Science, ²Osaka Prefecture University
- 30aCJ5 Multiwavelength achromatic meta-lens based on multi-focal phase profile**
 ○Kim Changhyun, Lee Gun-Yeal, Lee Byoungoh
 Inter-University Semiconductor Research Center and School of Electrical and Computer Engineering, Seoul National University, Republic of Korea
- 30aCJ6 The recursive method for calculating characteristics of arbitrary time-varying metasurfaces**
 ○Jaehyeon Son¹, Sangha Lee¹, Bumki Min¹
 Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology

13:30 - 15:30

**Optical Science
 Plasmonics**

Chair: Tsutomu Shimura (The Univ. of Tokyo)

- 30pCJ1 [Invite] Two cases of progressive light-matter interaction by plasmonics: a super plasmonic probe and an optimized**
 Rwei-Han Jiang¹, Pavithra Sriram¹, Dong-Sheng Su¹, He-Chun Chou², Chi Chen³, Ding-Zheng Lin², Jen-You Chu³, Sheng-Wen Wang⁴, Arumugam Manikandan⁴, Arun Prakash Periasamy⁴, Huan-Tsung Chang⁴, Yu-Lun Chueh¹, ○Ta-Jen Yen¹
¹Department of Materials Science and Engineering, National Tsing Hua University, Taiwan, ²Department of Materials and Chemical Research Laboratory, Industrial technology and research institute, Taiwan, ³Research Center for Applied Sciences, Academia Sinica, Taiwan, ⁴Department of Chemistry, National Taiwan University, Taiwan
- 30pCJ2 [Invite] Seeing what cannot be seen**
 ○Valeria Rodriguez-Fajardo¹, Romain Quidant^{2,3}, Rafael Porcar⁴, Andrew Forbes¹
¹School of Physics, University of the Witwatersrand, South Africa, ²ICFO-Institut de Ciències Fòniques, The Barcelona Institute of Science and Technology, Spain, ³ICREA-Instituto Catalano de Recerca i Estudis Avançats, Spain, ⁴COSINGO-Imagine Optic Spain S.L., Spain
- 30pCJ3 Interactions of spatially displaced surface plasmon vortices**
 ○Chen-Bin Huang
 National Tsing Hua University

- 30pCJ4 High harmonic generation in solids driven by plasmonically enhanced near-fields**
Kotaro Imasaka, Tomohiro Kaji, Tsutomu Shimura, ○Satoshi Ashihara
Institute of Industrial Science, The University of Tokyo
- 30pCJ5 Dynamic Cryptographic Nanoprints Mediated by Kerker's Conditions**
○Jaehyuck Jang¹, Heonyeong Jung², Junsuk Rho²
¹Department of Chemical Engineering, Pohang University of Science and Technology, ²Department of Mechanical Engineering, Pohang University of Science and Technology
- 30pCJ6 Extraordinary optical transverse torque induced by localized surface plasmon**
○Ryoma Fukuhara¹, Yoshito Tanaka^{1,2}, Tsutomu Shimura¹
¹IIS, the Univ. of Tokyo, ²JST PRESTO

- 31aAJ3 Fabrication and Uniformity Forward Voltage of GaN-based Micro-LED displays**
○Ray-Hua Horng¹, Ci-Ming Jhang¹, Tzu-Chen Chiu¹, Shih-Siang Yan², Dong-Sing Wu³
¹Institute of Electronics, National Chiao Tung University, Taiwan, ²Graduate Institute of Precision Engineering, National Chung Hsing University, Taiwan, ³Department of Materials Science and Engineering, National Chung Hsing University, Taiwan
- 31aAJ4 Smart LCD Displays with Modulated LED Backlights for Li-Fi Enabled Applications**
○Babar Hussain¹, Xianbo Li¹, Chung Yung Lee², Chik Patrick Yue¹
¹The Hong Kong University of Science and Technology, ²Hong Kong Innovative Display Technology Limited
- 31aAJ5 Volume hologram replication system**
○Benjamin D Chrysler, Kostuk K Raymond
University of Arizona

16:00 - 17:00

Optical Science

Laser processing and Vortex

Chair: Yoshio Hayasaki (Utsunomiya Univ.)

- 30pCJ7 [Invite] Laser printing of 2D materials for advanced optoelectronics applications**
○IBaohua Jia
Swinburne Univ., Australia
- 30pCJ8 Two photon absorption induced chiral mass transport of azo-polymer by optical vortex illumination**
○Ichijo Mitsuki¹, Masuda Keigo¹, Kinezuka Yoshinori¹, Shinozaki Ryo¹, Kuramoto Yuuki², Miyamoto Katsuhiko³, Omatsu Takashige³
¹Graduate School of Science and Engineering, Chiba University, Japan, ²Faculty of Engineering, Chiba University, Japan ³Molecular Chirality Research Center, Chiba University, Japan
- 30pCJ9 Optical vortices establish self-written helical fiber via two photon absorption**
Junhyung Lee¹, Yoshihiko Arita^{2,3}, ○Reimon Matsuo¹, Haruki Kawaguchi¹, Katsuhiko Miyamoto^{1,2}, Kishan Dholakia^{1,3}, Takashige Omatsu^{1,2}
¹Graduate School of Science and Engineering, Chiba University, ²Molecular Chirality Research Center, Chiba University, ³SUPA, School of Physics & Astronomy, University of St Andrews

Wednesday, October 31 [Room A]

9:00 - 10:15

Applied Optics

Display Technologies

Chair: Ryoichi Horisaki (Osaka Univ.)

- 31aAJ1 Measurement and reduction of speckle phenomenon in 360 degree viewable holographic display system**
○Yongjun Lim¹, Keehoon Hong¹, Jinwoong Kim¹, Jae-Hyeung Park²
¹Electronics and Telecommunications Research Institute, ²INHA University
- 31aAJ2 Method to decrease spatial coherence of LD by using optical path difference**
○Dukho Lee, Gang Li, Kiseung Bang, Changwon Jang, Byoungho Lee
Seoul National University

11:00 - 12:15

Applied Optics

Spectral Imaging 2

Chair: Michal Pawlowski (Rice Univ.)

- 31aAJ6 [Invite] Dual-comb microscopy**
○Takeshi Yasui^{1,2}
¹Tokushima University, ²JST, ERATO MINOSHIMA Intelligent Optical Synthesizer, Japan
- 31aAJ7 An advanced Dyson spectrometer in broadband for coastal ocean observation**
○Lei Yu
Anhui Institute of Optics and Fine Mechanics, CAS
- 31aAJ8 Improvement of wavelength-scanning range in acousto-optically tuned external-cavity laser diode**
○Nariyasu Sugawara, Takamasa Suzuki, Samuel Choi
Niigata University
- 31aAJ9 Design method of freeform imaging spectrometer using a point-by-point process**
○Yang Tong, Dewen Cheng, Yongtian Wang
Beijing Engineering Research Center of Mixed Reality and Advanced Display, School of Optoelectronics, Beijing Institute of Technology

Wednesday, October 31 [Room C]

9:00 - 10:15

Optical Science

Mid Infrared Light and Imaging

Chair: Sunao Kurimura (NIMS)

- 31aCJ1 [Invite] Langasite nonlinear optical crystals**
○Jiyang Wang, Haohai Yu, Huaijin Zhang
Shandong University, China
- 31aCJ2 [Invite] Mid-IR imaging and spectroscopy with upconversion detection by nonlinear optics**
○Peter Tidemand-Lichtenberg
Technical University of Denmark, Denmark
- 31aCJ3 Broad NIR generation and spectral tuning using quasi-3D nonlinear optical crystals**
J.-Y. Han¹, K.-H. Chang¹, T.-F. Pan¹, ○L.-H. Peng¹, A. Boudrioua²
¹National Taiwan University, ²University of Paris 13

11:00 - 12:15
Optical Science
Phonon Engineering and
Photonic Devices

- 31aCJ4 [Invite]**
Phononics learn from photonics: thermal phonon engineering by phononic crystal
○Masahiro Nomura^{1,2}
Institute of Industrial Science, the University of Tokyo¹, ²PRESTO, JST
- 31aCJ5 Guided mode resonance based magnetic field sensor including Ni nano-grating**
○Yuusuke Takashima, Masanobu Haraguchi, Yoshiki Naoi
Tokushima University
- 31aCJ6 Direct generation of bottle beam from a frequency-doubled Nd:YVO₄ laser**
○Yuanyuan Ma¹, Jung-Chen Tung², Katsuhiko Miyamoto^{1,2}, Takashige Omatsu^{1,2},
¹Graduate School of Engineering, Chiba University, ²Molecular chirality research center
- 31aCJ7 SPR-ellipsometric measurements for zeolite-based biogas detection**
○Mayuko Ikeda, Hiroaki Matsui, Yasuhiro Kuranaga, Jongyoon Park, Hitoshi Tabata
University of Tokyo, School of engineering

Wednesday, October 31 [Room P]

13:00 - 14:30
Poster Session

- 31pPJ1 Sub-pixel movement detection based on micro lens array integrated camera**
○MinSeok Kim, HyunMyung Kim, HyukJae Jang, GilJu Lee, YoungMin Song
Gwangju Institute of Science and Technology
- 31pPJ2 Texture analyses of optical coherence tomography images obtained during tumor development**
○Hsiang-Chieh Lee¹, Meng-Tsan Tsai²
¹Institute of Photonics and Optoelectronics, National Taiwan University, Taiwan, ²Department of Electrical Engineering, Chang Gung University, Taiwan
- 31pPJ3 The Present of the Endoscopic Optical Lens Module for a Fiber-Optic Bundle Imaging System**
○Hyeonjin Bang, Kiri Lee, Byungjun Park, Byungyeon Kim, Youngjae Won, Seungrag Lee
Osong Medical Innovation Foundation
- 31pPJ4 Multi-contrast imaging of structural modifications produced by femtosecond laser pulses in BK7 glass with an LED array microscope**
○Ryo Sugimoto¹, Ryoji Mariyama¹, Mitsutoshi Fukumoto¹, Atsushi Muratsugu², Wataru Watanabe¹
¹Ritsumeikan University, ²Osaka University
- 31pPJ5 Broadband anti-reflection structures applicable to visible-NIR microscope**
○HyukJae Jang, YoungJin Yoo, YeongJae Kim, GilJu Lee, YoungMin Song
Gwangju Institute of Science and Technology

- 31pPJ6 High resolution remote gamma-ray spectroscopy system based on fiber-optic radiation sensor using a GRIN lens**
○Hyun Young Shin, Sang Hun Shin, Si Won Song, Hyungi Byun, Jae Hyung Park, Bongsoo Lee
School of Energy Systems Engineering, Chung-Ang University, Republic of Korea
- 31pPJ7 Biodegradable MIOM resonator for wide plasmonic coloring using chitosan film**
○Aizhan Ismukhanova¹, Jaehyuck Jang¹, Heonyeong Jeong², Junsuk Rho²
¹Department of Chemical Engineering, Pohang University of Science and Technology, ²Department of Mechanical Engineering, Pohang University of Science and Technology
- 31pPJ8 Broadband extraordinary optical transmission in a narrow subwavelength gap of infrared wire-grid-polarizers**
○Wonyoung Kim, Minsuk Kim, Tae Young Kim, Kyu-Tae Lee, Minbaek Lee, Chang Kwon Hwangbo
Inha University/Department of Physics
- 31pPJ9 Nondispersive optical activity in magnetically-coupled bilayer chiral metamaterials**
○Jagang Park¹, Hyun Sung Park¹, Jaehyeon Son¹, Yushin Kim¹, Hyukjoon Cho¹, Jonghwa Shin², Wonju Jeon¹, Bumki Min¹
¹Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology, ²Department of Materials Science and Engineering, Korea Advanced Institute of Science and Technology
- 31pPJ10 Weak optical signal enhancement based on stimulated Brillouin scattering in optical fiber**
○Liwen Sheng, Dexin Ba, Zhiwei Lu
Harbin Institute of Technology
- 31pPJ11 Broadband absorption of epsilon-near-zero and epsilon-near-pole 1D nanograting metamaterials in near-infrared regimes**
○Tae Young Kim¹, Minsuk Kim¹, Wonyoung Kim¹, Kyu-Tae Lee¹, Young-Chul Jun², Chang Kwon Hwangbo¹
¹Inha University, ²Ulsan National Institute of Science and Technology
- 31pPJ12 Fiber-optic imaging sensor for beta-ray using an image intensifier**
○Jae Hyung Park, Si Won Song, Hyungi Byun, Hyung Young Shin, Sang Hun Shin, Bongsoo Lee
School of Energy Systems Engineering, Chung-Ang University
- 31pPJ13 Fiber-optic position sensors using organic scintillators for HDR brachytherapy**
○Sang Hun Shin, Si Won Song, Hyun Young Shin, Bongsoo Lee
School of Energy Systems Engineering, Chung-Ang University
- 31pPJ14 Measurements of two dimensional gamma distributions of low radioactive waste using fiber-optic radiation sensor**
○Si Won Song¹, Sang Hun Shin¹, Hyun Young Shin¹, Jae Hyung Park¹, Hyungi Byun¹, Cheol Ho Pyeon², Bongsoo Lee¹
¹School of Energy Systems Engineering, Chung-Ang University, ²Nuclear Engineering Science Division, Research Reactor Institute, Kyoto University
- 31pPJ15 Fiber-optical analogue of Casimir effect**
○Chattopadhyay Rik, Bhadra Shyamal Kumar
Indian Association for the Cultivation of Science
- 31pPJ16 Experimental research of vibration compensation based on a fiber-coupling optical communication system using FFT**
○Mengnan Li, Zhuoying Zeng, Kangning Li
China Academy of Electronic and Information Technology