

OSJ - OSA Joint Symposia Program

Monday, October 30 [Room A]

9:30 - 10:30

OSJ - OSA Joint Symposia Nanophotonics Optical Manipulation 1

Chair: Toshiharu Saiki

- 30aON1 **[Invite 1]**
Light-induced Biomolecular Recognition Based on Nano Optical Manipulation
○Takuya Iida^{1,2}, Syoji Ito³, Shiho Tokonami^{2,4}
¹Graduate School of Science, Osaka Prefecture University, ²Research Institute for Light-induced Acceleration System (RILACS), ³Graduate School of Engineering and Science, Osaka University, ⁴Graduate School of Engineering, Osaka Prefecture University
- 30aON2 **Optical fabrication and trapping of microspheres in cryogenic conditions**
○Masaaki Ashida¹, Yosuke Minowa¹, Mitsutaka Kumakura², Yoshiki Moriwaki³
¹Graduate School of Engineering Science, Osaka University, ²Graduate School of Engineering, University of Fukui, ³Department of Physics, University of Toyama
- 30aON3 **Light induced glycine crystallization by utilizing an optical field possessing optical angular momentum**
○Junhyung Lee¹, Takeshi Murata^{1,2}, Katsuhiko Miyamoto^{1,2}, Takashige Omatsu^{1,2}
¹Graduate School of Science and Engineering, Chiba University, ²Molecular Chirality Research Center Chiba University

10:50 - 11:50

OSJ - OSA Joint Symposia Nanophotonics Biophotonics

Chair: Takuya Iida

- 30aON4 **[Invite 2]**
Micro-patterning of polymer microgels in the balance of a thermal force and a plasmon-enhanced optical force
○Mitsuhiro Deguchi, Yuki Uenobo, Tatsuya Shoji, Yasuyuki Tsuboi
Graduate School of Science, Osaka City University
- 30aON5 **Quantitative Detection of Target ssDNA by Digitally Counting Gold Nanoparticle Dimers**
○Takaha Mizuguch, Keiko Esashika, Toshiharu Saiki
Keio University
- 30aON6 **Direct observation of DNA motion near a nanopore**
Naoto Sakashita, Kento Lloyd, Tomoya Kubota, Taiki Ono, Kentaro Ishida, ○Toshiyuki Mitsui
Aoyamagakuin University

12:45 - 14:45

OSJ - OSA Joint Symposia Nanophotonics Optical Manipulation 2

Chair: Ki Tae Nam

- 30pON1 **[Invite 3]**
Label-Free Single-Molecule Thermoscopy Using a Laser - Heated Nanopore
Hirohito Yamazaki¹, Rui Hu^{1,3}, Robert Y. Henley¹, Justin Halman², Kirill A. Afonin², Dapeng Yu³, Qing Zhao³, ○Meni Wanunu¹
¹Department of Physics, Northeastern University, USA, ²Department of Chemistry, University of North Carolina, at Charlotte, USA, ³State Key Laboratory for Mesoscopic Physics, School of Physics, Peking University, PRC
- 30pON2 **Vortex nearfield with orbital angular momentum enables the chiral mass-transport in nano-scale**
○Keigo Masuda¹, Shogo Nakano¹, Yoshinori Kinezuka¹, Seigo Ohno², Daisuke Sakai³, Kenji Harada³, Katsuhiko Miyamoto^{1,4}, Takashige Omatsu^{1,4}
¹Graduate School of Advanced Integration Science, Chiba University, ²Department of Physics, Graduate School of Science, Tohoku University, ³Faculty of Engineering, Kitami Institute of Technology, ⁴Molecular Chirality Research Center, Chiba University
- 30pON3 **Creation of helical fiber with ultraviolet optical vortex illumination**
○Junhyung Lee¹, Yoshihiko Arita^{2,3}, Shunsuke Toyoshima¹, Reimon Matsuo¹, Katsuhiko Miyamoto¹, Kishan Dholakia², Takashige Omatsu^{1,3}
¹Graduate School of Science and Engineering, Chiba University, ²School of Physics and Astronomy, University of St. Andrews, UK, ³Molecular Chirality Research Center, Chiba University
- 30pON4 **Twisted Au nano-needle fabricated by optical vortex illumination**
○Yuri Nakamura¹, Tatsuyuki Sugimoto¹, Kai Izumisawa¹, Katsuhiko Miyamoto^{1,2}, Tsukasa Torimoto³, Ryuji Morita⁴, Keisaku Yamane⁴, Takashige Omatsu^{1,2}
¹Chiba University, ²Molecular Chirality Research Center, Chiba University, ³Nagoya University, ⁴Hokkaido University
- 30pON5 **Control of crystalline structure and FET property of MoTe₂ by laser irradiation**
Kota Kamiya¹, Tomoki Yamanaka¹, Trever Shimokusu¹, Hidemasu Ouchi¹, Kohei Sakanashi¹, Masahiro Matsunaga¹, Peter Kruger¹, Katsuhiko Miyamoto¹, Takashige Omatsu¹, Jonathan P. Bird², ○Nobuyuki Aoki¹
¹Chiba University, ²SUNY Buffalo
- 30pON6 **Mechano-plasmonics for stress detections**
○Hiroaki Matsui
The University of Tokyo
- 30pON7 **Subwavelength Color Printing with Mie Resonance-based Si Nanostructures**
○Masafumi Suzuki¹, Yusuke Nagasaki¹, Junichi Takahara^{1,2}
¹Osaka University, ²Osaka University Photonics Center

15:05 - 16:50
OSJ - OSA Joint Symposia
Nanophotonics
Plasmonics
Chair: Meni Wanunu

- 30pON8 **[Invite 4]**
Giant Chirality Evolution in Individual Plasmonic Nanoparticle
○Ki Tae Nam
Seoul National University, Korea
- 30pON9 **New chemical reactions based on a non-uniform optical near-field**
○Takashi Yatsui
University of Tokyo
- 30pON10 **Plasmonic Enhancement of Electrocatalytic Oxygen Reduction Reaction on Octahedral Au@Pt Nanoparticles**
○Tatsuya Kameyama, Kentaro Sato, Tsukasa Torimoto
Nagoya University
- 30pON11 **Enhancement of signal intensity of low-energy inverse photoelectron spectroscopy by surface plasmon resonance of Ag nanoparticles**
○Ryota Usui¹, Yuki Kashimoto¹, Hiroyuki Yoshida^{1,2}
¹Chiba University, ²Chiba Chirality
- 30pON12 **Excitation and probing of infrared nanoantenna modes under oblique illumination**
○Shuta Kitade¹, Shingo Usui², Ikki Morichika¹, Kensuke Kohmura², Fumiya Kusa², Satoshi Ashihara^{1,2}
¹IIS, the Univ. of Tokyo, ²Tokyo Univ. of Agriculture and Technology
- 30pON13 **Control of sub-nm spacing of gold nanoparticle dimers and wide-range tunability of localized surface plasmon resonance**
○Ryo Ishii, Keiko Esashika, Toshiharu Saiki
Keio University

17:00 - 17:45
OSJ - OSA Joint Symposia
Plenary Session
Chair: Takashige Omatsu

- 30pPL1 **Shaped light for nanophotonics: imaging and manipulation**
○Kishan Dholakia
University of St. Andrews, UK

Monday, October 30 (Room C)

9:30 - 10:30
OSJ - OSA Joint Symposia
Digital Photonics
Spectroscopic Imaging
Chair: Osamu Matoba

- 30aOD1 **[Invite 1]**
Compressive spectral imaging
○Adrian Stern, Yaniv Oiknine
Electro-Optics Department, Ben-Gurion University of the Negev, Israel

- 30aOD2 **Multispectral imaging of hemoglobin concentration and tissue scattering in mice during cutaneous two-stage chemical carcinogenesis**
○Wares MD. Abdul¹, Naoki Tobita¹, Izumi Nishidate¹, Satoko Kawauchi², Shunichi Sato²
¹Graduate School of Bio-Applications & Systems Engineering, Tokyo University of Agriculture and Technology, ²Division of Bioinformation and Therapeutic Systems, National Defense Medical College Research Institute
- 30aOD3 **A Bilinear Model for Hyperspectral Fluorescence and Reflectance Imaging**
○Naoyuki Ohara¹, Yinqiang Zheng², Tomoya Nakamura^{1,3}, Imari Sato^{1,2}, Masahiro Yamaguchi¹
¹School of Engineering, Tokyo Institute of Technology, ²National Institute of Informatics, ³JST PRESTO

11:00 - 12:00
OSJ - OSA Joint Symposia
Digital Photonics
Scattering and Turbulence
Chair: Masayuki Yokota

- 30aOD4 **[Invite 2]**
Incoherent lensless super-field-of-view imaging by artificially designed scattering medium
○Tomoya Nakamura^{1,2}
¹School of Engineering, Tokyo Institute of Japan, ²JST PRESTO
- 30aOD5 **Examining Single Scattering Region in Concentration, Depth, and Wavelength on Diluted Media**
○Kazusa Tsubota¹, Tsuyoshi Takatani¹, Takahito Aoto², Kenichiro Tanaka¹, Hiroyuki Kubo¹, Takuya Funatomi¹, Yasuhiro Mukaigawa¹
¹Nara Institute of Science and Technology, ²National Institute of Informatics
- 30aOD6 **Analysis of FSO Link under Atmospheric Turbulence from First Principle**
○Arka Mukherjee¹, Subrat Kar², Virander Kumar Jain²
¹Bharti School of Telecom Tech. and Mgmt., Indian Institute of Technology, Delhi, India, ²Dept. of Electrical Engg., Indian Institute of Technology, Delhi, India

13:30 - 15:00
OSJ - OSA Joint Symposia
Digital Photonics
Display
Chair: Pietro Ferraro

- 30pOD1 **[Invite 3]**
A holographic 3D display using fast binary phase-mode phase spatial light modulator
○Osamu Matoba
Kobe Univ.
- 30pOD2 **[Invite 4]**
Speckle reduction and occlusion processing in mesh based computer generated hologram
○Jae-Hyeung Park
Inha University, Korea
- 30pOD3 **Image quality evaluation of 3D display based on binary and gray-scale phase modulation by two iterative optimization methods with dummy area**
Syo Harada, Kouichi Nitta, ○Osamu Matoba
Kobe Univ.

30pOD4 Rewritable droplet array for creating digital 3D display
Kanta Yamada, Yoshihiro Nishimura,
○Mitsunori Saito
Ryukoku University

15:30 - 16:45
OSJ - OSA Joint Symposia
Digital Photonics
Digital Holography 1
Chair: Adrian Stern

30pOD5 [Invite 5]
Optobiology through Digital Holography: biological matter as photonic device
Pietro Ferraro
Institute of Applied Sciences and Intelligent Systems (CNR-ISASI), Italy

30pOD6 [Invite 6]
Digital holographic inspection systems for industrial applications
○Masayuki Yokota, Kazufumi Takeda,
Eiji Kusunoki
Shimane University

30pOD7 Two-color pump-probe digital holography
○Yoshio Hayasaki¹, Shin-ichi Fukuda¹,
Satoshi Hasegawa¹, Saulius Judokazis²
¹Utsunomiya Univ., ²Swinburne Univ. Tech.

Tuesday, October 31 [Room A]

9:00 - 10:30
OSJ - OSA Joint Symposia
Nanophotonics
Metamaterials
Chair: Toshiharu Saiki

31aON1 [Invite 5]
Phase change materials tuned metamaterials
Weiling Dong¹, Li Lu¹, Li Tian Chew¹,
Xilin Zhou¹, Tun Cao², ○Robert E. Simpson¹
¹Singapore University of Technology and Design (SUTD), Singapore, ²Dalian University of Technology, China

31aON2 Filtering aspects of silver nanowire-based hyperbolic metamaterial
M.A. Baqir, ○P.K. Choudhury, B.Y. Majlis
Institute of Microengineering & Nanoelectronics (IMEN) Universiti Kebangsaan Malaysia

31aON3 withdraw

31aON4 Optical Third-Harmonic Generation in Multilayer Graphene
Hao Yang¹, Honghua Guan¹, ○Yawen Sun²,
Jerry Dadap³, Richard M. Osgood^{1,3}
¹Department of Electrical Engineering, Columbia University, ²School of Optical and Electronic Information, Huazhong University of Science and Technology, ³Department of Applied Physics, Columbia University

31aON5 withdraw

11:00 - 12:00
OSJ - OSA Joint Symposia
Nanophotonics
Quantum Optics
Chair: Dawn Tan

31aON6 [Invite 6]
Diamond light matter quantum interface
○Fedor Jelezko
Ulm University, Germany

31aON7 Investigation of Tapered Optical Fiber Coated with Graphene Quantum Dots Combined Gold Nanoparticles for Detecting Lard
○C.H.C. Lah^{1,2}, N. Jamaludin³, F.Z. Rokhani^{1,5},
S.A. Rashid^{4,5}, ○A.S.M.Noor^{1,2}

¹Department of Computer and Communication Systems Engineering, Faculty of Engineering, Universiti Putra Malaysia, ²Research Centre of Excellence for Wireless and Photonic Network, Faculty of Engineering, Universiti Putra Malaysia, ³Materials Processing and Technology Laboratory (Nanomaterials and Nanotechnology Group), Institute of Advanced Technology, Universiti Putra Malaysia, ⁴Department of Chemical and Environmental Engineering, Faculty of Engineering, Universiti Putra Malaysia, ⁵Halal Research and Product Institute, Universiti Putra Malaysia

31aON8 Spectral control of surface phonon polariton using phase change material for tunable surface enhanced infrared spectroscopy
○Masaki Nakamura¹, Masashi Kuwahara²,
Toshiharu Saiki¹
¹Keio University, ²National Institute of Advanced Industrial Science and Technology

13:00 - 14:45
OSJ - OSA Joint Symposia
Nanophotonics
Photonic Devices
Chair: Robert Simpson

31pON1 [Invite 7]
Ultra-silicon-rich nitride based devices for high nonlinear figure of merit photonics applications
○D.T.H. Tan¹, D.K.T. Ng², K.J.A. Ooi¹,
E. Sahin¹, G.F.R. Chen¹, J.W. Choi¹,
B.U. Sohn¹, P. Xing¹

¹Photonics Devices and Systems Group, Singapore University of Technology and Design, Singapore, ²Data Storage Institute (A*STAR) Agency for Science Technology & Research, Singapore

31pON2 Polarizationkeeping research of a dichromatic beam-splitter for laser lights with 780nm and 810nm wavelength
○Dingquan Liu^{1,2,3}, ○Gang Chen^{1,3},
Daqi Li¹, Chong Ma¹, Kaixuan Wang^{1,2,3}
¹Shanghai Institute of Technical Physics, Chinese Academy of Sciences, ²School of Physical Science and Technology, ShanghaiTech University, ³University of Chinese Academy of Sciences

31pON3 On-Chip Waveguide Amplifier Using Rare Earth Doped Polymers.
○George Chen Fengrong¹, Zhao Xinyu¹,
Yang Sun², He Chaobin², Tan Mei Chee¹,
Dawn Tan¹

¹Singapore University of Technology and Design, Engineering Product Development, ²National University of Singapore, Department of Material Science and Engineering

31pON4 Nano-sized free volume for dye diffusion in a flexible ring laser
Kazuma Yoneda, Jumpei Nogami,
○Saito Mitsunori
Ryukoku University

- 31pON5 **Coding two-dimensional images into mode spectrum of silicon microcavity covered with a phase-change layer**
 Farrabi Sobhi¹, Yuya Kihara¹, Daichi Kataiwa¹, Yoshihiro Taguchi¹, Masashi Kuwahara², Toshiharu Saiki¹
¹Keio University, ²National Institute of Advanced Industrial Science and Technology
- 31pON6 **Optical Properties Study of Ta₂O₅ and SiO₂ Thin Films in Near Ultraviolet Band**
 Gang Chen, Dingquan Liu, Chong Ma
 Shanghai Institute of Technical Physics, Chinese Academy of Sciences

Tuesday, October 31 (Room C)

9:30 - 10:30
OSJ - OSA Joint Symposia
Digital Photonics
Digital Holography 2
 Chair: Gabriel Popescu

- 31aOD1 **[Invite 7]**
Recent progress in digital holographic microscopy: From superresolution to ultrafast imaging
 Chau-Jern Cheng
 Institute of Electro-Optical Science and Technology, National Taiwan Normal University, Taiwan
- 31aOD2 **Investigation of effect of optical elements on the image quality in incoherent Fourier digital holography using a rotational shearing interferometer**
 Takuya Matsuda¹, Takanori Nomura²
¹Graduate School of System Engineering, Wakayama University, ²Faculty of System Engineering, Wakayama University
- 31aOD3 **Single-shot in-line digital holography without twin-image using diffused illumination**
 Takanori Nomura¹, Kenichi Nisaka²
¹Faculty of Systems Engineering, Wakayama University, ²Graduate School of Systems Engineering, Wakayama University

11:00 - 11:45
OSJ - OSA Joint Symposia
Digital Photonics
Imaging
 Chair: Takanori Nomura

- 31aOD4 **Single-pixel diffractive imaging with compressive sensing**
 Ryoichi Horisaki, Jun Tanida
 Osaka University
- 31aOD5 **Single Pixel Imaging with pAIRR**
 Shogo Morita, Hirotsugu Yamamoto
 Utsunomiya University
- 31aOD6 **High-frame-rate image capturing for time-of-flight range imager based on exposure coding with a multi-aperture imaging system**
 Daisuke Miyazaki¹, Takehiro Ebata¹, Kazuma Arimori¹, Futa Mochizuki², Keiichiro Kagawa², Shoji Kawahito²
¹Osaka City University, ²Shizuoka University

12:45 - 14:45
OSJ - OSA Joint Symposia
Digital Photonics
Biophotonics
 Chair: Chau-Jern Cheng

- 31pOD1 **[Invite 8]**
Gradient light interference microscopy (GLIM) for studying thick 3D cellular systems
 Gabriel Popescu
 University of Illinois at Urbana-Champaign, USA
- 31pOD2 **[Invite 9]**
Investigation and correction of optical disturbance caused by living plant cells
 Yosuke Tamada^{1,2}, Masayuki Hattori^{1,3}
¹National Institute for Basic Biology, National Institutes of Natural Sciences, ²School of Life Science, The Graduate University for Advanced Studies (SOKENDAI), ³National Astronomical Observatory of Japan, National Institutes of Natural Sciences
- 31pOD3 **Assessment of cerebral hemodynamics and tissue morphology of rat brain during cortical spreading depolarization with a digital RGB camera**
 Mustari Afrina¹, Takuya Kanie¹, Izumi Nishide¹, Satoko Kawauchi², Shunichi Sato², Manabu Sato³, Yasuaki Kokubo⁴
¹Graduate School of Bio-Applications & 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, ⁴Department of Neurosurgery, Yamagata University Faculty of Medicine
- 31pOD4 **Tissue disorder for label-free diagnosis of biopsies using quantitative phase imaging**
 Masanori Takabayashi^{1,2}, Hassaan Majeed², Andre Kajdacsy-Balla³, Gabriel Popescu²
¹Kyushu Institute of Technology, ²University of Illinois at Urbana-Champaign, ³University of Illinois at Chicago
- 31pOD5 **Iterative reconstruction method for refractive index tomography based on the transport of intensity equation**
 Aina Ikezaki¹, Takanori Nomura²
¹Graduate School of Systems Engineering, Wakayama University, ²Faculty of Systems Engineering, Wakayama University
- 31pOD6 **Monitoring of mitochondrial membrane potential by using two-photon fluorescence microscope**
 Yasutaka Suzuki¹, Naoya Asamura¹, Hiroki Moritomo², Jun Kawamata²
¹Faculty of Science, Yamaguchi University, ²National Institute of Technology, Tsuyama College