

Room G (201)

Session Title 28G2 / [T01] Optical Mode Control
Date & Time Friday, 28 August, 11:00 ~ 12:15
Session Chair Jiwon Kim (Hanyang University, Korea)

[28G2-1] 11:00~11:15

High Efficient Frequency Doubling of Optical Vortex

Yuta Sasaki¹, Taximaiti Yusufu^{1,2}, Katsuhiko Miyamoto¹, and Takashige Omatsu^{1,2}

¹Chiba University, Japan, ²CREST Japan Science and Technology Agency, Japan

We present the first demonstration of the ultrahighly efficient second harmonic generation of an optical vortex pulse. An optical-optical efficiency of >70% frequency-doubled vortex output was obtained.

[28G2-2] 11:15~11:30

Transverse Mode Control of a Nd:YAG Laser Using an Acousto-Optic Modulator

E. J. Park, D. J. Kim, and J. W. Kim

Hanyang University, Korea

A simple technique to control the transverse beam profile employing an acousto-optic modulator in the secondary cavity of a solid state laser system is reported.

[28G2-3] 11:30~11:45

Conversion of Orbital Angular Momentum in Helical Long-Period Fiber Gratings

Xiaoqiang Zhang and Anting Wang

University of Science and Technology of China, China

In this paper, we use an UV-side exposure method to obtain a helical long-period fiber grating (H-LPG) which can generate and convert the optical vortices (OVs). The H-LPG is obtained by rotating fiber which is three layer during single-side UV exposure. The H-LPG is directly inscribed on the central layer of the ring-core-fiber (RCF). Using this fiber the order of the OVs can be adjusted efficiently and we can get higher order vortices easily.

[28G2-4] 11:45~12:00

Coupled Multicore Fibers in the High Power Regime: Impact of Core Size Mismatch

Henrik Tünnermann and Akira Shirakawa

University of Electro-Communications, Japan

The impact of core diameter mismatch in multicore fibers in the context of the Kerr nonlinearity is analyzed. A mismatch decreases the stability of the even mode. The odd mode is unaffected.

[28G2-5] 12:00~12:15

Passively Q-switched and Cylindrical Vector Fiber Laser

Lin Zou, Yao Yao, and Jianlang Li

Chinese Academy of Sciences, China

We demonstrated a passively Q-switched Yb-doped fiber laser that emitted azimuthally polarized pulse with high efficiency and high output power. The polarization discrimination mechanism by utilizing a single lens and a birefringent crystal was developed.

Room H (202)

Session Title 28H2 / [T11] In vivo and In vitro Methods
Date & Time Friday, 28 August, 11:00 ~ 12:30
Session Chair Shi-Wei Chu (National Taiwan University, Taiwan)

[28H2-1] 11:00~11:30 Invited Talk

In Vivo Multiphoton Imaging of Mouse Brain

Chris Xu

Cornell University, USA

3-photon microscopy at the long wavelength spectral windows is well suited for deep imaging within scattering biological tissues. In vivo 3-photon imaging of neuronal structure and function deep within an intact mouse brain is presented.

[28H2-2] 11:30~12:00 Invited Talk

Intravascular Photoacoustic Tomography for Characterization of Atherosclerotic Lipid and Inflammation

Sihua Yang, Jian Zhang, Yue Zhao and Da Xing

South China Normal University, China

This study sought to examine whether intravascular photoacoustic tomography (IVPAT) allows localization and quantification of lipid content in atherosclerotic plaques.

[28H2-3] 12:00~12:15

Seeing an Explosive Way of NSF/SNAP-mediated SNARE-complex Disassembly Using Single-molecule Measurements

Je-Kyung Ryu¹, Duyoung Min¹, Sang-Hyun Rah¹, Haesoo Kim¹, Reinhard Jahn², and Tae-Young Yoon¹

¹KAIST, Korea, ²Max-Planck-Institute for Biophysical Chemistry, Germany

N-ethylmaleimide-sensitive factor (NSF) and alpha soluble NSF attachment protein (α -SNAP) disassemble the SNAP receptor (SNARE) complex for recycling of the SNARE proteins. Using single-molecule fluorescence and force spectroscopy, we found that NSF appears to use a "spring-loaded" mechanism.

[28H2-4] 12:15~12:30

In-fiber Photo-immobilized Bioactive Surfaces for Liposome Tethering

Derrick Yong^{1,2}, Elizabeth Lee¹, Kwang Yong Lee², Yi Yang Tan², Xia Yu¹, Chi Chiu Char², Quan Liu², and Chenjie Xu²

¹Singapore Institute of Manufacturing Technology, Singapore, ²Nanyang Technological University, Singapore

The in-fiber surface-attachment of dye-loaded liposomes is demonstrated. This was achieved via in-fiber light-induced biotin-functionalization, enabling the subsequent sandwiching of streptavidin with biotinylated-liposomes. Liposomes were then probed through in-fiber fluorescence spectroscopy.