Room I (203)

Session Title 26I2 / [T10] Advances in Metamaterials
Date & Time Wednesday, 26 August, 11:00 ~ 12:15
Session Chairs Masaaki Ono (NTT, Japan)
Young Chul Jun (UNIST, Korea)

[26I2-1] 11:00~11:30 Invited Talk

Hyperbolic Metamaterials

Evgenii Narimanov[1] and Ishii Satoshi[2]

[1]Purdue University, USA, [2]National Institute for Materials Science, Japan

Photonic hyper-crystals represent a new class of artificial optical media. These composites, which are hyperbolic metamaterials with periodic spatial variation of dielectric permittivity on a subwavelength scale, combine the features of optical metamaterials and photonic crystals.

[26I2-2] 11:30~11:45

Tunable and Broadband Perfect Absorption in Epsilon-Near-Zero Indium Tin Oxide Thin Films at Near Infrared Wavelengths

Junho Yoon[1], Md. Alamgir Badsha[1], Tae Young Kim[1], Young Chul Jun[2], and Chang Kwon Hwangbo[1]

[1]Inha University, Korea, [2]UNIST, Korea

In this study we demonstrate tunable and broadband perfect absorption in epsilon-near-zero ITO thin films and multilayers at near infrared wavelengths and investigate their optical, electrical, and structural properties.

[26I2-3] 11:45~12:00

Hollow Core Negative Curvature Fiber with Layers of Photoaligned SD1 Azo Dye

Denis Bogdanovich[1], Abhishek Shristava[2], Vladimir Chigrinov[2], Alexander Biriukov[3], and Andrey Pryamikov[3]

[1]Irkutsk State Technical University, Russia, [2]Hong Kong University of Science and Technology, Hong Kong, China, [3]Russian Academy of Sciences, Russia

Microstructured hollow core negative curvature fiber containing layers of SD1 azo dye exhibits spectral shift of photonic bandgaps and change of guided light amplitude under the influence of external linearly polarized UV radiation.

[26I2-4] 12:00~12:15

Full-field Sub-wavelength Imaging with a Multiple Scattering

Chunghyun Park[1], Jung-Hoon park[1], Christophe Rodriguez[1], Hyeon Seung Yu[1], Minkwan Kim[1], Kyoungsuk Jin[2], Seungyong Han[2], Jonghwa Shin[1], Seung Hwan Ko[2], Ki Tae Nam[2], Yong Hee Lee[1], Y. Cho[1], and Yong Keun Park[1]

[1]KAIST, Korea, [2]Seoul National University, Korea

We demonstrate the scattering superlens using elastic scattering to obtain sub-diffraction resolution. Scattering from disordered nanoparticles enables to reconstruct the sub-wavelength image of the target through time-reversal and transmission matrix.

Room J (204)

Session Title 26J2 / [T12] Ⅲ-Ⅴ Integrated Photonics
Date & Time Wednesday, 26 August, 11:00 ~ 12:00
Session Chairs James A. Lott (Technische Universität Berlin, Germany)
Yongsoon Baek (ETRI, Korea)

[26J2-1] 11:00~11:30 Invited Talk

Development of a Versatile InP-Based Photonic Platform Based on Butt-Joint Integration

Francisco M. Soares, Francisco M. Soares, Tom Gaertner, Dieter Franke, Martin Moehrle, and Norbert Grote

Fraunhofer Heinrich-Hertz Institute, Germany

This paper describes the development of a very-versatile InP-Based Photonic-Integration platform by Butt-Joint integration of the passive waveguides to active waveguides across a relatively high mesa of 3-4μm. The Butt-Joint losses are currently around 1dB.

[26J2-2] 11:30~11:45

Dynamic Behavior of 1.3-μm npn-AlGaInAs/InP Transistor Lasers under Collector-Base Voltage Loss-modulation

Takaaki Kaneko, Takumi Yoshida, Tadano Shotaro, Nobuhiko Nishiyama, and Shigehisa Arai

Tokyo Institute of Technology, Japan

An intensity modulation of 1.3-μm wavelength npn AlGaInAs/InP transistor laser was demonstrated by collector-base voltage loss-modulation at 1 GHz. A 150-ps wide pulse operation was observed with the peak intensity enhanced by approximately 6 times the CW intensity level.

[26J2-3] 11:45~12:00

Experimental and Numerical Investigation of Slow Carrier Relaxation in an InGaAs/GaAs Quantum Dot Laser Diode

Jong Min Lee[1], Bong Hwan Jun[1], Donghan Lee[1], and Jungho Kim[2]

[1]Chungnam National University, Korea, [2]Kyung Hee University, Korea

Spontaneous emission from InGaAs/GaAs quantum dots was investigated above the lasing threshold through windows structure on a laser diode. We found a clear evidence of slow carrier relaxation from the excited state to the ground state in a lasing condition.