

Room I (203)

Session Title 28I2 / [T13] Optical Storage and Information Processing
Date & Time Friday, 28 August, 11:00 ~ 12:15
Session Chairs Hoonjong Kang (KETI, Korea)
Jae-Hyeung Park (Inha University, Korea)

[28I2-1] 11:00~11:30 Invited Talk

Encryption and Data Embedding of Error Diffusion Hologram

Peter Tsang

City University of Hong Kong, Hong Kong, China

A fast method for converting a complex hologram into an encrypted data embedded phase-only hologram (POH) is described. Both the hologram and the embedded data can only be retrieved with the correct encryption key.

[28I2-2] 11:30~11:45

Optical Beam and Operator in Low Dimensional Space

Shifeng Li, Gang Zhao, Yiqiang Qin, Xinjie Lv, and Shining Zhu

Nanjing University, China

The concept of low dimensional optical beam and operator are proposed. Beam and operator can be decomposed to orthogonal low dimensional beams and operators through the singular value decomposition method. Storage space can be saved.

[28I2-3] 11:45~12:00

Simultaneous 10 Gbit/s 4-PAM Wired Signal and 1 Gbit/s MB-UWB Wireless Signal Downstream Transport in WDM-PON

Huan Ma, Fei Wang, Weibin Wang, Xin Zhang, and Qiong Yu

Chongqing University of Technology, China

Simultaneously transport multi-band ultra-wideband (MB-UWB) wireless signal and multi-level wired signal over single wavelength in wavelength-division multiplexing passive optical network (WDM-PON) is proposed, which can greatly improve spectrum efficiency and transmission ability of optical infrastructure.

[28I2-4] 12:00~12:15

Wavelets for Multiview Imaging

Vladimir Saveljev^{1,2}

¹Hanyang University, Korea, ²KIST, Korea

Considering the previously proposed reference functions for multiview and integral images as scaling functions of a wavelet transform, the multiview wavelets are proposed.

Room J (204)

Session Title 28J2 / [T12] Nano Grating Lasers
Date & Time Friday, 28 August, 11:00 ~ 12:30
Session Chairs David Marpaung (University Sydney, Australia)
Min-cheol Oh (Pusan National University, Korea)

[28J2-1] 11:00~11:30 Invited Talk

A Fully Analog Electronic Dispersion Compensator for 10-Gb/s Directly Modulated Distributed-Feedback Lasers

Kyeongha Kwon, Jonghyeok Yoon, Hyosup Won, and Hyeon-Min Bae

KAIST, Korea

This paper presents the design of an electronic dispersion compensator (EDC) for 10-Gb/s directly modulated distributed-feedback (DM-DFB) lasers. The proposed EDC overcomes the chirp-induced dispersion and achieves 2x reach extension in SMF-28 optical fiber.

[28J2-2] 11:30~11:45

Room-temperature Continuous-wave Operation of $\lambda/4$ -shifted Membrane Distributed Feedback Lasers

Takahiro Tomiyasu, Daisuke Inoue, Takuo Hiratani, Yuki Atsugi, Tomohiro Amemiya, Nobuhiko Nishiyama, and Shigehisa Arai

Tokyo Institute of Technology, Japan

We realized $\lambda/4$ -shifted membrane DFB lasers for an ultralow threshold current operation. A threshold current of 280 μ A was obtained for the cavity length of 30 μ m under room-temperature continuous-wave condition.

[28J2-3] 11:45~12:00

A Sub-microwatt Threshold Raman Silicon Laser Using a High-Q Nanocavity

Daiki Yamashita¹, Yasushi Takahashi¹, Takashi Asano², and Susumu Noda²

¹Osaka Prefecture University, Japan, ²Kyoto University, Japan

We develop a nanocavity Raman Si laser with a submicrowatt threshold of 0.52 μ W by accurately matching a frequency spacing of the two nanocavity modes to the Raman shift of Si nanocavity.

[28J2-4] 12:00~12:15

Radio Frequency Signal Stability Study of the Dual-Wavelength DFB Laser

Yi-Chia Hwang, Jen-Hung Huang, Bai-Ci Chen, Yao-Zhong Dong, Shun-Chieh Hsu, and Chien-Chung Lin

National Chiao Tung University, Taiwan

The peak frequency stability in the time domain is examined in the monolithic and discrete component conditions. The RF peak drift is two times less in the monolithic case than that of the discrete component.

[28J2-5] 12:15~12:30

Cut-off Frequency Enhancement of Light-Emitting Transistor under Illumination

Shan Fong Leong, Yuan-Fu Hsu, and Chao-Hsin Wu

National Taiwan University, Taiwan

A monolithic-integrated device with light-emitter and photodetector in light-emitting transistor (LET) format is fabricated. The electrical speed, i.e. cut-off frequency, of the LET is found to be modulated and enhanced by the self-aligned optical input.