

**Room I (203)**

**Session Title** 28I1 / [T13] Holographic Display  
**Date & Time** Friday, 28 August, 09:00 ~ 10:30  
**Session Chairs** Peter Tsang (City University of Hong Kong, Hong Kong, China)  
 Vladimir Saveljev (KIST, Korea)

**[28I1-1] 09:00~09:30 Invited Talk**

**Video-rate Color Holographic Displays Using Doped Liquid Crystals**

*Yikai Su, Xiao Li, Pengcheng Zhou, Yan Li, and Chaoping Chen  
 Shanghai Jiao Tong University, China*

Real-time holographic displays are achieved with dyedoped and quantum-dot doped liquid crystals. Reconstructed holographic videos at a refresh rate of 60 Hz are demonstrated by experiments with color multiplexing capability.

**[28I1-2] 09:30~10:00 Invited Talk**

**3D Color Holographic Imaging by Wavefront Printing**

*Hoonjong Kang<sup>1</sup>, Elena Stoykova<sup>2</sup>, Youngmin Kim<sup>1</sup>, Sunghee Hong<sup>1</sup>, Joosup Park<sup>1</sup>, and Jisoo Hong<sup>1</sup>*

<sup>1</sup>Korea Electronics Technology Institute, Korea, <sup>2</sup>Bulgarian Academy of Sciences, Bulgaria

Design and implementation of a holographic wavefront printer with demagnification of the object beam is presented. The printer prints a white light viewable color analog hologram from a set of computer generated holograms displayed on an amplitude spatial-light modulator. We achieved bright 3D reconstruction with a motion parallax at saturated colors from holograms of test objects that were printed on a silver-halide emulsion.

**[28I1-3] 10:00~10:15**

**Full-color 13-inch Electronic Holographic Display with 16.5 Megapixels**

*Woonchan Moon<sup>1</sup>, Hwi Kim<sup>2</sup>, and Joonku Hahn<sup>1</sup>*

<sup>1</sup>Kyungpook National University, Korea, <sup>2</sup>Korea University, Korea

We propose a high-resolution electronic holographic system with eight high resolution liquid crystals. We use two large parabolic mirrors where one is for the collimation and the other is for focusing on the viewing window.

**[28I1-4] 10:15~10:30**

**RGB Emitters by Optical Parametric Generation Using Nonlinear Waveguide**

*Hwan Hong Lim, Sunao Kurimura, and Kazufumi Fujii*

*National Institute for Materials Science, Japan*

We demonstrated RGB laser sources by optical parametric-generation using first-order quasi-phaseshifted adhered slab waveguides with a periodically-poled Mg-doped stoichiometric lithium tantalate core. We also examined the extensible spectral bandwidth by chirped periods against speckle with simulation.

**Room J (204)**

**Session Title** 28J1 / [T12] Band-broadening Photonics  
**Date & Time** Friday, 28 August, 09:00 ~ 10:15  
**Session Chairs** Francisco M. Soares (Fraunhofer HHI, Germany)  
 Hyun-min Bae (KAIST, Korea)

**[28J1-1] 09:00~09:30 Invited Talk**

**Material Platforms for Nonlinear Integrated Microwave Photonics**

*David Marpaung  
 University of Sydney, Australia*

Harnessing nonlinear optical effects in a photonic chip scale has been proven useful for a number of key microwave photonic applications. Here we look at a number of material platforms that can serve as the ideal platform for nonlinear integrated microwave photonics.

**[28J1-2] 09:30~09:45**

**Multiple Frequencies Microwave Measurement Using a Tunable Brillouin RF Photonic Filter**

*Hengyun Jiang<sup>1,2</sup>, David Marpaung<sup>1</sup>, Mattia Pagani<sup>1</sup>, Lianshan Yar<sup>2</sup>, and Benjamin Eggleton<sup>1</sup>*  
<sup>1</sup>University of Sydney, Australia, <sup>2</sup>Southwest Jiaotong University, China

A photonic scheme of instantaneous multiple microwave frequencies measurement is realized using a narrow-band tunable notch filter based on stimulated Brillouin scattering. Using this technique, estimation of multiple GHz microwave frequencies with errors lower than 250 kHz is achieved.

**[28J1-3] 09:45~10:00**

**Enhanced Four-wave Mixing in a Compact Silicon-graphene Microring Resonator**

*Mengxi Ji<sup>1</sup>, Like Deng<sup>1</sup>, Yahui Cheng<sup>1</sup>, Heng Cai<sup>1</sup>, Jinsong Xia<sup>1</sup>, Jinzhong Yu<sup>1,2</sup>, and Yi Wang<sup>1</sup>*  
<sup>1</sup>Huazhong University of Science and Technology, China, <sup>2</sup>Chinese Academy of Sciences, China

Monolayer graphene is transferred onto a 10- $\mu$ m-radius silicon microring. A 6.8-dB continuous-wave four-wave mixing conversion efficiency enhancement in the compact silicon-graphene microring is demonstrated, which is assisted by the nonlinearity of the monolayer graphene.

**[28J1-4] 10:00~10:15**

**Tunable Wavelength Filters Based on Dual Polymer Bragg Gratings and a Mode Sorting Waveguide**

*Jin-Soo Shin<sup>1</sup>, Chang-Hee Lee<sup>1</sup>, Sang-Yung Shin<sup>1</sup>, Tae-Hyun Park<sup>2</sup>, Woo-Sung Chu<sup>2</sup>, and Min-Cheol Oh<sup>2</sup>*

<sup>1</sup>KAIST, Korea, <sup>2</sup>Pusan National University, Korea

Tunable wavelength filter is proposed and demonstrated by using Bragg reflector and asymmetric Xjunction, which is suitable for low-cost compact WDM application.