

CONFERENCE 10108

LOCATION: ROOM 308 (SOUTH ESPLANADE)

Monday-Wednesday 30 January-1 February 2017 • Proceedings of SPIE Vol. 10108

Silicon Photonics XII

Conference Chairs: **Graham T. Reed**, Optoelectronics Research Ctr. (United Kingdom); **Andrew P. Knights**, McMaster Univ. (Canada)

Program Committee: **Martijn J. R. Heck**, Aarhus Univ. (Denmark); **Siegfried Janz**, National Research Council Canada (Canada); **Joel Kubby**, Univ. of California, Santa Cruz (USA); **Goran Z. Mashanovich**, Univ. of Southampton (United Kingdom); **Ching Eng Jason Png**, A*STAR Institute of High Performance Computing (Singapore); **Andrew W. Poon**, Hong Kong Univ. of Science and Technology (Hong Kong, China); **Haisheng Rong**, Intel Corp. (USA); **Laurent Vivien**, Institut d'Electronique Fondamentale (France); **Jeremy Witzens**, RWTH Aachen Univ. (Germany); **Dan-Xia Xu**, National Research Council Canada (Canada); **Kaikai Xu**, State Key Lab. of Electronic Thin Films & Integrated Devices (China); **Shui-Qing Yu**, Univ. of Arkansas (USA); **Zhiping Zhou**, Peking Univ. (China); **Aaron J. Zilkie**, Rockley Photonics (USA)

MONDAY 30 JANUARY

OPTO PLENARY SESSION

ROOM: 3009 (WEST LEVEL 3) MON 8:00 AM TO 10:05 AM

- 8:00 am: **Welcome and Opening Remarks**
Shibin Jiang, AdValue Photonics, Inc. (USA); **Jean Emmanuel Broquin** IMEP-LAHC (France)
- 8:00 am: **Presentation of 2017 SPIE Technology Achievement Award**
Presented by SPIE President to:
Edward Delp III, Purdue Univ. (USA)
- 8:05 am: **Non-reciprocal photonic gauge potential and non-equilibrium thermal metaphotonics for the control of light and heat (Plenary)**
Shanhui Fan, Edward L. Ginzton Lab., Stanford Univ. (USA)
- 8:45 am: **A quarter century of quantum-dot-based photonics: Fundamental advantages and applications for energy-efficient and secure information systems (Plenary)**
Dieter H. Bimberg, Institute of Solid State Physics, Technische Univ. Berlin (Germany)
- 9:25 am: **LiFi: transforming fibre into wireless (Plenary)**
Liang Yin, Mohamed Sufyan Islm, The Univ. of Edinburgh (United Kingdom); **Harald Haas**, The Univ. of Edinburgh (United Kingdom) and pureLiFi Ltd. (United Kingdom)

Coffee Break Mon 10:05 am to 10:30 am

SESSION 1

ROOM: 308 (SOUTH ESPLANADE) MON 10:30 AM TO 12:30 PM

Modulators

Session Chair: **Andrew P. Knights**, McMaster Univ. (Canada)

- 10:30 am: **Passively Biased Resonantly Enhanced Silicon Photonics Modulator with High Optical Bandwidth (Invited Paper)**, **Jeremy Witzens**, **Sebastian Romero-Garcia**, **Alvaro Moscoso-Martir**, **Bin Shen**, **Saeed Sharif Azadeh**, **Jovana Nojic**, **Florian Merget**, RWTH Aachen Univ. (Germany) [10108-1]
- 11:00 am: **New materials for modulators and switches in silicon photonics (Invited Paper)**, **Dries Van Thourhout**, Univ. Gent (Belgium); **Marianna Pantouvaki**, IMEC (Belgium); **Herbert D'Heer**, **Koen Alexander**, **Bart Kuyken**, Univ. Gent (Belgium); **Inge Asselberghs**, **Steven Brems**, **Cedric Huyghebaert**, IMEC (Belgium); **Leili Abdollahi Shiramin**, Univ. Gent (Belgium); **Chiara Alessandri**, IMEC (Belgium); **John P. George**, **Jeroen Beeckman**, Univ. Gent (Belgium); **Min-Hsiang Hsu**, **Clement Merckling**, **Joris Van Campenhout**, IMEC (Belgium) [10108-2]
- 11:30 am: **Numerical analysis and optimization of high-speed microring resonator modulators using high-performance carrier-depletion phase shifters**, **Jason Png**, **Thomas Y. L. Ang**, **Soon Thor Lim**, A*STAR Institute of High Performance Computing (Singapore) [10108-3]
- 11:50 am: **All-Optical Switch with 1 ps Response Time Enabled by Graphene Oxide Infiltrated Subwavelength Grating Waveguide**, **Xiaochuan Xu**, **Omega Optics, Inc.** (USA); **Zeyu Pan**, The Univ. of Texas at Austin (USA); **Baohua Jia**, **Swinburne Univ. of Technology** (Australia); **Yaguo Wang**, **Ray T. Chen**, The Univ. of Texas at Austin (USA) [10108-4]

12:10 pm: **High speed and low power consumption modulator based on electro-optic polymer infiltrated subwavelength grating waveguide ring resonator**, **Zeyu Pan**, The Univ. of Texas at Austin (USA); **Xiaochuan Xu**, **Omega Optics, Inc.** (USA); **Yaguo Wang**, The Univ. of Texas at Austin (USA); **Baohua Jia**, **Swinburne Univ. of Technology** (Australia); **Ray T. Chen**, The Univ. of Texas at Austin (USA) [10108-5]

Lunch Break Mon 12:30 pm to 1:30 pm

SESSION 2

ROOM: 308 (SOUTH ESPLANADE) MON 1:30 PM TO 3:10 PM

Waveguide Devices I

Session Chair: **Sophie LaRochelle**, Univ. Laval (Canada)

- 1:30 pm: **The impacts of fabrication error on spectral variation of silicon grating couplers**, **Tsuyoshi Horikawa**, National Institute of Advanced Industrial Science and Technology (Japan) and Photonics Electronics Technology Research Association (Japan); **Jun Ushida**, **Yohei Sobu**, Photonics Electronics Technology Research Association (Japan); **Daisuke Shimura**, Photonics Electronics Technology Research Association (Japan); **Akemi Shiina**, **Masatoshi Tokushima**, **Seok-Hwan Jeong**, **Keizo Kinoshita**, **Tohru Mogami**, Photonics Electronics Technology Research Association (Japan) [10108-6]
- 1:50 pm: **Silicon photonic device applications using micro-opto-electro-mechanical index perturbation**, **Marcel W. Pruessner**, **Doewon Park**, U.S. Naval Research Lab. (USA); **Zachary M. Awtry**, US Naval Research Lab. (USA); **Christopher L. Panuski**, U.S. Naval Academy (USA); **Dmitry A. Kozak**, **Rita Mahon**, **Todd H. Stievater**, **Peter G. Goetz**, **William S. Rabinovich**, U.S. Naval Research Lab. (USA) [10108-7]
- 2:10 pm: **Photonic crystal nanocavities with Q factor of 2 million fabricated by CMOS compatible process**, **Kohei Ashida**, Osaka Prefecture Univ. (Japan); **Makoto Okano**, **Minoru Ohtsuka**, **Miyoshi Seki**, **Nobuyuki Yokoyama**, **Keiji Koshino**, **Masahiko Mori**, National Institute of Advanced Industrial Science and Technology (Japan); **Yasushi Takahashi**, Osaka Prefecture Univ. (Japan); **Takashi Asano**, **Susumu Noda**, Kyoto Univ. (Japan) [10108-8]
- 2:30 pm: **Broad-band silicon bridge waveguide polarization beam splitter**, **Thomas Y. L. Ang**, **Jun Rong Ong**, A*STAR Institute of High Performance Computing (Singapore); **Soon Thor Lim**, A*STAR Institute of High Performance Computing (Singapore) and Optic2Connect Pte Ltd. (Singapore); **Bryan Pawlina**, **Jason C. E. Png**, **Hong-Son Chu**, A*STAR Institute of High Performance Computing (Singapore); **Ezgi Sahin**, **George F. R. Chen**, **Dawn T. H. Tan**, Singapore Univ. of Technology & Design (Singapore) [10108-9]
- 2:50 pm: **Second order add/drop filter with a single ring resonator**, **Matteo Cherchi**, **Fei Sun**, **Markku Kapulainen**, **Tapani Vehmas**, **Mikko Harjanne**, **Timo Aalto**, VTT Technical Research Ctr. of Finland Ltd. (Finland) [10108-10]
- Coffee Break Mon 3:10 pm to 3:40 pm