

# CONFERENCE 10106

## WEDNESDAY 1 FEBRUARY

### SESSION 6

ROOM: 276 (SOUTH MEZZANINE) ..... TUE 1:50 PM TO 3:30 PM

### Photonic Integration II

Session Chair: **Sonia M. García-Blanco**, Univ. Twente (Netherlands)

1:50 pm: **Recent advances in hybrid VO<sub>2</sub>/Si devices for enabling electro-optical functionalities** (*Invited Paper*), Pablo Sanchis, Univ. Politècnica de València (Spain); Luis D. Sánchez, Univ. Politècnica de Valencia (Spain); Teodora I. Angelova, Amadeu Griol Barres, Univ. Politècnica de València (Spain); Mariela Menghini, Pia Homm, Bart Van Bilzen, Jean-Pierre Locquet, KU Leuven (Belgium); Lars Zimmermann, IHP (Germany) ..... [10106-24]

2:20 pm: **Monolithic photonic integration technology platform and devices at wavelengths beyond 2µm for gas spectroscopy applications** (*Invited Paper*), Sylwester Latkowski, Petrus J. van Veldhoven, Technische Univ. Eindhoven (Netherlands); Andreas Hänsel, Technische Univ. Delft (Netherlands); Domenico D'Agostino, Hadi Rabbani-Haghighi, Technische Univ. Eindhoven (Netherlands); Boudewijn Docter, EFFECT Photonics NL (Netherlands); Nandini Bhattacharya, Technische Univ. Delft (Netherlands); Peter J. A. Thijs, Huub P.M. M. Ambrosius, Meint K. Smit, Kevin A. Williams, Erwin A.J. M. Bente, Technische Univ. Eindhoven (Netherlands) ..... [10106-25]

2:50 pm: **Ultra-low-loss and broadband mode converters in Si<sub>3</sub>N<sub>4</sub> technology**, Jinfeng Mu, Meindert Dijkstra, Sonia M. García-Blanco, MESA+ Institute for Nanotechnology, Univ. of Twente (Netherlands) ..... [10106-26]

3:10 pm: **Relaxed tolerance adiabatic silicon coupler for high I/O port-density optical interconnects**, Erfan Fard, The Univ. of Arizona (USA); Robert A. Norwood, Nasser N. Peyghambarian, Thomas L. Koch, College of Optical Sciences, The Univ. of Arizona (USA) ..... [10106-27]

Coffee Break ..... Tue 3:30 pm to 4:00 pm

### SESSION 7

ROOM: 276 (SOUTH MEZZANINE) ..... TUE 4:00 PM TO 5:50 PM

### Sensors II

Session Chair: **Romeo Bernini**, Istituto per il Rilevamento Elettromagnetico dell'Ambiente (Italy)

4:00 pm: **Spectroscopic sensing with silicon nitride photonic integrated circuits** (*Invited Paper*), Roel G. Baets, Univ. Gent (Belgium); Stéphane Clemmen, Ananth Z. Subramanian, Ashim Dhakal, Frédéric Peyskens, IMEC (Belgium) and Ctr. for Nano- and Biophotonics, Univ. Gent (Belgium); Pol Van Dorpe, IMEC (Belgium); Pieter Wuytens, Haolan Zhao, Ali Raza, Eva Ryckeboer, Xiaomin Nie, Daan Martens, Peter Bienstman, IMEC (Belgium) and Ctr. for Nano- and Biophotonics, Univ. Gent (Belgium); Simone Severi, Philippe Hellin, IMEC (Belgium); Nicolas Le Thomas, Gunther Roelkens, IMEC (Belgium) and Ctr. for Nano- and Biophotonics, Univ. Gent (Belgium) ..... [10106-28]

4:30 pm: **Optofluidic sensor engineering towards dilute Pu concentration measurements**, Timothée Allenet, IMEP-LAHC (France); Fabien Geoffray, Commissariat à l'Énergie Atomique (France); Davide Bucci, IMEP-LAHC (France); Fabrice Canto, Commissariat à l'Énergie Atomique (France); Aude Bouchard, Jean-Emmanuel Broquin, IMEP-LAHC (France) ..... [10106-29]

4:50 pm: **Slow-light enhanced chemical sensing with an on-chip Fano system**, Arijit Bera, Markku Kuitinen, Univ. of Eastern Finland (Finland); Seppo Honkanen, Microsoft OY (Finland) and Univ. of Eastern Finland (Finland); Matthieu Roussey, Univ. of Eastern Finland (Finland) ..... [10106-30]

5:10 pm: **Silicon oxynitride-on-glass waveguide array refractometer with wide sensing range and integrated read-out**, Jaime Viegas, Masdar Institute of Science & Technology (United Arab Emirates) and Univ. do Porto (Portugal); Mona Mayeh, Intel Corp. (USA) and The Univ. of North Carolina at Charlotte (USA); Pradeep Srinivasan, Intel Corp. (USA) and CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA); Eric G. Johnson, Clemson Univ. (USA); Paulo V. S. Marques, Univ. do Porto (Portugal) and INESC TEC (Portugal); Faramarz Farahi, The Univ. of North Carolina at Charlotte (USA) ..... [10106-31]

5:30 pm: **Integrated lab-on-a-chip sensor using shallow silicon waveguide multimode interference (MMI) device**, Mohamed Y. Elsayed, The American Univ. in Cairo (Egypt) and Zewail City of Science and Technology (Egypt); Aya O. Zaki, The American Univ. in Cairo (Egypt) and Ain Shams Univ. (Egypt); Yehea Ismail, The American Univ. in Cairo (Egypt) and Zewail City of Science and Technology (Egypt); Mohamed A. Swillam, The American Univ. in Cairo (Egypt) ..... [10106-32]

### SESSION 8

ROOM: 276 (SOUTH MEZZANINE) ..... WED 8:20 AM TO 10:20 AM

### Novel Materials

Session Chair: **Sonia M. García-Blanco**, Univ. Twente (Netherlands)

8:20 am: **Multiplexing photonic devices integrated on a silicon/germanium platform for the mid-infrared** (*Invited Paper*), Pierre R. Labeye, Ainur Koshkinbayeva, Pierre Barritault, Olivier Lartigue, Maryse Fournier, Jean-Marc Fédéli, Stephanie Garcia, Sergio Nicoletti, Laurent Duraffourg, CEA-LETI (France) ..... [10106-33]

8:50 am: **All-optical processing using phase-change nanophotonics** (*Invited Paper*), Wolfram Pernice, Westfälische Wilhelms-Univ. Münster (Germany) ..... [10106-34]

9:20 am: **Development of sol-gel saturable absorber for integrated Q-switched lasers**, Thomas Moncond'huy, Lionel Bastard, IMEP-LAHC (France); Marie Françoise Blanc-Mignon, Laboratoire Hubert Curien (France); François Royer, Univ. Jean Monnet Saint-Etienne (France) ..... [10106-35]

9:40 am: **Integrated graphene photodetector based on a gate-controlled pn-junction**, Simone Schuler, Technische Univ. Wien (Austria); Daniel Schall, Daniel Neumaier, AMO GmbH (Germany); Lukas Dobusch, Ole Bethge, Benedikt Schwarz, Michael Krall, Thomas Mueller, Technische Univ. Wien (Austria) ..... [10106-36]

10:00 am: **Light-driven liquid microlenses**, Angelo Angelini, Francesca Frascella, Politecnico di Torino (Italy); Federica Pirani, Politecnico di Torino (Italy) and Istituto Italiano di Tecnologia (Italy); Serena Ricciardi, Emiliano Descrovi, Politecnico di Torino (Italy) ..... [10106-37]

Coffee Break ..... Wed 10:20 am to 10:50 am

### SESSION 9

ROOM: 276 (SOUTH MEZZANINE) ..... WED 10:50 AM TO 12:20 PM

### Plasmonics I

Session Chair: **Alexandra Boltasseva**, Purdue Univ. (USA)

10:50 am: **Multilayered metal-insulator nanocavities: toward tunable multi-resonance nano-devices for integrated optics** (*Invited Paper*), Wei Zhou, Virginia Polytechnic Institute and State Univ. (USA) ..... [10106-38]

11:20 am: **Titanium nitride based hybrid plasmonic-photonic waveguides for on-chip plasmonic interconnects**, Avek Dutta, Soham Saha, Nathaniel Kinsey, Vladimir M. Shalae, Alexandra Boltasseva, Purdue Univ. (USA) ..... [10106-39]

11:40 am: **A directional coupling scheme for efficient coupling between Si<sub>3</sub>N<sub>4</sub> photonic and hybrid slot-based plasmonic waveguides**, Dimitra Ketzaki, George Dabos, Aristotle Univ. of Thessaloniki (Greece); Jean-Claude Weeber, Alain Dereux, Lab. Interdisciplinaire Carnot de Bourgogne (France); Dimitris Tsiokos, Nikos Pleros, Aristotle Univ. of Thessaloniki (Greece) ..... [10106-40]

12:00 pm: **Butt-coupled interface between stoichiometric Si<sub>3</sub>N<sub>4</sub> and thin-film plasmonic waveguides**, George Dabos, Dimitra Ketzaki, Dimitris Tsiokos, Nikos Pleros, Aristotle Univ. of Thessaloniki (Greece) ..... [10106-41]

Lunch/Exhibition Break ..... Wed 12:20 pm to 1:50 pm

### SESSION 10

ROOM: 276 (SOUTH MEZZANINE) ..... WED 1:50 PM TO 3:10 PM

### Plasmonics II

Session Chair: **Wei Zhou**, Virginia Polytechnic Institute and State Univ. (USA)

1:50 pm: **Nonlinear optical modulation in a plasmonic Bi:YIG Mach-Zehnder interferometer**, Curtis J. Firby, Abdulhakem Y. Elezzabi, Univ. of Alberta (Canada) ..... [10106-42]

2:10 pm: **Graphene-based plasmonic slot electro-optic modulator**, Zhizhen Ma, Mohammad Hossain Tahersima, Sikandar Khan, Volker J. Sorger, The George Washington Univ. (USA) ..... [10106-43]

2:30 pm: **Plasmonics-enabled metal-semiconductor-metal photodiodes for high-speed interconnects and polarization sensitive detectors**, Evgeniy Panchenko, Jasper J. Cadusch, Timothy D. James, Ann Roberts, The Univ. of Melbourne (Australia) ..... [10106-44]

2:50 pm: **Surface plasmon resonance sensor using vari-focal liquid lens under angular interrogation**, Muyeung Lee, Yousung Bang, Joo ho Lee, Wonjae Jang, Yong Hyub Won, KAIST (Korea, Republic of) ..... [10106-45]

Coffee Break ..... Wed 3:10 pm to 3:40 pm