

2014 International Conference on Optical MEMS and Nanophotonics Program

WEDNESDAY, 20 AUGUST 2014

WNa3: Nanophotonic Devices II

Session Chair: Mitsuo Fukuda, Toyohashi University of Technology, Japan

- 08:45 **WNa3.1: PLENARY:**
LIGHT'S TWIST
Professor Miles Padgett FRSE FOSA FSPIE
University of Glasgow, Scotland, UK
- 09:30 **WNa3.2: BIDIMENSIONAL NANO-OPTOMECHANICS AND TOPOLOGICAL BACKACTION
IN A NON-CONSERVATIVE RADIATION FORCE FIELD**
A. Gloppe¹, P. Verlot¹, E. Dupont-Ferrier¹, A.G Kuhn¹, A. Siria², P. Poncharal², G.
Bachelier¹, P. Vincent², O. Arcizet¹
¹Institut Néel, Université Grenoble Alpes - CNRS:UPR2940, France
²Institut Lumière Matière, UMR5306, CNRS - Université Claude Bernard Lyon 1,
France
- 09:45 **WNa3.3: TRAPPING NANO-SIZED PARTICLE BY WAVEGUIDE-COUPLED GOLD BOWTIE
PLASMONIC TWEEZERS**
Pin-Tso Lin, I-Chang Lin, Heng-Yi Chu, Tsan-Wen Lu, Po-Tsung Lee
Department of Photonics & Institute of Electro-Optical Engineering, National
Chiao Tung University, Taiwan
- 10:00 **WNa3.4: DEVELOPMENT OF NANOSCALE THERMOMETRY BY FLUORESCENCE
LIFETIME MEASUREMENT IN NEAR-FIELD USING TIME CORRELATED SINGLE PHOTON
COUNTING**
Daichi Seto¹, Yoshihiro Taguchi², Toshiharu Saiki³, Yuji Nagasaka²
¹School of Integrated Design Engineering Keio University, Japan
²Department of System Design Engineering Keio University, Japan
³Department of Electronics and Electrical Engineering Keio University, Japan
- 10:15 **WNa3.5: DYNAMIC RESPONSE OF SILICON PHOTONIC VARIABLE-GAP WAVEGUIDE
COUPLER SWITCH**
S. Abe, M.H. Chu, T. Sasaki, K. Hane
Tohoku University, Japan
- 10:30 Coffee break

WOp6: Fabrication Methods

Session Chair: Yves-Alain Peter, Ecole Polytechnique de Montreal, Canada

- 11:00 **WOp6.1: INVITED TALK:**
PATTERNED NANOSTRUCTURE LASERS BY MOCVD
Professor James Coleman
UT Dallas, USA

- 11:30 **WOp6.2:** DESIGNING POSITIONS OF GRAIN BOUNDARIES IN Si THIN-FILM FOR LOW-ENERGY-LOSS OPTICAL MEMS/NEMS DEVICES
T. Tomikawa¹, J.-H. Jeong¹, S. Kumagai^{1,3}, I. Yamashita^{2,3}, Y. Uraoka^{2,3}, M. Sasaki^{1,3}
¹Toyota Technological Institute, Japan
²Nara Institute of Science and Technology, Japan
³CREST/JST, Japan
- 11:45 **WOp6.3:** VIBRATIONAL IR MEMS SENSOR: APPLICATION OF TORSION-BARS TENSION-ENHANCED BY BIO-NANO CRYSTALLIZATION FOR HIGHLY SENSITIVE DETECTION
J.-H. Jeong¹, S. Kumagai^{1,3}, I. Yamashita^{2,3}, Y. Uraoka^{2,3}, M. Sasaki^{1,3}
¹Toyota Technological Institute, Japan
²Nara Institute of Science and Technology, Japan
³CREST-JST, Japan
- 12:00 **WOp6.4:** MONOLITHIC INTEGRATION OF A GLASS MEMBRANE ON SILICON MICRO-ACTUATOR FOR MICRO-INTERFEROMETRY
Justine Lullin¹, Sylwester Bargiel¹, Emilie Courjon², Stéphane Perrin¹, Maciej Baranski¹, Nicolas Passilly¹, Christophe Gorecki¹
¹MN2S Department, FEMTO-ST, Besançon
²Freq|n|sys, Besançon
- 12:15 **WOp6.5:** LOW-TEMPERATURE GOLD-GOLD BONDING USING ARGON AND HYDROGEN GAS MIXTURE ATMOSPHERIC-PRESSURE PLASMA TREATMENT FOR OPTICAL MICROSYSTEMS
Eiji Higurashi¹, Michitaka Yamamoto¹, So Ikeda¹, Tadatomo Suga¹, Renshi Sawada²
¹The University of Tokyo, Japan
²Kyushu University, Japan
- 12:30 Lunch
- 13:30 **OMN2015 PRESENTATION**
- WOp7: Displays and Imaging**
Session Chair: Eiji Higurashi, University of Tokyo, Japan
- 13:45 **WOp7.1:** INVITED TALK:
COMBINING EXTERNAL CAVITY QUANTUM CASCADE LASERS AND MOEMS TECHNOLOGY: AN APPROACH FOR MINIATURIZATION AND FAST WAVELENGTH SCANNING
Professor Oliver Ambacher
Fraunhofer IAF, Germany
- 14:15 **WOp7.2:** OPTICAL FEEDBACK CONTROL OF RESONANT FIBRE SCANNERS
M.H.H. Mokhtar, R.R.A. Syms
Imperial College London, UK
- 14:30 **WOp7.3:** A BIAxIAL PIEZOELECTRIC MEMS SCANNING MIRROR AND ITS APPLICATION TO PICO-PROJECTORS
Keiichi Ikegami¹, Takaaki Koyama¹, Takao Saito¹, Yoshiaki Yasuda¹, Hiroshi Toshiyoshi²
¹R&D Center, Stanley Electric Co., Ltd.
²Institute of Industrial Science, The University of Tokyo

14:45 **WOp7.4: MONOLITHIC NI-ELECTROPLATED MICROSTRUCTURE AND ITS APPLICATION IN MICRO MIRRORS AND MICRO ASSEMBLY**

Yi Chiu¹, Wen-Ching Lai², Chun-Hao Chang², Chun-Po Chang², Ching-Hung Chen²,
Chih-Hsiang Lai², Wei-Hung Hsu³

¹National Chiao Tung University, Hsin Chu, Taiwan

²WinMEMS Technologies Co., Tao Yuan, Taiwan

³Green Energy and Environment Research Laboratories, ITRI, Hsin Chu, Taiwan

15:00 **WOp7.5: RESONANT PZT MEMS SCANNERS WITH INTEGRATED ANGLE SENSORS**

Utku Baran^{1,2}, Sven Holmstrom¹, Dean Brown³, Wyatt Davis³, Onur Cakmak¹, Hakan Urey¹

¹Koç University, Istanbul, Turkey

²University of Washington, Seattle, WA, USA

³Microvision, Inc, Redmond, WA, USA

15:15 **WOp7.6: $\lambda/8$ PRECISION PARABOLIC RESONANT VARIFOCAI MIRROR**

Kenta Nakazawa, Takashi Sasaki, Kazuhiro Hane
Tohoku University, Japan

15:30 Coffee break

16:00 **WA-P: POSTER/ EXHIBITION SESSION**

WA-P1: MEMS ACTUATION FOR A CONTINUOUSLY TUNABLE OPTICAL BUFFER

N. Podoliak¹, W. H. Ng², H. Liu², A. J. Kenyon², W. Stewart¹, P. Horak¹

¹Optoelectronics Research Centre, University of Southampton, UK

²Department of Electronic & Electrical Engineering, University College London, UK

WA-P2: HIGH-PRECISION INTEGRATION APPROACH BASED ON ALIGNMENT

MAINTAINING FLIP-CHIP BONDING USING CONE SHAPED BUMP AND TRUNCATED
PYRAMID PAD

Bui Thanh Tung, Laina Ma, Takeru Amano, Katsuya Kikuchi, Masahiro Aoyagi
National Institute of Advanced Industrial Science and Technology (AIST), Japan

WA-P3: MEMS BASED FIBER-OPTICAL MICROENDOSCOPY

Wibool Piyawattanametha^{1,2,3}

¹King Mongkut's Institute of Technology Ladkrabang, Thailand

²National Electronics and Computer Technology Center, Klong Luang, Thailand

³Advanced Imaging Research Center, Faculty of Medicine, Chulalongkorn University,
Thailand

**WA-P4: INTEGRATION OF THE INNOVATIVE 3D MICRO PRISM DESIGN AND
FABRICATION TECHNOLOGY FOR A PICO-PROJECTION SYSTEM**

Kuo-Yung Hung¹, Yun-Ju Chuang², Yi-Wei Tsai¹, Shih-Hao Huang³, Jheng-Huai Huang¹

¹Department of Mechanical Engineering, Ming Chi University of Technology, Taiwan.

²Department of BioMedical Engineering, Ming Chuan University, Taiwan

³Department of Mechanical and Mechatronic Engineering, Taiwan Ocean University

WA-P5: ELECTROTHERMALLY ACTUATED MEMS TERAHERTZ METAMATERIAL

Chong Pei Ho, Prakash Pitchappa, Yu-Sheng Lin, Chengkuo Lee

Department of Electrical & Computer Engineering, National University of Singapore, Singapore

WA-P6: MODELING OPTICAL SWITCHING BY ELECTROSTATIC DEFORMATION OF SUSPENDED SILICON WAVEGUIDES

Kyle Murray

University of British Columbia, Canada

WA-P7: MEMS-BASED HIGH-Q FABRY-PEROT FILTERS

Yu-Sheng Lin, Chengkuo Lee

Department of Electrical & Computer Engineering, National University of Singapore, Singapore

WA-P8: LINEAR STEPPING MICROACTUATOR FOR HYPERSPECTRAL SYSTEMS

Hannes Mehner, Csaba Endrödy, Martin Hoffmann

Technische Universität Ilmenau, Germany

WA-P10: LARGE-DISPLACEMENT ELECTROSTATIC DEFORMABLE MIRROR USING MOVABLE BOTTOM ELECTRODES

Toshiyuki Tsuchiya, Vijay Kumar Singh, Yoshikazu Hirai, Osamu Tabata

Kyoto University, Japan

WA-P11: SCANNING ANGLE CONTROL OF THE OPTICAL MICRO SCANNER ACTUATED BY ELECTROSTATIC FORCE

Noriaki Ishikawa^{1, 2}, Kentaro Ikeda², Koji Okazaki², Renshi Sawada²

¹Fuji Electric Co., Ltd., Tokyo, Japan

²Kyushu University, Fukuoka, Japan

WA-P12: MINIATURIZED FERROFLUID ACTUATED SINGLE MODE FIBER VARIABLE OPTICAL ATTENUATOR (VOA)

Anna Duduś, Robert Blue, Deepak Uttamchandani

University of Strathclyde, Glasgow, UK

WA-P13: ELECTRO-OPTICALLY BASED LIQUID MASS SENSOR USING RESONATING MICRO-PLATE UNDER HARSH DROP AND SPRAY CONDITIONS

Yoav Linzon¹, Said Mahajne¹, Dafne Guetta¹, Stella Lulinsky², Slava Krylov²

¹Ort Braude College, Karmiel, Israel

²Tel Aviv University, Israel

WA-P14: MEMS-BASED X-RAY OPTICS FOR ASTRONOMY, PLANETARY EXPLORATION, AND EARTH OBSERVATION

Yuichiro Ezoe¹, Tomohiro Ogawa¹, Masahiro Ikuta¹, Mayu Sato¹, Kazuhisa Mitsuda², Hitomi Yamaguchi³, Yoshiaki Kanamori⁴, Kohei Morishita⁵, Kazuo Nakajima⁶, Hiroshi Hiroshima⁶ and Ryutaro Maeda⁶

¹Tokyo Metropolitan University, Japan

²ISAS/JAXA, Japan

³University of Florida, USA

⁴Tohoku University, Japan

⁵Kyoto University, Japan

⁶AIST, Japan

WA-P15: COMPACT HYPERCHROMATIC IMAGING SYSTEMS BASED ON TUNABLE OPTICAL MICROSYSTEMS

Adrian Grewe¹, Csaba Endrödy¹, Matthias Hillenbrand¹, Phuong-Ha Cu-Nguyen², Andreas Seifert², Martin Hoffmann¹, Stefan Sinzinger¹

¹Technische Universität Ilmenau, Germany

²University of Freiburg, Department of Microsystems Engineering – IMTEK

WA-P16: X-RAY IRRADIATION TEST OF A MEMS-BASED X-RAY OPTIC

Tomohiro Ogawa¹, Yuichiro Ezoe¹, Takuya Kakiuchi¹, Masahiro Ikuta¹, Mayu Sato¹, Takaya Ohashi¹, Ikuyuki Mitsuishi², Kazuhisa Mitsuda³, Kohei Morishita⁴, Kazuo Nakajima⁵

¹Tokyo Metropolitan University, Japan

²Nagoya University, Japan

³ISAS/JAXA, Japan

⁴Kyoto University, Japan

⁵AIST, Japan

WA-P17: A NOVEL PRESSURE SENSOR BASED ON OPTOFLUIDIC MICRO-RING RESONATOR

Vahid Ganjalizadeh¹, Hadi Veladi¹, Reza Yadipour²

¹Microsystem Fabrication Laboratory, Faculty of Electrical Engineering, University of Tabriz, Tabriz, Iran

²Faculty of Electrical Engineering, University of Tabriz, Tabriz, Iran

WA-P19: OPTICAL POSITION DETECTION FOR MOEMS SCANNER MIRRORS WITH ARBITRARY TRAJECTORIES

Andreas Tortschanoff¹, Marcus Baumgart¹, Dominik Holzmann¹, Christoph Mayer¹, Thilo Sandner², A. Kenda¹

¹Carinthian Tech Research AG, Villach, Austria

²Fraunhofer Institute for Photonic Microsystems, Dresden, Germany

WA-P20: DEEPLY-ETCHED 1 MICRON-THICK SILICON LAYERS ENABLING 170-NM BANDWIDTH HIGHLY-REFLECTIVE BRAGG MIRRORS

Haitham Omran¹, Yasser M. Sabry^{1,2}, Khaled Hassan², Daa Khalil^{1,2}

¹Ain Shams University, Egypt

²Si-Ware Systems, Egypt

**WA-P21: CONFIGURABLE OPTICAL RETARDER BASED ON PLASMONIC GRATING
INTEGRATED WITH BIMORPH ACTUATOR**

Takashi Shimura, Kentaro Iwami, Miho Ishii, Norihiro Umeda
Tokyo University of Agriculture and Technology, Tokyo, Japan

**WA-P22: ELECTRICALLY-ACTUATED CANTILEVER FOR PLANAR EVANESCENT TUNING
OF MICRORING RESONATORS IN SOI PLATFORMS**

Hossam Shoman, Marcus S. Dahlem
Masdar Institute of Science and Technology, Abu Dhabi, UAE

**WA-P23: INVESTIGATION OF FILTER SIZE AND DUTY RATIO ON TRANSMISSION
COLOR FILTER BASED ON SURFACE PLASMONS**

Hiroaki Honma¹, Kazuhiro Takahashi¹, Masashi Fukuhara¹, Makoto Ishida^{1, 2}, Kazuaki Sawada^{1, 2}

¹Toyohashi University of Technology, Japan

²Electronics-Inspired Interdisciplinary Research Institute (EIIRIS), Japan

**WA-P24: SHIELD EFFECT OF FLOATING ELECTRODE FOR POWER EFFICIENT MICRO-
PLASMA VUV LIGHT SOURCE**

Ryoto Sato¹, Daisuke Yasumatsu¹, Shinya Kumagai¹, Masaru Hori², Minoru Sasaki¹

¹Toyota Technological Institute, Japan

²Nagoya University, Japan

**WA-P25: DEVELOPMENT OF VISORED MEMS SHUTTER ARRAY FOR CRYOGENIC
ENVIRONMENT**

T. Takahashi¹, M. Mita¹, M. Konishi¹, K. Motohara¹, N. Kobayashi¹, N. Kashikawa²,
H. Fujita¹, H. Toshiyoshi¹

¹The University of Tokyo, Japan

²National Astronomical Observatory of Japan, Japan

**WA-P26: CHARACTERIZATION OF A MICRO TUNABLE CAT'S EYE ARRAY IN AN
OPTICAL IDENTIFICATION SYSTEM AND COMPARISON BETWEEN DIFFERENT TYPES
OF ID TAGS**

Chih-chieh Chang, Yu-cheng Yang, Ming-chun Su, Jui-che Tsai

Graduate Institute of Photonics and Optoelectronics and Department of Electrical
Engineering, National Taiwan University, Taiwan

**WA-P27: MEMS CORNER-CUBE TRANSMISSION-TYPE OPTICAL PHASE MODULATOR
IN DRIE TECHNOLOGY**

Kamal Khalil¹, Khaled Hassan², Ahmed Shebl², Mostafa Soliman², Yomna M.

Eltagoury¹, Mohammed Al-Otaibi³, Yasser M. Sabry^{1,2}, Dina Khalil^{1,2}

¹Ain Shams University, Egypt

²Si-Ware Systems, Cairo, Egypt

³King Abdulaziz City for Science and Technology, Saudi Arabia

**WA-P28: DEVELOPMENT OF PORTABLE MICROSCOPE WITH TUNABLE WORKING
DISTANCE BY USING DIELECTRIC LIQUID LENS**

Kai-Wei Liao¹, Wei-Jung Wang¹, Ru-Chian Luo¹, Hsin-Yi Tsai², J. Andrew Yeh^{1,2}

¹National Tsing Hua University, Taiwan

²Instrument Technology Research Center, NARLABS, Taiwan

WA-P29: IN-PLANE COMB-DRIVE ACTUATOR WITH HIGH FREQUENCY-DISPLACEMENT PRODUCT FOR MICRO-OPTICAL BENCH APPLICATIONS

Yomna M. Eltagoury¹, Mostafa Soliman², Mohammed Al-Otaibi³, Yasser M. Sabry^{1,2}, Mohamed Sadek², Daa Khalil^{1,2}

¹Ain Shams University, Egypt

²Si-Ware Systems, Egypt

³King Abdulaziz City for Science and Technology, Saudi Arabia

WA-P30: COMPARISON OF MODELED AND EXPERIMENTAL BEHAVIOR OF A THERMOELECTRICALLY ACTUATED VARIFOCAL MIRROR

Alan Paterson, Li Li, Ralf Bauer, Walter Lubeigt, Deepak Uttamchandani
University of Strathclyde, Scotland, UK

WA-P31: A SPLIT-RING RESONATOR-BASED MICROWAVE SENSOR FOR BIOSENSING

Hamdi Torun^{1,2}, Furkan C. Top¹, Gunhan Dundar¹, Arda D. Yalcinkaya^{1,2}

¹Department of Electrical and Electronics Engineering, Bogazici University, Turkey

²Center for Life Sciences and Technologies, Bogazici University, Turkey

WA-P33: HIGH-THROUGHPUT DEEPLY-ETCHED SCANNING MICHELSON INTERFEROMETER ON-CHIP

Bassem Mortada¹, Yasser M. Sabry^{1,2}, Muhammad Nagi¹, Khaled Hassan¹, Bassam Saadai¹, Tarik Bourouina^{1,2}, Daa Khalil^{1,3}

¹Si-Ware Systems, Egypt

²Université Paris-Est, ESIEE Paris, France

³Ain Shams University, Egypt

WA-P34: IMPLANTABLE GLASS OPTRODES FOR DEEP-TISSUE LIGHT DELIVERY

T.V.F. Abaya, M. Diwekar, S. Blair, P. Tathireddy, L. Rieth, F. Solzbacher
University of Utah, Salt Lake City, UT, USA

WA-P35: TEMPERATURE INSENSITIVE OPTICAL MEMS PRESSURE SENSOR USING LONG PERIOD GRATINGS ON A CIRCULAR DIAPHRAGM

Prasant Kumar Pattnaik, Vellaluru Neeharika

Birla Institute of Technology and Science Pilani Hyderabad Campus, India

WA-P36: DUAL-AXIS HYBRID-MEMS MIRROR HAVING SI AND POLYMER HINGES FOR LARGE-AREA 2D RASTER SCAN

Hirofumi Yamashita, Kyohei Terao, Hidekuni Takao, Fusao Shimokawa, Fumikazu Oohira, Takaaki Suzuki
Kagawa University, Japan

WA-P37: SIMULTANEOUS TWO-WAVELENGTH READOUT FOR THERMO-MECHANICAL MEMS DETECTORS

Ulas Adiyani¹, Fehmi Civitci¹, Refik Burak Erarslan¹, Onur Ferhanoglu², Hamdi Torun³, Hakan Urey¹

¹Koç University, Turkey

²ITU, Turkey

³Boğaziçi University, Turkey

WA-P38: 50 μ m GAP 8x8 PIXELS DEFORMABLE MIRROR FABRICATED BY MEMBRANE TRANSFER PROCESS

T. Wu¹, T. Sasaki¹, M. Akiyama², K. Hane¹

¹Department of Nanomechanics, Tohoku University, Sendai, Japan

²Astronomical Institute, Tohoku University, Sendai, Japan

WA-P39: CHARACTERIZATION OF A DOUBLE TILTED FIBER BRAGG GRATING USING AN ELECTROWETTING PLATFORM

R. Blue¹, A. Duduś¹, M. Konstantaki², S. Pissadakis², D. Uttamchandani¹

¹Dept. E. E. E., University of Strathclyde, Glasgow, UK

² Institute for Electronic Structure and Laser, Foundation for Research and Technology-Hellas, Greece.

WA-P40: DRC CHALLENGES AND SOLUTIONS FOR NON-MANHATTAN LAYOUT DESIGNS

R. Cao¹, J. Ferguson¹, Y. Drissi², F. Gays³, A. Arriordaz¹, I. O'Connor⁴

¹Mentor Graphics Corp

²IMEC, Belgium

³CEA-Leti, France

⁴INL, École Centrale de Lyon, France

WA-P41: INTEGRATION OF PLASMONIC DEVICE WITH METAL-OXIDE-SEMICONDUCTOR FIELD-EFFECT TRANSISTORS

Hiroki Sakai, Takuma Aihara, Masashi Fukuhara, Masashi Ota, Yu Kimura, Yuya Ishii, Mitsuo Fukuda

Toyohashi University of Technology, Japan

WA-P42: POLARIZATION-RESOLVED STRONG COUPLING OF FINE-STRUCTURE SPLIT EXCITONS AND MICROCAVITIES

Yi-Shan Lee, Sheng-Di Lin

Department of Electronics Engineering, National Chiao Tung University, Taiwan

WA-P43: DESIGN AND FABRICATION OF INP FREE-STANDING OPTICAL WAVEGUIDES FOR MEMS

Wing H Ng¹, Nina Podoliak², William Stewart², Peter Horak², Huiyun Liu¹, Anthony J Kenyon¹

¹University College London, UK

²University of Southampton, UK

WA-P44: POLARIZATION-DEPENDENT TALBOT EFFECT WITH VARIABLE DUTY CYCLE Shubin Li¹, Changhe Zhou¹, George Barbastathis^{2,3,4}

¹Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China

²Mechanical Engineering Department, Massachusetts Institute of Technology, USA

³Singapore-MIT Alliance for Research and Technology (SMART) Centre, Singapore

⁴Shanghai Jiao Tong University – University of Michigan Joint Institute, China

WA-P45: OPTICAL PROPULSION AND SORTING OF MICROPARTICLES ON SILICON NITRIDE STRIP WAVEGUIDES

Saara A. Khan, Chia-Ming Chang, Catherine Jan, Evan Scouros, Audrey K. Ellerbee, Olav Solgaard
Stanford University, USA

WA-P48: SIMULATION OF ELECTRIC FIELD DISTRIBUTION IN CMOS SINGLE PHOTON AVALANCHE DIODES AT BREAKDOWN VOLTAGE

Jau-Yang Wu, Sheng-Di Lin
Department of Electronics Engineering, National Chiao Tung University, Taiwan

WA-P49: HYBRID SYSTEM OF NANO-OPTICAL AND MECHANICAL SPRINGS

Feng Tian¹, Jie Deng², Yongchao Zou¹, Fook Siong Chau¹, Guangya Zhou¹
¹National University of Singapore, Singapore
²Institute of Materials Research and Engineering, Singapore

WA-P50: REFLECTIVE INFRARED QUARTER-WAVE PLATE USING SILICON NANOSTRUCTURES

Wataru Nakagawa, Ethan Keeler, Skyler Rydberg, Carol Baumbauer, Jesse Lee, Kyle Gray, David L. Dickensheets
Electrical and Computer Engineering Dept., Montana State University, Bozeman, MT, USA

WA-P51: HIGH PERFORMANCE LABEL-FREE BIOSENSING BY ALL DIELECTRIC METAMATERIAL

Sang-Gil Park, Ki-Hun Jeong
Korea Advanced Institute of Science and Technology (KAIST), Korea

WA-P52: PHOTSENSITIVE METAMATERIAL FOR NANOLITHOGRAPHY

¹Youngseop Lee, ¹Sang-Gil Park, ²Sang Chul Jeon, ¹Ki-Hun Jeong
¹Korea Advanced Institute of Science and Technology (KAIST), Korea
²National Nanofab Center (NNFC), Korea

WA-P53: LOW LOSS HIGH INDEX CONTRAST POLYMERIC WAVEGUIDE

Moran Bin Nun, Dan M. Marom
Hebrew University of Jerusalem, Israel

WA-P54: DESIGN OF A RESONANT MAGNETIC FIELD SENSOR BASED ON COUPLED 1-D PHOTONIC CRYSTAL CAVITIES

Han Du, Tong Lin, Peng Shi, Feng Tian, Fook Siong Chau, Guangya Zhou
National University of Singapore, Singapore

WA-P55: PHOTONIC-CRYSTAL-WAVEGUIDE-ASSISTED DIRECTIONAL COUPLERS FOR HYBRID SI/GAN NANOPHOTONICS

Borriboon Thubthimthong, Takashi Sasaki, Kazuhiro Hane
Tohoku University, Japan

18:30 **GALA DINNER**