

# **2019 International Conference on Optical MEMS and Nanophotonics (OMN 2019)**

**Daejeon, South Korea  
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# Program

July 29 (Mon.)

July 29 (Mon.) / 08:45~09:30

Chung Kunmo Conference Hall, 5F

## Keynote Talk I

**Session Chair:** Ki-Hun Jeong (Korea Advanced Institute of Science and Technology, Korea)

<b>[Keynote]</b> The Beauty of Micro-optics	N/A
Hans Peter Herzig <i>École Polytechnique Fédérale de Lausanne, Switzerland</i>	

July 29 (Mon.) / 09:30~11:00

Chung Kunmo Conference Hall, 5F

## Mo1: Micro-optics

**Session Chair:** Ralf Bauer (University of Strathclyde, UK)

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Chung Kunmo Conference Hall, 5F

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Chung Kunmo Conference Hall, 5F

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July 29 (Mon.) / 16:10~17:40

Chung Kunmo Conference Hall, 5F

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July 29 (Mon.) / 17:40~20:00

Sky Lounge, 5F

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# Program

July 30 (Tue.)

July 30 (Tue.) / 08:45~09:30

Chung Kunmo Conference Hall, 5F

## Keynote Talk II

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Chung Kunmo Conference Hall, 5F

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July 30 (Tue.) / 11:20~12:50

Chung Kunmo Conference Hall, 5F

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Sky Lounge, 5F

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# Program

July 31 (Wed.)

July 31 (Wed.) / 08:45~09:30

Chung Kunmo Conference Hall, 5F

## Keynote Talk III

**Session Chair:** Kyoungsik Yu (Korea Advanced Institute of Science and Technology, Korea)

<b>[Keynote]</b> Linear Micromechanical Phased Arrays	174
Olav Solgaard, Stephen S. Hamann, and Joseph R. Landry	
<i>Stanford University, USA</i>	

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Chung Kunmo Conference Hall, 5F

## We1: MEMS Imaging

**Session Chair:** Huikai Xie (University of Florida, USA)

<b>We1-1</b> 09:30~09:45	A Miniaturised Light-sheet Microscopy System Using MEMS Micromirror Control Spyridon Bakas <sup>1</sup> , Deepak Uttamchandani <sup>1</sup> , Hiroshi Toshiyoshi <sup>2</sup> , and Ralf Bauer <sup>1</sup> <i><sup>1</sup>University of Strathclyde, UK, <sup>2</sup>University of Tokyo, Japan</i>	176
<b>We1-2</b> 09:45~10:00	Compact All-in-line Adaptive Optics Fluorescence Microscope Using an Optofluidic Phase Modulator Alex Dorn, Pouya Rajaeipour, Kaustubh Banerjee, Hans Zappe, and Çağlar Ataman <i>University of Freiburg, Germany,</i>	178
<b>We1-3</b> 10:00~10:15	A Large Aperture 2-Axis Electrothermal MEMS Mirror for Compact 3D LiDAR Dingkang Wang, Connor Watkins, Medini Aradhya, Sanjeev Koppal, and Huikai Xie <i>University of Florida, USA</i>	180
<b>We1-4</b> 10:15~10:30	Switchable Dot Projection Module for 3D Flexible Endoscopes Sung-Pyo Yang, Yeong-Hyeon Seo, Kyungmin Hwang, and Ki-Hun Jeong <i>Korea Advanced Institute of Science and Technology, Korea</i>	182
<b>We1-5</b> 10:30~10:45	Micro-optical System for Depth-controlled Bessel Beam Arrays Angelina Müller, Matthias C. Wapler, and Ulrike Wallrabe <i>University of Freiburg, Germany</i>	184
<b>We1-6</b> 10:45~11:00	Electromagnetic FPCB Micromirror Scanning Laser Rangefinder Joshua Vixen Tan and Siyuan He <i>Ryerson University, Canada</i>	186

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**We2: Micromirror Arrays****Session Chair:** David Dickensheets (Montana State University, USA)

<b>We2-1</b> 11:20~11:50	[Invited] Optical MEMS Based Micromirror Arrays: Fabrication, Characterization and Potential Applications in Smart Active Windows Hartmut Hillmer <sup>1</sup> , Basim Al-Qargholi <sup>2</sup> , Muhammad Mohsin Khan <sup>1</sup> , Mustaqim Siddi Que Iskhandar <sup>1</sup> , Hans Wilke <sup>1</sup> , and Andreas Tatzel <sup>1</sup> <i><sup>1</sup>University of Kassel, Germany, <sup>2</sup>Photonik Inkubator GmbH, Germany</i>	188
<b>We2-2</b> 11:50~12:05	Concentric Micromirror Array for High-Speed Optical Dynamic Focusing Nathan Tessema Ersumo <sup>1</sup> , Cem Yalcin <sup>1</sup> , Nicolas Pégard <sup>2</sup> , Laura Waller <sup>1,3</sup> , Daniel Lopez <sup>4</sup> , and Rikky Muller <sup>1,3</sup> <i><sup>1</sup>University of California, USA, <sup>2</sup>University of North Carolina at Chapel Hill, USA, <sup>3</sup>Chan Zuckerberg Biohub, USA, <sup>4</sup>Argonne National Laboratory, USA</i>	190
<b>We2-3</b> 12:05~12:20	Design, Fabrication and Characterization of Subfield Addressing in Micromirror Arrays for Smart Window Applications Mustaqim Siddi Que Iskhandar <sup>1</sup> , Huanping Luo <sup>2</sup> , Krishna Ananda Ekaputera <sup>1</sup> , Basim Al-Qargholi <sup>2</sup> , Muhammad Mohsin Khan <sup>1</sup> , and Hartmut Hillmer <sup>1</sup> <i><sup>1</sup>University of Kassel, Germany, <sup>2</sup>Photonik Inkubator GmbH, Germany</i>	192
<b>We2-4</b> 12:20~12:35	A Single-Pixel Hyperspectral Imager Based on Digital Micromirror Device Qi Yi, Lim Zi Heng, Li Liang, Zhou Guangcan, Fook Siong Chau, and Zhou Guangya <i>National University of Singapore, Singapore</i>	194
12:35~12:50	Introduction to the next year's OMN conference	

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Chung Kunmo Conference Hall, 5F

**Keynote Talk IV****Session Chair:** Dan M. Marom (The Hebrew University of Jerusalem, Israel)

<b>[Keynote]</b> Metasurfaces for Display and Imaging Applications ByoungHo Lee and Gun-Yeal Lee <i>Seoul National University, Korea</i>	196
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July 31 (Wed.) / 15:05~16:20

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### We3: Metamaterials and Metasurfaces

Session Chair: Guangya Zhou (National University of Singapore, Singapore)

<b>We3-1</b> 15:05~15:35	[Invited] High Harmonic Generation from a Degenerate Plasma Ting S. Luk <sup>1</sup> , Yuanmu Yang <sup>2</sup> , Jian Lu <sup>3</sup> , Alejandro Manjavacas <sup>4</sup> , Hanzhe Liu <sup>3</sup> , Kyle Kelley <sup>5</sup> , Jon-Paul Maria <sup>6</sup> , Michael B. Sinclair <sup>1</sup> , Shambhu Ghimire <sup>3</sup> , and Igal Brener <sup>1</sup> <sup>1</sup> Sandia National Laboratories, USA, <sup>2</sup> Tsinghua University, China, <sup>3</sup> SLAC National Accelerator Laboratory, USA, <sup>4</sup> University of New Mexico, USA, <sup>5</sup> Oak Ridge National Laboratory, USA, <sup>6</sup> The Pennsylvania State University, USA	198
<b>We3-2</b> 15:35~16:05	[Invited] Hybrid Dielectric Metasurfaces : From Strong Light-Matter Interaction to Extreme Nonlinearities Raktim Sarma <sup>1</sup> , Nishant Nookala <sup>2</sup> , Domenico de Ceglia <sup>3</sup> , Luca Carletti <sup>3</sup> , Michael Goldflam <sup>1</sup> , Salvatore Campione <sup>1</sup> , John Klem <sup>1</sup> , Mikhail A. Belkin <sup>2</sup> , and Igal Brener <sup>1</sup> <sup>1</sup> Sandia National Laboratories, USA, <sup>2</sup> University of Texas at Austin, USA, <sup>3</sup> University of Padova, Italy	200
<b>We3-3</b> 16:05~16:20	Reconfigurable Infrared Ellipse-Shape Metamaterial Zihao Liang, Zhicheng Lin, Pengyu Liu, Zhi Zhang, Xiao Zhang, Zefeng Xu, Xiaocan Xu, Zhaokang Liang, Zheng Song, Chao Tang, Jie Lin, Haolin Deng, Zhenwei Dai, Yao Wen, Ruijia Xu, Dongyuan Yao, and Yu-Sheng Lin Sun Yat-Sen University, China	202

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### We4: Plasmonic Materials

Session Chair: Jaeyoun Kim (Iowa State University, USA)

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<b>We4-2</b> 17:10~17:25	Plasmonic Tip Internally Excited via Cylindrical Vector Beam for Surface Enhanced Raman Spectroscopy Min Liu, Fanfan Lu, Wending Zhang, and Ting Mei Northwestern Polytechnical University, China	206
<b>We4-3</b> 17:25~17:40	Improved Plasmonic Resonance by Gaussian Beam Shaping Jaione Etxebarria-Elezgarai <sup>1</sup> , Carlos Rodríguez Molinuevo <sup>1</sup> , Marina Echave del Carmen <sup>1</sup> , Eneko Lopez Corillero <sup>1</sup> , Ion Olaetxea Azkarate-Askatsua <sup>1</sup> , Maria Carmen Morant-Miñana <sup>2</sup> , and Andreas Seifert <sup>1,3</sup> <sup>1</sup> CIC nanoGUNE, Spain, <sup>2</sup> CIC energiGUNE, Spain, <sup>3</sup> Basque Foundation for Science, Spain	208

# Program

August 1 (Thu.)

August 1 (Thu.) / 08:45~10:15

Chung Kunmo Conference Hall, 5F

## Th1: Silicon Photonics

**Session Chair:** Niels Quack (École Polytechnique Fédérale de Lausanne, Switzerland)

<b>Th1-1</b> 08:45~09:15	[Invited] Silicon Photonics with MEMS for Efficient Light Manipulation Tae Joon Seok <sup>1</sup> and Ming C. Wu <sup>2</sup> <i><sup>1</sup>Gwangju Institute of Science and Technology, Korea, <sup>2</sup>University of California, USA</i>	210
<b>Th1-2</b> 09:15~09:30	Freestanding Silicon Photonic Ring and Disk Resonators Yu Zhang <sup>1,2</sup> , Alain Yuji Takabayashi <sup>1</sup> , Hamed Sattari <sup>1</sup> , and Niels Quack <sup>1</sup> <i><sup>1</sup>École Polytechnique Fédérale de Lausanne, Switzerland, <sup>2</sup>Beihang University, China</i>	212
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<b>Th1-5</b> 10:00~10:15	2x2 Silicon Photonic 3-dB Adiabatic Coupler with Optimized Taper Curvature In Ki Kim, Huu Vinh Nguyen, and Tae Joon Seok <i>Gwangju Institute and Science and Technology, Korea</i>	218

August 1 (Thu.) / 10:35~11:50

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## Th2: Scanners

**Session Chair:** Yoshihiro Taguchi (Keio University, Japan)

<b>Th2-1</b> 10:35~10:50	Fast Piezoelectric Scanning MEMS Mirror for 1D Ion Addressing Paul Janin, Ralf Bauer, Paul Griffin, Erling Riis, and Deepak Uttamchandani <i>University of Strathclyde, UK</i>	220
<b>Th2-2</b> 10:50~11:05	Miniaturized Piezo-actuated Adaptive Prism for Biaxial Optical Scanning Florian Lemke, Pascal M Weber, Ulrike Wallrabe, and Matthias C Wapler <i>University of Freiburg, Germany</i>	222
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<b>Th2-4</b> 11:20~11:35	An Electrothermal Micromirror with J-shaped Bimorph Microactuators Liang Zhou, Dingkang Wang, and Huikai Xie <i>University of Florida, USA</i>	226
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