

Room E (Sydney), 2F

Chair: Zhenzhou Cheng (Tianjin University)

**Tu3E**

June 30 (Tue), 2026

Reconfigurable & Programmable Photonics

13:15-14:45

**Tu3E-1 Invited 13:15-13:45**

**An Integrated Platform for Ultra-Low-Power Reconfigurable Silicon Photonics Leveraging Wafer-Scale Vacuum Sealed MEMS**

August Djuphammar<sup>1</sup>, Pierre Edinger<sup>1</sup>, Yihang Chen<sup>1</sup>, Yingying Li<sup>1</sup>, Gaehun Jo<sup>1</sup>, Cleitus Antony<sup>2</sup>, Simon J. Bleiker<sup>1</sup>, Sofie Janssen<sup>3</sup>, Selva Rajmohan<sup>3</sup>, Frank Niklaus<sup>1</sup>, Wim Bogaerts<sup>3,4</sup>, Kristinn B. Gylfason<sup>1</sup>  
<sup>1</sup>KTH Royal Institute of Technology, <sup>2</sup>Tyndall National Institute of Technology, <sup>3</sup>Interuniversity Microelectronics Centre, <sup>4</sup>Ghent University-imec

High power consumption currently limits the density of reconfigurable Photonic Integrated Circuits (PICs). We demonstrate micromechanical actuation on a commercially available silicon photonics platform, achieving orders-of-magnitude reductions in power compared to thermo-optic counterparts.

**Tu3E-2 Invited 13:45-14:15**

**Reconfigurable Photonics based on Phase Changes Materials**

Ying Sun, Yiting Yun, Kai Xu, Weiquan Wang, Hongtao Lin  
Zhejiang University

Reconfigurable photonics provides critical support for next-generation photonic technologies. By integrating phase change materials, we demonstrate microring optical neural networks with >95% accuracy and routing networks with nonvolatile multilevel switching and >10,000-cycle high endurance.

**Tu3E-3 14:15-14:30**

**Photonic Tensor Core on a Silicon Photonic MEMS**

Seungmin Chae<sup>1</sup>, Youngjae Jeong<sup>2</sup>, Dong Uk Kim<sup>1</sup>, Giyeon Shin<sup>2</sup>, Gimok Byun<sup>2</sup>, Jae Hyeon Kim<sup>1</sup>, Young Jae Park<sup>1</sup>, Man Jae Her<sup>1</sup>, Jinyoung Cha<sup>1</sup>, Hojune Lee<sup>1</sup>, Jeongmook Lim<sup>3</sup>, Taein Kim<sup>1</sup>, Dongyoun Mah<sup>1</sup>, Minjae Kim<sup>1</sup>, Kyoungsik Yu<sup>2</sup>, Sangyoon Han<sup>1</sup>  
<sup>1</sup>Daegu Gyeongbuk Institute of Science and Technology, <sup>2</sup>Korea Advanced Institute of Science and Technology

We demonstrate a Photonic Tensor Core architecture based on silicon photonics MEMS platform and its operational principle. Experimental characterization of the MEMS-based phase shifters and tunable directional couplers is presented to verify their performance.

**Tu3E-4 14:30-14:45**

**Scalable Programmable Silicon Photonic MEMS on a Commercial Silicon Photonics Foundry**

Jeongmook Lim<sup>1</sup>, Dong Uk Kim<sup>1</sup>, Jae Hyeon Kim<sup>1</sup>, Youngjae Jeong<sup>2</sup>, Gimok Byun<sup>2</sup>, Giyeon Shin<sup>2</sup>, Young Jae Park<sup>1</sup>, Man Jae Her<sup>1</sup>, Hojune Lee<sup>1</sup>, Jinyoung Cha<sup>1</sup>, Seungmin Chae<sup>1</sup>, Minjae Kim<sup>1</sup>, Dongyoun Mah<sup>1</sup>, S. Gunasagar<sup>3</sup>, Jasper Leong<sup>3</sup>, Ramadas Nambatyathu<sup>3</sup>, Robin Chao<sup>3</sup>  
<sup>1</sup>Daegu Gyeongbuk Institute of Science and Technology, <sup>2</sup>Korea Advanced Institute of Science and Technology, <sup>3</sup>CompoundTek Pte Ltd

We report a MEMS-based programmable photonic integrated circuit fabricated via a commercial silicon photonics foundry. Characterizing core building blocks – phase shifter and tunable directional coupler – validate their robust optical performance and seamless foundry integration.