Th1F-1 **Invited** **08:30-09:00**

Active Meta-optical Fiber Integrated Devices

Ho Wai Howard Lee, Andrew Palmer, Yucheng Jin Harvey Lin, Jin Yan, A. Teoh, Emma Wallace-Wilmot, Sophia Turean
University of California

I will review the various material platforms (metallic, dielectric, and compound structures) and geometric platforms which have been utilized in "meta"-fiber devices to date. I will present our recent development of "Meta"-optical fiber, an advanced optical fiber integrated with emerging metasurface concepts.

Th1F-2 **09:00-09:15**

A Quasi-Monostatic Focal-Plane-Array LiDAR on a 200-mm Silicon Photonics Platform

Guillaume Croes[1], Mathias Prost[1], Huaqing Qiu[1], Manuel Reza[1], Jac Romme[2], Javier Perez Santacruz[1,2], Elbert Bechthum[2], Ziduo Lin[1], Jochem Govers[2], Pawel Bembnowicz[2], Brecht Berteloot[1], Esteban Venialgo[2], Erik Emmen[1], Tangla D. Kongnyuy[1], Nicolas Chauvet[2], Peter Girouard[2], Maliheh Ramezani[1], Puvendren Subramaniam[1], Padraic E. Morrissey[3], Sean Collins[3], Matthew L. Hall[3], Peter O'Brien[3], Christian Bachmann[2], Ruud Oldenbeuving[2], Joost Brouckaert[1], Dongjae Shin[2], Roelof Jansen[1], Peter Gerets[1], Marcus S. Dahlem[1]
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We demonstrate an integrated quasi-monostatic focalplane-array FMCW LiDAR on a 200-mm silicon photonics platform, achieving a 15-m range that is currently constrained by system low-pass filtering, indicating clear scalability towards substantially longer distances.

Th1F-3 **09:15-09:30**

Line-Beam LiDAR Based on a 128-Channel Monolithic Polymer–SiN Optical Phased Array

Eun-Su Lee[1], Jinung Jin[1], Yoon-Ho Sunwoo[2], Yun-Jae Kwon[2], Seong-Hyeon Ju[3], Sun-Woong Yoon[3], Kwon-Wook Chun[1], Jung-O Son[3], Sang-Shin Lee[2], Min-Cheol Oh[1]
[1]Pusan National University, [2]Kwangwoon University, [3]i3system

We demonstrate line-beam scanning LiDARs using a 128-channel monolithically integrated polymer–SiN optical phased array at 1550-nm wavelength. Real-time imaging is achieved over a total field of view of 50° × 8°.

Th1F-4 **09:30-09:45**

Short-Cavity DFB Laser with 38.7-GHz Chirp Bandwidth in SiPh FMCW LiDAR

Yen-Wei Li[1], Te-Hua Liu[1], Yi-Hsuan Chen[1], DongDong Li[2], Jhih-Jia Kang[2], Teng-Hsiang Chang[2], Chao-Hsin Wu[1]
[1]National Taiwan University, [2]Delta Electrons

We demonstrated a 600-μm short-cavity DFB laser cooperated with silicon PIC for FMCW LiDAR. Through predistorted direct modulation, the DFB Laser achieves 38.7-GHz chirp bandwidth, enabling 4-mm resolution and 7-m free-space ranging without external modulators.

Th1F-5 **09:45-10:00**

OPLL-Driven Optical Frequency Chirp Linearization for Coherent FMCW LiDAR with Enhanced Linearity and Stability

Jongpil La, Jieun Choi, Jungwon Chang
Lambda innoVision Inc.

OPLL controller and DPD algorithm for linear frequency chirp generation of FMCW LiDAR is addressed. Photonic integrated complex MZI is used to detect and control the instantaneous optical chirp rate, achieving 200 kHz linewidth and 6 GHz bandwidth.