

Room B (Grand Ballroom 2), 2F

Chair: Youngwoong Kim (KAERI)

**Th1B**

July 2 (Thu), 2026

Fiber Gratings & Resonators

08:30-10:00

**Th1B-1**

**08:30-08:45**

**Lightweight ISAC for Pipeline Monitoring via STM32-Optimized FBG Phase Demodulation**

Jiajun Ji<sup>1</sup>, Jiajia Shen<sup>1</sup>, Tingyu Fu<sup>1</sup>, Suhua Wang<sup>1</sup>, Fengge Wang<sup>2</sup>, Mingyi Gao<sup>1</sup>

<sup>1</sup>Soochow University, Suzhou, <sup>2</sup>University of Technology

We present an STM32-based FBG interrogator for pipeline monitoring, employing blockwise polyphasedecimated phase demodulation to reduce FIR workload 250- fold and memory to single-frame buffering, enabling efficient long-term ISAC on resource-constrained embedded systems.

**Th1B-2**

**08:45-09:00**

**Demodulation of Two Slow V Ernier Sensors using a Pattern Recognition Algorithm**

María de los Ángeles Martínez-Guerrero<sup>1</sup>, Jonathan Esquivel-Hernández<sup>1</sup>, Rodolfo Martínez-Manuel<sup>1</sup>, Luis M. Valentín-Coronado<sup>1,2</sup>

<sup>1</sup>Centro de Investigaciones en Óptica, A.C., <sup>2</sup>Secretaría de Ciencia, Humanidades, Tecnología e Innovación

Demodulation of a two-point fiber sensor based on SlowVernier is presented. Using a Pattern-Recognition algorithm, the proposed approach enables identification of overlapping interferometric signals without the need for conventional demodulation techniques or large training datasets.

**Th1B-3**

**Invited**

**09:00-09:30**

**Cavity Optomechanics in Chained Microbottle Resonators**

Motoki Asano, Hajime Okamoto, Hiroshi Yamaguchi

NTT, Inc.

We demonstrate an optomechanical array of microbottle resonators fabricated on a silica glass fiber. This scalable all-fiber optomechanical architecture enables integrated phonon lasers, waveguides, and detectors through optomechanical functionality and ultrasensitive detection.

**Th1B-4**

**09:30-09:45**

**Numerical Investigation of Mode Leakage and Power Extraction in Side-Polished Hollow-Core Anti-Resonant Fibers**

Yuyao Wu, Yuemei Li, Yao Guo, Zhiguo Zhang

Beijing University of Posts and Telecommunications

This study numerically investigates mode leakage and power extraction in side-polished hollow-core anti-resonant fibers, demonstrating controllable 15%–76% optical power splitting by adjusting polishing depth and polished length.

**Th1B-5**

**09:45-10:00**

**Mode-Selective LPFGs with Radial Modulation Control for Broadband 2-LP MDL Equalization**

Takumi Kimura<sup>1</sup>, Takanori Sato<sup>1</sup>, Masaki Wada<sup>2</sup>, Yoko Yamashita<sup>1,2</sup>, Taro Iwaya<sup>2</sup>, Takashi Matsui<sup>2</sup>, Kazuhide Nakajima<sup>2</sup>, Kunimasa Saitoh<sup>1</sup>

<sup>1</sup>Hokkaido University, <sup>2</sup> NTT, inc.

We propose an LPFG-based MDL equalizer for 2-LPmode transmission using radially controlled refractive-index modulation. By enhancing LP01-to-cladding-mode coupling while suppressing LP11-mode excess loss, we achieve C-band MDL compensation with significantly reduced device length.