Room B (Grand Ballroom 2), 2F | Chair: Fernandez-Ruiz Maria R. (University of Alcalá)

Mo1B | June 29 (Mon), 2026
Distributed Fiber-Optic Sensing I | 13:00-14:30

Mo1B-1 **13:00-13:15**

Highly Integrated Interrogator for Distributed Acoustic Sensing

Zhicheng Jin[1], Jiageng Chen[1], Zhengwen Li[1], Hanzhao Li[2], Keke Hu[2], Xuhui Yu[2], Zuyuan He[1]
[1]Shanghai Jiao Tong University, [2]Ningbo AllianStream Photonics Technology Co., Ltd.

We demonstrate a near-complete integrated DAS interrogator based on hybrid InP–SOI integration, achieving 18.52 pε/√Hz strain resolution and ~8 m spatial resolution over a 5 km sensing fiber.

Mo1B-2 **13:15-13:30**

Phase Noise Compensation with IQ Imbalance Correction for IM-based DAS

Zhicheng Jin[1], Jiageng Chen[1], Zhengyuan Xiao[1], Jiazhen Ji[1], Zhengwen Li[1], Hanzhao Li[2], Xuhui Yu[2], Zuyuan he[1]
[1]Shanghai Jiao Tong University, [2]Ningbo AllianStream Photonics Technology Co., Ltd.

We propose a phase noise compensation (PNC) method with IQ imbalance correction for IM-based DAS, validated on sub-100 kHz and sub-100 Hz lasers, and demonstrating the necessity of IQ imbalance compensation through comparative analysis.

Mo1B-3 **Invited** **13:30-14:00**

Harnessing Fiber Rayleigh Scattering: Unlocking Advanced Sensing and Novel Lasers

Yifei Qi, Yingqing Wu, Zinan Wang
University of Electronic Science and Technology of China

Rayleigh scattering establishes a fundamental physical foundation for a range of emerging photonic technologies. Representative directions include distributed fiber sensing enabled by non-oscillatory Rayleigh scattering feedback, and random fiber lasers enabled by oscillatory Rayleigh scattering feedback, supporting applications such as distributed acoustic sensing and high-power laser system.

Mo1B-4 **14:00-14:15**

Multi-Fiber/Multi-DAS Array System with Clock-Free Synchronization

Wataru Kohno[1], Shuji Murakami[2], Noriyuki Tonami[1], Ting Wang[2]
[1]Advanced Network Research Laboratories, NEC Corporation, [2]NEC Laboratories America Inc.

We demonstrate distributed fiber-optic acoustic sensing that employs a mechanical synchronizer to achieve samplelevel synchronization of signals across independent sensors. This enables phase-noise suppression and bandwidth extension in standard multi-fiber optical cables without hardware modification.

Mo1B-5 **14:15-14:30**

Near-Field Acoustic Imaging Using Distributed Acoustic Sensing and Adaptive Beamforming

Sebastián San Martín[1], Felipe Mejías[1], Gonzalo Carrasco[2], Matías Zañartu[1,2], Marcelo A. Soto[1,2]
[1]Universidad Técnica Federico Santa María, [2]Universidad Técnica Federico Santa María

We propose an adaptive beamforming approach for nearfield acoustic imaging with fibre-optic distributed acoustic sensors. Results show that Frost beamforming enhances image contrast compared with conventional delay-and-sum processing, facilitating acoustic source localisation.