

# Silicon Photonic Devices for Optical Data Readout in High-Energy Physics Detectors

S. Cammarata<sup>1,2,3</sup>, F. Di Pasquale<sup>3</sup>, S. Faralli<sup>2,3</sup>, F. Palla<sup>2</sup>, S. Saponara<sup>1</sup>, P. Velha<sup>2,3</sup>

<sup>1</sup> Dipartimento Ingegneria dell’Informazione, Università di Pisa, <sup>2</sup> Istituto Nazionale di Fisica Nucleare (INFN), Sezione di Pisa, <sup>3</sup> Scuola Superiore Sant’Anna, Istituto di Intelligenza Meccanica

- This contribution reports some custom-designed silicon photonic (SiPh) devices designed within the FALAPHEL project (INFN CSN-V) towards the development of integrated rad-hard electro-optical transceivers
- Preliminary experimental results are presented for Mach-Zehnder, ring and electro-absorption modulators (MZMs, RMs and EAMs) where device-level radiation-hardening-by-design (RHBD) techniques have been applied
- First high-speed characterizations confirm > 30 Gb/s operability for these modulators, paving the way for the realization of multi-Gb/s radiation-tolerant links

