

Towards Robust Optical Data Processing with Photonic Integrated Circuits

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Abstract

Photonic integrated circuits (PICs) that are compatible with the complementary metal-oxide-semiconductor (CMOS) technology are promising candidates for ultracompact data management. In this talk, we review recent advances in robust optical data processing using silicon PICs: 1) On-chip reconfigurable optical full-field manipulation for grooming photonic signal processor (reconfigurable optical add/drop multiplexer, filter); 2) On-chip mesh-structure-enabled programmable multi-task photonic signal processor (filter, delay, router, switch); 3) On-chip multi-dimensional (mode, polarization, wavelength) selective switch; 4) On-chip intelligent mode switching in fiber-chip-fiber communication systems.