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INTEGRATED NONLINEAR OPTICS AND INVERSE-DESIGNED MULTIMODE PHOTONICS

ABSTRACT

In this talk, we will discuss new opportunities involving chip-scale nonlinear optics along with inverse-designed photonic circuits for multi-dimensional information processing. As a specific example, I will introduce recent experiments where we demonstrate natively error-free terabit/s data transmission using integrated frequency combs and multimode silicon photonics. In addition, we will discuss inverse-designed nonlinear photonic devices for optical parametric oscillations in both non-classical and classical regimes. Prospects for using aforementioned approaches to enable atomic-photon integrations and nonlinear information processing will be also discussed.

OCTOBER 4,
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11:00 AM

LECTURE HALL

