QuanTalks

IISc Quantum Technologies Initiative (IQTI)
Seminar Series

Title

Integrated photonics for high-performance quantum sources and detectors

Speaker

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Abstract: Integrated photonics can greatly reduce the size, weight and power (SWaP) of optical assemblies, and also improve functionality and utility of quantum photonic sources and detectors. This may benefit the large-scale deployment and adoption of microchip-scale integrated devices for practical quantum communications and sensing.

We report on progress in entangled photon-pair generation using spontaneous four-wave mixing (SFWM) in silicon photonic micro-resonators and using spontaneous parametric down-conversion (SPDC) in periodically-poled thin-film lithium niobate waveguides. We demonstrate gating and switching of single photons using integrated electro-optic modulators. Using high-bandwidth electro-optic modulators and superconducting nanowire single-photon detectors, we demonstrate capture of ultra-high bandwidth (>100 GHz) optical modulated signals at ultra-low received average power (below -100 dBm), a new milestone in optical oscilloscopy.

About the Speaker: Shayan Mookherjea received the BS degree with honors from Caltech, the SM degree from MIT, and the PhD from Caltech in Electrical Engineering with a minor in Physics. He is a Professor of Electrical and Computer Engineering at the University of California, San Diego (UCSD) and a Visiting Professor with the Electrical Engineering department at IIT Madras (India). He leads the Micro/Nano-Photonics Group at UCSD (http://mnp.ucsd.edu) and is a Fellow of the OSA (Optical Society).

QuanTalks for Breakfast!

Date & Time

Wednesday, 27th October 2021
9:00 AM IST

Meeting Link

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