



Contribution ID: 42

Type: **Invited Speaker**

Visible Light Photonic Integration for Atom and Quantum Science

Wednesday, 27 September 2023 11:15 (30 minutes)

Visible light photonic integration will enable compact, low weight, and reliable quantum and atomic sensing systems. In this talk we will review the latest advances in the ultra-low loss silicon nitride integration platform and heterogeneous integration, that enable quantum systems on chip (QSOC). Various technologies supported include visible light and ultra-narrow linewidth lasers, modulators, laser noise measurement, frequency stabilization circuits and reference cavities, beat-note detection, spectroscopy locks, and atom trap and cooling beam emitters. We will also talk about current integration and QSOCs for cold atom 3D-MOTs, trapped ions, and the potential for future neutral atom trapping.

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Session Classification: Wednesday