

Abstract Submitted
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Interfacing single photons from a quantum dot embedded in a semiconductor nanowire with a laser-cooled atomic ensemble confined to a hollow-core fiber¹ PAUL ANDERSON, MOHD ZEESHAN, SHENG-XIANG LIN, TAEHYUN YOON, DIVYA BHARADWAJ, BRIAN DUONG, BEHROOZ SEMNANI, JIAWEI QIU, MICHAEL REIMER, MICHAL BAJCSY, IQC, University of Waterloo — We report our experimental progress in interfacing single photons and entangled photon pairs emitted by a quantum dot embedded in a semiconductor nanowire with an ensemble of laser-cooled caesium atoms loaded into a hollow-core optical fiber. We explore controllable delays, wavelength conversion of single photons using a four-wave mixing process, and photon storage with the goal of creating a node for a quantum repeater.

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