Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Deterministic generation of all-photonic quantum repeaters
DONOVAN BUTERAKOS, EDWIN BARNES, SOPHIA ECONOMOU, Dept. of
Physics, Virginia Tech — Quantum repeaters are nodes in a quantum communication network that allow reliable transmission of entanglement over large distances. It was recently shown that highly entangled photons in so-called graph states can be used for all-photonic quantum repeaters, which overcome some of the challenges of atomic-memory based repeaters. We present a protocol for the deterministic generation of large repeater graph states using quantum emitters such as semiconductor quantum dots and defect centers in solids. Our protocol has a built-in redundancy which makes it resilient to photon loss.

Sophia Economou
Dept. of Physics, Virginia Tech

Date submitted: 10 Nov 2016   Electronic form version 1.4