

DAMOP18-2018-020066

Abstract for an Invited Paper
for the DAMOP18 Meeting of
the American Physical Society

Deterministic remote entanglement of superconducting circuits through microwave two-photon transitions
SHYAM SHANKAR, Yale University

Large-scale quantum information processing networks will probably require the entanglement of distant systems that do not interact directly. I will present an experimental realization of such remote entanglement in the superconducting circuit quantum electrodynamics (cQED) platform of quantum information. We have demonstrated deterministic entanglement of two remote superconducting qubits by Raman stimulated emission and absorption of a traveling microwave photon wavepacket. We achieve a Bell state fidelity of 73 %, well explained by photon losses in the transmission line and decoherence of each qubit. I will then discuss our ongoing efforts to improve the fidelity by entanglement distillation.