

Abstract Submitted
for the DAMOP19 Meeting of
The American Physical Society

Strongly Interacting mm-Wave and Optical Photons with Rydberg Atoms MARK STONE, AZIZA SULEYMANZADE, LIN SU, DAVID SCHUSTER, JONATHAN SIMON, University of Chicago — We outline progress towards a hybrid experimental system for engineering strong interactions between single optical and mm-wave photons using Rydberg atoms as an interface. Entanglement between photons with gigahertz and optical frequencies creates a new platform to access exotic photonic quantum states as well as powerful new techniques in quantum computing and simulation. We will present recent experimental developments including high-Q tunable cavities at 100 GHz, optical cavities which are robust to vibrations inside a pulse tube cryostat, and trapping and cooling atoms in a cryogenic MOT.

Mark Stone
University of Chicago

Date submitted: 01 Feb 2019

Electronic form version 1.4