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Barium Ion Trap Cavity QED[1] ADAM STEELE, LAYNE CHURCHILL, PAUL GRIFFIN, MICHAEL CHAPMAN, Georgia Institute of Technology — We report our progress toward the development of a scalable trapped ion and optical cavity system. Due to their long confinement times and the relative ease in trapping them individually, atomic ions remain an excellent candidate for tomorrow's qubit memories. The optical cavity system will provide the coherent coupling between single cavity photons and single trapped ions required to efficiently exchange quantum information between distant ion qubits. Combining atom-based quantum memories with photon-based quantum communication channels offers a compelling architecture for a quantum information network.

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