Cold Atom Quantum Information Science

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Our research involves long lifetime cold-atom quantum memories using magneto-optical traps (MOTs) and optical lattices. Specifically, we are interested in the study and development of rudimentary building blocks of a quantum network, such as entangling two remote quantum memories and single-photon frequency conversion. We are also using Rydberg states of neutral atoms for deterministic quantum operations and single photon generation on demand. Fully equipped labs with various lasers, MOTs, and instrumentation are available for this research.

References

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