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Abstract for an Invited Paper
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Quantum Computation with Trapped Rydberg Atoms¹

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Highly excited atomic Rydberg states provide strong, long range dipolar interactions which can be used to create entanglement between atoms, between atoms and optical photons, and between atoms and microwave photons. I will review recent progress in this rapidly developing area including optical trapping of Rydberg atoms, experiments with a 2D array of qubits, and progress towards a coherent quantum interface between neutral atom and superconducting qubits.

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