



## Experiments with gases in 0D, 1D and beyond

I will review the physics of 1D Bose gases, show how we experimentally implement them, and describe experiments that confirm the longstanding exact theory across all coupling regimes. I will also describe quantum Newton's cradles, which are out-of-equilibrium 1D gases that act unlike any other many-body system, and explain what they might teach us about the nature of irreversibility in quantum systems. I will also describe a separate experiment in which we image hundreds of single atoms in a 3D array, and show how we plan to use them as qubits in a quantum computer.

**David Weiss**

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November 4, 2008 (Tuesday) at 3:30pm (Refreshments at 3:15pm)

SCI 107, Metcalf Science Center, Boston University

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