

Abstract Submitted
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Trapped ion system for for multi-species quantum control¹ DAVID HANNEKE, Amherst College — Many atoms and molecules possess interesting spectroscopic transitions, but lack dissipative transitions useful for control and detection of internal states. In particular, molecules are useful candidates for quantum memories, low-temperature chemistry studies, tests of fundamental symmetries, and searches for time-variation of fundamental constants, but most lack a convenient cycling transition. By co-trapping a molecular ion with an atomic ion, the atom can provide all dissipation and detection. We present a system capable of such quantum control and report progress towards its use.

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David Hanneke
Amherst College

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