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**Sympathetic heating spectroscopy with laser cooled ions** KENNETH BROWN, CRAIG CLARK, C. RICARDO VITERI, YATIS DODIA, JAMES GOEDERS, GRAHAME VITTORINI, Georgia Institute of Technology — Sympathetic heating spectroscopy uses the coupled motion of two trapped ions to measure the spectra of one ion by observing changes in the fluorescence of the other ion. Sympathetic heating spectroscopy is a generalization of quantum logic spectroscopy, but does not require ions in the motional ground state or coherent control of the ion internal states. We present an experimental demonstration of the technique using two isotopes of Ca. Limits of the method and potential applications for cold molecular ion spectroscopy are also discussed.

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