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Study of the Expansion of Ultracold Strontium Plasma[1] PRIYA GUPTA, CLAYTON SIMIEN, SAMPAD LAHA, YENNY MARTINEZ, PASCAL MICKELSON, SARAH NAGEL, Rice University, YING-CHENG CHEN, Institute of Atomic and Molecular Sciences, Academia Sinica, THOMAS KILLIAN, Rice University — We probe the expansion of ultracold strontium plasma with spectroscopy of the $^2S_{1/2}-^2P_{1/2}$ transition of Sr+ at 422nm. The absorption spectrum is Doppler broadened, which gives a measure of the ion velocity. The expansion is driven by the electron pressure, and the ion acceleration gives a measure of the electron temperature. We will present the result of the study of the expansion of ultracold plasma including the effects of adiabatic expansion, recombination, and evaporation on the temperature of the electrons.

[1]http://www.aps.org/meet/DAMOP04/baps/abs/S150.html

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