

Abstract Submitted
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Gaussian expansion and electron temperature determination in ultracold Sr plasma SAMPAD LAHA, PRIYA GUPTA, CLAYTON SIMIEN, SARAH NAGEL, NATALI MARTINEZ, Rice University, PASCAL MICKELSON, THOMAS KILLIAN, Mickelson — In an ultracold neutral plasma, absorption images show the details of the self-similar expansion of a Gaussian density distribution. As the plasma evolves, the initial electron temperature (T_e) plays a critical role and calculating the electron temperature is necessary to predict which processes will be dominant in the evolution. Here, we present a study to calculate the electron temperature of ultracold Sr plasma when the ion cloud undergoes a Gaussian expansion. Calculating T_e will tell us how many ions are we losing due to three body recombination (TBR).

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