

Abstract Submitted
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Calculations and measurements of laser-induced fluorescence in ultracold neutral plasma¹ SCOTT BERGESON, Brigham Young University, FRANCIS ROBICHEAUX, Auburn University — We compare calculations of laser-induced fluorescence from ultracold plasmas with recent measurements. The calculations are made by integrating the optical Bloch equations for moving ions and following the excited state population as a function of time. In both the calculations and the measurements we clearly see initial rotation of the Bloch vector, disorder induced heating, and plasma expansion. The time at which disorder induced heating is overwhelmed by plasma expansion is studied as a function of initial electron temperature and plasma density. This should provide a measure of electron shielding, including recombination and rescattering effects, in these systems.

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