

Abstract Submitted
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Coulomb explosion measurements of ultra-low density ultracold plasmas ABIGAIL WILKINS, SCOTT BERGESON, Brigham Young University
— We propose to use time-of-flight spectroscopy of an ultracold neutral plasma to determine the density of very small plasmas. The plasma is created by photo-ionizing laser-cooled atoms in a magneto-optical trap. When the electron temperature is high enough, the plasma expands because of a strong space-charge effect. We will measure this expansion using a time-of-flight spectrometer. We present a model that predicts the expected flight times. This method appears to be useful for plasmas with densities below 10^7 cm^{-3} .

Abigail Wilkins
Brigham Young University

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