

Abstract Submitted
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Dynamics and electric fields of photo-excited plasma MICHAEL VIRAY, GEORG RAITHEL, University of Michigan — The development of atom trapping and cooling processes has made it possible for researchers to photo-excite cold plasmas in the laboratory. This enables models of hard-to-access plasmas that occur in nature, such as the insides of stars and gas planets, and artificial plasmas such as inertial-confinement fusion plasmas. We have created cold, cylindrically shaped, and positively charged plasmas from laser-cooled rubidium atoms. We have done so by establishing a cylindrical excitation region and using ultraviolet pulses to strip away the valence electrons. We report our findings on time-of-flight plasma expansion, obtained via spatially- and time-resolved imaging on a micro-channel-plate detector. We discuss our ongoing efforts of using Rydberg-electromagnetically induced transparency (Rydberg-EIT) to measure the internal electric fields.

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