

Abstract Submitted
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Multi-grid experimental apparatus for the study of ultracold Rydberg-Rydberg interaction JOSHUA GURIAN, PAUL HUILLERY, YOANN BRUNEAU, PATRICK CHEINET, ANDREA FIORETTI, DANIEL COMPARAT, PIERRE PILLET, Laboratoire Aime Cotton, CNRS, Universite de Paris Sud, Orsay, France — We have designed and constructed a new experimental setup for the study of ultracold Rydberg processes. A cold Cs MOT is centered between four parallel wire mesh grids, with two microchannel plate (MCP) detectors mounted perpendicular to the grids. Use of a phosphor screen behind one of the MCP detectors allows for spatial imaging of the ionized Rydberg atoms. This experimental apparatus allows for the study of both Rydberg many-body physics, as well as ion and electron imaging experiments. By controlling the voltages applied to the grids, ionized Rydberg atoms can be imaged on the MCP. Magnifications greater than ten have been observed, as well as strong focusing. We present initial results from this new experimental setup.

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