4CF13-2013-000093

Abstract for an Invited Paper
for the 4CF13 Meeting of
the American Physical Society

Unexpected Ultracold Plasma Physics at Lower Densities: Oscillations and Evaporation[1]

JACOB ROBERTS, Colorado State University

We have constructed an experimental apparatus designed to confine ultracold plasmas in a modified Penning trap. As an unanticipated consequence of this design, the ultracold plasmas in our system are formed at significantly lower densities than is typically the case in experiments elsewhere. These lower densities allowed the observation of a qualitatively different type of resonant electron motion in response applied rf fields. Also, we found that lower ultracold plasma density enhanced the influence of evaporation on the cooling of the electrons as the ultracold plasma expands. These observations will be described along with an overview of planned future measurements to be conducted with our system.

[1]Supported by the AFOSR