

Abstract Submitted  
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**Dual Species Magneto Optical Trap for the Study of Ultracold Plasma**<sup>1</sup> D. WOODBURY, S. BERGESON, A. ERIKSON, Brigham Young University — Ultracold plasmas present a novel method of studying certain strongly coupled systems, including certain high-energy density fusion-class plasmas and astrophysical plasmas. While many of these systems can be difficult to dynamically study in the lab, ultracold plasma with similar values of the strong coupling parameter,  $\Gamma$ , can mimic important aspects of these systems. In the current study, we are expanding our current experimental setup to create a dual-species magneto-optical trap (MOT) loaded with two compact 2-D MOTs. This setup will allow us to create a mixed calcium and ytterbium plasma and study transport mechanisms between the two species, creating an analogue to electron-ion transport mechanisms that are obscured by widely differing time scales. Considerations motivating the project and preliminary calculations demonstrating the feasibility of the experiment will be presented, along with current progress and challenges in construction of the project.

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