

Abstract Submitted
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Design of a calcium oven and permanent magnet Zeeman slower for use in trapping of ultracold calcium atoms and the creation of RbCa molecules¹ ALEXANDRIA PARSAGIAN, MICHAELA KLEINERT, Willamette University — Ultracold heteronuclear molecules are of great interest for their applications in ultracold chemistry, precision spectroscopy, tests of fundamental symmetries, and quantum computation. Alkaline/Alkali-metal dimers in particular possess both a permanent electric and magnetic dipole moment, making them ideal for the study of strong long-range dipole-dipole interactions in combined electric and magnetic fields. We will discuss our progress toward the creation of ultracold RbCa with special emphasis on the permanent magnet Zeeman slower for calcium. This slower uses neodymium magnet pairs at varying distances from the calcium beam to closely match the ideal slowing field. Future work will involve using the slower to trap calcium and create the novel molecule RbCa.

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