

Abstract Submitted  
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**Interferometry with Strontium Ions**<sup>1</sup> JAROM JACKSON, ENOCH LAMBERT, NILS OTTERSTROM, TYLER JONES, DALLIN DURFEE, Brigham Young University — We describe progress on a cold ion matter-wave interferometer. Cold Strontium atoms are extracted from an LVIS. The atoms will be photo-ionized with a two-photon transition to an auto-ionizing state in the continuum. The ions will be split and recombined using stimulated Raman transitions from a pair of diode lasers injection locked to two beams from a master laser which have been shifted up and down by half the hyperfine splitting. We are developing laser instrumentation for this project including a method to prevent mode-hopping by analyzing laser frequency noise, and an inexpensive, robust wavelength meter.

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