Abstract Submitted
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A magnetically sensitive atom interferometer[1] JEFFREY LEE, FRANK NARDUCCI, Naval Postgraduate School — Atom interferometers generally make use of magnetically insensitive internal states to avoid coupling environmental noise into their signal. By using magnetically sensitive states, and adding a magnetic field gradient, we produce a state dependent acceleration that we can use to increase the sensitivity of the interferometer. In order to do this, we must be able to create a linear magnetic field gradient without temporal or spatial noise, which will now be coupled into the measurement signal. By using the Raman spectra of our atoms along their ballistic path in the interferometer, we are able to map the field *in situ*. We present our progress using this method to create the clean, linear field environment necessary for the primary experiment. Using small, fluxgate magnetometers next to the vacuum cell, we actively stabilize the field. Using the same Raman field mapping technique, we analyze the effects of this classical field stabilization.

[1]This research was performed while the first author held an NRC Research Associateship award at the Naval Postgraduate School

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