Abstract for an Invited Paper for the NWS05 Meeting of The American Physical Society

## The Eot-Wash Axion Search SETH HOEDL, University of Washington

In the nearly 25 years since it was first proposed, the axion remains the preferred solution to the strong CP problem and a promising dark matter candidate. Although the mass of the axion is now limited to be greater than 1  $\mu$ eV by the known flat geometry of the universe and less than 1000  $\mu$ eV by the neutrino flux from SN1987A, between these limits the existence of the axion is unconstrained. The Eot-Wash group at the University of Washington has embarked on a new experiment to look for a macroscopic parity and time violating force mediated by virtual axions with a mass in the neighborhood of 200  $\mu$ eV. By using the torsion pendulum technique, (and assuming that magnetic systematic errors can be mitigated), we hope to be able to improve on the present limits of such a force by nearly 18 orders of magnitude. This presentation will detail our experimental method and progress to date.