Magnetic Waveguide for Atom Interferometry and Inertial Navigation Applications\textsuperscript{1} ROBERT HORNE, CHARLES SACKETT, University of Virginia — Atom interferometry using Bose-Einstein condensates has potential applications in inertial navigation [1,2]. We present recent work on the development of a new magnetic waveguide specifically designed for these inertial navigation measurements. The waveguide is implemented using a modified Time Orbiting Potential (TOP) configuration that will allow support against gravity and provide a cylindrically symmetric, harmonic trapping potential for our $^{87}\text{Rb}$ condensate. Based on simulations, the trap will be continuously adjustable, providing trapping frequencies in the horizontal plane from 1 Hz to 100 Hz. This will allow the implementation of a scalable gyroscope and an accelerometer using the same device. Additionally, the trap is continuously deformable from a harmonic potential to a ring trap. Trap characterization and additional measurement results will also be presented.


\textsuperscript{1}Supported by the NSF.