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Progress Towards a 1-second BEC Interferometer JESSICA REEVES, CASS SACKETT, G. OFIR GARCIA, BENJAMIN DEISSLER, KENNETH BARANOWSKI, K. JERAMY HUGHES, PATIPAN UTTAYARAT, University of Virginia — We have built a novel trap for creation of a Bose-Einstein condensate of ^{87}Rb to be used in atom interferometry experiments. The trap is based on a time-orbiting potential waveguide. It supports the atoms against gravity while providing weak confinement to minimize interaction energy shifts. The waveguide is suitable for use in a wide variety of interferometer configurations. We anticipate long interactions times, of up to 1s, due to the low-noise features of the TOP trap. In particular, the atoms are held 5mm from any surface, minimizing any possible atom-surface effects. The resultant condensate interferometer will be useful in precision gravitation and rotation measurements.

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