

Abstract Submitted
for the DAMOP13 Meeting of
The American Physical Society

High-Precision Measurements with a Yb Bose-Einstein Condensate Interferometer¹ ALAN JAMISON, BEN PLOTKIN-SWING, SUBHADEEP GUPTA, University of Washington, Seattle, WA — We report high-precision results from a matter-wave interferometer using a Yb Bose-Einstein condensate (BEC) as a source. This contrast interferometer measures h/m , where h is Planck's constant and m is the mass of a ytterbium atom, which is used to determine the fine structure constant. In addition to a high-precision measurement of h/m , we report ongoing work for measuring and controlling the effects of atomic interactions on the results. Interaction effects have limited the accuracy of previous BEC interferometers. With our current level of control we achieve the highest accuracy to date with a BEC matter-wave interferometer.

¹This work was supported by grants from the NSF and NIST.

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Date submitted: 28 Jan 2013

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