

Abstract Submitted
for the DAMOP07 Meeting of
The American Physical Society

Obtaining a high-visibility Bose-Einstein condensate interferometer K. JERAMY HUGHES, BENJAMIN DEISSLER, JOHN H.T. BURKE, CASS SACKETT, University of Virginia — We have previously reported on an atom interferometer based on Bose-Einstein condensates of ^{87}Rb in a weakly confining magnetic trap [1]. Previous results were limited to interference visibilities of about 1/2 and coherence times of about 45ms. We have identified several effects that limited these figures, including motional excitation of the condensate, spatial noise in the coupling laser beams, and noise in the magnetic trap currents. Resulting improvements to the apparatus have increased the interferometer visibility to near unity for short times, and have permitted operation at times over 70ms. We will report on our current performance.

[1] Garcia et al., Phys. Rev. A 74, 031601(R) (2006)

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Date submitted: 05 Feb 2007

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