Abstract Submitted
for the DAMOP11 Meeting of
The American Physical Society

Imaging theTemporal Evolution of Spin Structure in an F=1 Spinor BEC[1] CLAIRE THOMAS, JENNIE GUZMAN, University of California Berkeley, GYU-BOONG JO, DAN STAMPER-KURN, Universtiy of California Berkeley — We observe temporal evolution of ferromagnetic domains in initially unmagnetized ^{87}Rb F=1 spinor gases cooled into the regime of quantum degeneracy. We do so by in-situ imaging of the vector magnetization profile via two novel imaging methods: spin-echo imaging and polarization contrast imaging. The spin-echo technique allows us to overcome fluctuations in the magnetic field. Polarization contrast imaging gives us sensitivity to the projection of the spin along the imaging probe axis, allowing us to image the ferromagnetic domains. This method further allows us to characterize our imaging system by applying an inhomogeneous magnetic field to our spinor condensate, creating helical spin textures. By varying the pitch of the helix, we are able to characterize our imaging system.

[1]This research is partially funded by the DOE office of science graduate fellowship.

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Date submitted: 04 Feb 2011 Electronic form version 1.4