

Abstract Submitted
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Bose-Einstein condensation of interacting spin-1 ^{87}Rb atoms in an all-optical trap M.-S. CHANG, C.D. HAMLEY, Q. QIN, K.M. FORTIER, M.S. CHAPMAN, Georgia Institute of Technology — Spinor condensates provide a weakly interacting, multi-component degenerate gas with rotational symmetry in spin space. Although the spin interactions are an order of magnitude weaker than the scalar mean-field density interaction, interesting spinor dynamics and novel phenomena can be observed, including multiple- condensation, spin mixing, and the formation of spin domains [1]. The spin interactions of ^{87}Rb F=1 BEC are ferromagnetic in nature [2], and hence provide qualitatively different phenomena compared to anti-ferromagnetic (^{23}Na F=1) systems. We will discuss our recent experiment of ^{87}Rb F=1 spinor condensates in a single-focused all-optical trap.

1. J. Stenger *et al.*, Nature **396**, 345 (1998)
2. H. Schmaljohann *et al.*, Phys. Rev. Lett., **92**, 040402 (2004). M.-S. chang *et al.*, Phys. Rev. Lett., **92**, 140403 (2004).

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