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Long timescale dynamics in a degenerate $F=1$ ^{87}Rb spinor Bose gas JENNIE GUZMAN, GYU-BOONG JO, University of California Berkeley, CLAIRE THOMAS, University of California Berkeley, ANDRE WENZ, KATER MURCH, DAN STAMPER-KURN, University of California Berkeley — We report on the long timescale behavior of a quasi two-dimensional spinor gas produced by cooling unmagnetized $F=1$ ^{87}Rb spin mixtures. Using in-situ magnetization sensitive imaging, we are able to spatially and temporally resolve the vector magnetization profile of the spinor condensate. We explore the long timescale properties of the ferromagnetic (paramagnetic) spinor condensate at variable quadratic shift. At short evolution times, transverse and longitudinal ferromagnetic domains and domain walls spontaneously form throughout the condensate, while at long evolution times we observe the system evolve towards a homogeneously magnetized condensate, independent of the initially prepared spin mixture.

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