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Formation of Magnetic Structure in a Spinor Bose Einstein Condensate A.N. WENZ, UC Berkeley, J. GUZMAN, K. MURCH, D.M. STAMPER-KURN — We report on recent experimental studies of $F = 1$ ^{87}Rb spinor Bose Einstein condensates. Utilizing in-situ magnetization sensitive phase contrast imaging we are able to temporally and spatially resolve the magnetization of the spinor BEC. Additionally, with time-of-flight absorption imaging we are able to measure the population in each Zeeman sublevel. With those techniques we investigate the formation and equilibration times of spatially modulated spin domains and spin mixing as a function of temperature and the quadratic Zeeman shift.

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