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Dynamical instability induced domain formation in a spin-1 condensate WENXIAN ZHANG, DUANLU ZHOU, L. YOU, School of Physics, Georgia Institute of Technology, Atlanta, Georgia 30332-0430, USA — Dynamical instability induced domain formation is an important topic in condensate physics, and has been carefully studied recently for a two component Bose-Einstein condensate (BEC) with conserved numbers of atoms for each component[1]. In this study, we consider the same problem for a spin-1 condensate, where the numbers of atoms for each spin component can change due to the asymmetric spin mixing interaction, or spin exchange collisions of the type $2|F=1, m_F=0\rangle \leftrightarrow |F=1, m_F=-1\rangle + |F=1, m_F=1\rangle$. Our theoretical studies can be confirmed by a detailed observation of the off-equilibrium condensate dynamics from a sudden change of an external magnetic field.

[1]K. Kasamatsu and M. Tsubota, Phys. Rev. Lett. **93**, 100402 (2004).

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