Mean field theory for the domain formation in a spin-1 condensate

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In this study, we investigate the effect of such exchange interactions on the dynamics of domain formation in a spin-1 condensate. Using both analytic calculations for a homogeneous condensate and numerical simulations for a trapped condensate, we provide a detailed understanding of the stable and unstable regions of the off-equilibrium dynamics. We also address the important role of an external magnetic field.

\(^1\)Private communications with M. -S. Chang and M. S. Chapman.