

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Vortex dynamics in Bose-Einstein condensates with laser-induced spin-orbit coupling KENICHI KASAMATSU, Kindai Univ — We study vortex dynamics in trapped two-component Bose-Einstein condensates with a laser-induced spin-orbit coupling using the numerical analysis of the Gross-Pitaevskii equation. The spin-orbit coupling leads to three distinct ground-state phases, which depend on some experimentally controllable parameters. When a vortex is put in one or both of the two-component condensates, the vortex dynamics exhibits very different behaviors in each phase, which can be observed in experiments. These dynamical behaviors can be understood by clarifying the stable vortex structure realized in each phase.

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Date submitted: 10 Nov 2016

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