

Abstract Submitted
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Searching for Non-abelian Phases in Bose-Einstein Condensate of Dy BIAO LIAN, HUI ZHAI, Institute for Advanced Study, Tsinghua University — Recently Bose-Einstein condensate of a spin 8 element, Dysprosium, has been realized. We compute the mean-field ground state and Bogoliubov excitation of Dy condensate for different scattering lengths and in presence of a magnetic field, and find various non-abelian phases in the parameter space. We suggest an experimental scheme for detecting the remaining discrete point group symmetry of these phases simply by looking at population of each spin components and the degeneracy of Goldstone modes. A BEC whose remaining symmetry is a non-abelian group can support exotic non-abelian vortices.

Biao Lian
Institute for Advanced Study, Tsinghua University

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