

Abstract Submitted  
for the MAR15 Meeting of  
The American Physical Society

**Unusual vortex matter in rotating Bose-Einstein condensates with SU(2) broken symmetry**<sup>1</sup> PEDER GALTELAND, Department of Physics, Norwegian University of Science and Technology, EGOR BABAEV, Department of Theoretical Physics, The Royal Institute of Technology, ASLE SUDBO, Department of Physics, Norwegian University of Science and Technology — We consider a Ginzburg-Landau model of a rotating two-component Bose-Einstein condensate with SU(2) broken symmetry through the use of numerical Monte Carlo techniques. We include the full spectrum of thermal amplitude- and phase-fluctuations. The model exhibits an unusual state of global phase coherence with no accompanying vortex line lattice. This state has no counterpart in single-component condensates. The conditions for such a state are experimentally realizable in, *e.g.*, homonuclear mixes of atomic gases in separate hyperfine states, tuned to the SU(2) point with Feshbach resonance techniques.

<sup>1</sup>This work was supported by the Norwegian Research Council and the Norwegian Consortium for High-Performance Computing.

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Date submitted: 11 Nov 2014

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