

Abstract Submitted  
for the MAR07 Meeting of  
The American Physical Society

**Topological defects and the 2D superfluid transition in  $S = 1$  spinor condensates** SUBROTO MUKERJEE, CENKE XU, JOEL MOORE, UC Berkeley — Condensates of non-zero spin have recently attracted a lot of interest both theoretically and experimentally. The spin degree of freedom can give rise to interesting magnetically ordered phases. This talk will focus on condensates of Spin-1 atoms ( $^{23}\text{Na}$ ,  $^{87}\text{Rb}$ ). These will be shown to have interesting ground state manifolds and topological defects. The topological defects play an important role in the superfluid transition in two dimensions. The low temperature phase of  $^{23}\text{Na}$  will be shown to be a spin disordered nematic superfluid of boson pairs. The superfluid transition is of the Kosterlitz-Thouless type but mediated by half vortices. Extensions of these ideas to higher spin systems will be discussed. Journal Ref: Phys. Rev. Lett. 97, 120406 (2006)

Subroto Mukerjee  
UC Berkeley

Date submitted: 03 Nov 2006

Electronic form version 1.4