

Abstract Submitted  
for the MAR11 Meeting of  
The American Physical Society

**U(1)  $\times$  U(1) Kosterlitz-Thouless transition of the Larkin-Ovchinnikov phase in an anisotropic two-dimensional system** CHUNGWEI LIN, XIAOPENG LI, W. VINCENT LIU, University of Pittsburgh — We study Kosterlitz-Thouless (KT) transitions of the Larkin-Ovchinnikov (LO) phase for a two-dimensional system composed of coupled one-dimensional tubes. The main character of LO phase is a stripe structure (periodic in only one direction) in the order parameter. The low energy excitations involve the deformation of the stripe configuration and the fluctuation of the phase which can be described by two anisotropic XY model. We compute from a microscopic model the coefficients of XY model from which the KT transition temperatures are determined. We found the  $T^{KT} \propto t_{\perp}$  for small intertube tunneling  $t_{\perp}$ . As  $t_{\perp}$  increases the system undergoes a first-order transition to normal phase at zero temperature. Our method can be used to determine the Goldstone excitations of any stripe order involving charge or spin degrees of freedom.

Chungwei Lin  
University of Pittsburgh

Date submitted: 18 Nov 2010

Electronic form version 1.4