

Abstract for an Invited Paper  
for the MAR09 Meeting of  
The American Physical Society

**Critical “metal”-like phases of frustrated spins and bosons in two dimensions**

OLEXEI MOTRUNICH, California Institute of Technology

I will review recent theoretical progress in understanding quantum phases of 2D correlated boson or spin systems which exhibit “Bose-metal” type phases with gapless excitations residing on surfaces in momentum space. A spin liquid phase with a Fermi surface of spinons is one example of interest, being potentially relevant to the organic spin liquid materials  $\kappa$ -(ET)<sub>2</sub>Cu<sub>2</sub>(CN)<sub>3</sub> and EtMe<sub>3</sub>Sb[Pd(dmit)<sub>2</sub>]<sub>2</sub>. I will discuss frustrated spin and boson models with ring exchanges that may stabilize such phases, in particular in the vicinity of the Mott transition as is the case in the organic materials.