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**Spin Liquid Condensate of Spinfu Bosons** BIAO LIAN,  
SHOUCHENG ZHANG, Stanford Univ — We introduce the concept of a bosonic spin liquid condensate (SLC), where spinful bosons in a lattice form a zero-temperature spin disordered charge condensate that preserves the spin rotation symmetry, but breaks the U(1) symmetry due to a spinless order parameter with charge one. It has an energy gap to all the spin excitations. We show that such SLC states can be realized in a system of spin  $S \geq 2$  bosons. In particular, we analyze the SLC phase diagram in the spin 2 case using a mean-field variational wave function method. We show there is a direct analogy between the SLC and the resonating-valence-bond (RVB) state. The existence of SLC reveals the possible existence of a more general new class of superfluid phases in a lattice.

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