Abstract Submitted
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Particle-hole symmetry and a bosonic duality for quantum Hall bilayers and half-filled multicomponent Landau levels[1] ITAMAR KIMCHI, INTI SODEMANN, Massachusetts Institute of Technology, CHONG WANG, Harvard University, T. SENTHIL, Massachusetts Institute of Technology — Duality mappings let theorists study a given system through two distinct and complementary descriptions. We will discuss the roles played by a particular particle-hole CT symmetry in a quantum Hall bilayer corresponding to two half-filled Landau levels. We discuss Cooper pairing instabilities of composite fermions in the double-expansion renormalization group approach for the composite non-Fermi-liquid. Using a bosonic duality to describe the exciton condensate in the composite-fermion-superconductor regime offers a simple explanation for a surprising CT Kramer's doublet nature of double vortices, and suggests their unusual role near the finite temperature Kosterlitz-Thouless transition. Finally, we describe a related Z2 gauge theory with spin-half visons for idealized fully-symmetric graphene, and argue for symmetry-enforced gaplessness under full SU(4) flavor symmetry.

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