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Generating Excitonic Supercurrent in Quantum Hall Bilayers

JUNG-JUNG SU, University of Texas at Austin, TAMI PEREG-BARNEA, Physics Department, California Institute of Technology, ALLAN H. MACDONALD, Department of Physics, University of Texas at Austin — Among the many examples of Bose condensation considered in physics, exciton condensation has maintained special interest because of controversy about condensate properties. Although ideal condensates can support an exciton supercurrent, it has not been clear how such a current could be induced or detected. We discuss the circuit conditions required to induce a steady-state counterflow superfluid. In addition, we will discuss interpretations of tunnel, drag and counterflow experiments in quantum Hall exciton condensates.

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