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"Perfect" Coulomb Drag in a Bilayer Quantum Hall System[1] D. NANDI, A.D.K. FINCK, J.P. EISENSTEIN, California Institute of Technology, L.N. PFEIFFER, K.W. WEST, Princeton University — We report Coulomb drag measurements in Corbino geometry which reveal that equal but oppositely directed electrical currents can freely propagate across the insulating bulk of the bilayer quantized Hall state at $\nu_T = 1$ even when the two 2D layers are electrically isolated and interlayer tunneling has been heavily suppressed by an in-plane magnetic field. This effect, which we dub "perfect" Coulomb drag, reflects the transport of charge neutral excitons across the bulk of the 2D system. The equal magnitude of the drive and drag currents is lost at high current and when either the temperature or effective separation between the two 2D layers is increased. In each of these cases, ordinary quasiparticle charge transport across the annulus has grown to dominate over exciton transport.

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