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Quantum Hall Line Junctions under In-Plane Magnetic Fields
P. JIANG, National Taiwan Normal University, I. YANG, University of Chicago, W.-H. WANG, S.-C. YU, National Taiwan Normal University, L.N. PFEIFFER, K.W. WEST, K.W. BALDWIN, Lucent Technologies, W. KANG, University of Chicago — Study of tunneling between two antiparallel quantum Hall edge states under the influence of in-plane magnetic field will be presented. Previously quantum Hall line junctions were shown to have highly correlated behavior consistent with formation of coupled Luttinger liquids. Power-law energy dependence observed in the tunneling conductance supports realization of the Luttinger-liquid correlation of the coupled edge states. Under the presence of in-plane magnetic field, the tunnel spectrum is found to evolve with emergence of novel features. Systematic evolution of these features are studied with in-plane fields either parallel or perpendicular to the line junction. We discuss these results in terms of the presence of additional low-excitation modes detected through momentum-resolved tunneling.

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