Abstract Submitted
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Geometric Resonance of Composite Fermions near Bilayer Quantum Hall States[1] M.A. MUEED, D. KAMBUROV, M. SHAYEGAN, L.N. PFEIFFER, K.W. WEST, K.W. BALDWIN, Princeton Univ — Via the application of parallel magnetic field, we induce a single-layer to bilayer transition in two-dimensional electron systems confined to wide GaAs quantum wells, and study the geometric resonance of composite fermions (CFs) with a periodic density modulation in our samples. The measurements reveal that CFs exist close to bilayer quantum Hall states, formed at Landau level filling factors $\nu = 1$ and $1/2$. Near $\nu = 1$, the geometric resonance features are consistent with half the total electron density in the bilayer system, implying that CFs prefer to stay in separate layers and exhibit a two-component behavior. In contrast, close to $\nu = 1/2$, CFs appear single-layer-like (single-component) as their resonance features correspond to the total density.

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