

Abstract Submitted
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Fractional Quantum Hall Effect at $\nu = 1/2$ in Hole Systems Confined to GaAs Wide Quantum Wells¹ SUKRET HASDEMIR, YANG LIU, AURELIUS GRANINGER, MANSOUR SHAYEGAN, LOREN PFEIFFER, KEN WEST, KIRK BALDWIN, Princeton Univ, ROLAND WINKLER, Northern Illinois University — We observe fractional quantum Hall effect (FQHE) at the even-denominator Landau level filling factor $\nu = 1/2$ in two-dimensional hole systems confined to GaAs quantum wells of width 30 to 50 nm and having bilayer-like charge distributions. The $\nu = 1/2$ FQHE is stable when the charge distribution is symmetric and only in a range of intermediate densities, qualitatively similar to what is seen in two-dimensional electron systems confined to approximately twice wider GaAs quantum wells. Despite the complexity of the hole Landau level structure, originating from the coexistence and mixing of the heavy- and light-hole states, we find the hole $\nu = 1/2$ FQHE to be consistent with a two-component, Halperin-Laughlin (Ψ_{331}) state.

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