

Abstract Submitted
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Analyzing the Disorder Broadening of the Even Denominator Fractional Quantum Hall States in the Presence of Alloy Disorder ETHAN KLEINBAUM, NIANPEI DENG, GEOFFREY GARDNER, MICHAEL MANFRA, GABOR CSATHY, Purdue University — The unique character and potential application of the even denominator $\nu=5/2$ fractional quantum hall state has elicited significant interest. Yet, the most basic properties of this ground state remain unexplained. One poorly understood effect is that of the various types of disorder. We report energy gaps at the filling factor $\nu=7/2$ in a series of samples into which we intentionally added aluminum impurities during the MBE growth. These data, together with the availability of energy gaps at $\nu=5/2$ in the same samples, allows us to quantify the disorder broadening and the intrinsic gap of the even denominator fractional quantum Hall states. This work was supported by DOE DE-SC000671.

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