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Effects of short-ranged disorder on pinning modes of 2D electron system near ν =1 B.H. MOON, B.A. MAGILL, L.W. ENGEL, NHMFL/FSU, Tallahassee, USA, D.C. TSUI, L.N. PFEIFFER, K.W. WEST, Princeton University, Princeton, USA — We performed microwave measurements on 2-D electron systems (2DES) in heterostructures of $Al_xGa_{1-x}As$/ $Al_{0.3}Ga_{0.7}As$ in which the 2DES resides in dilute Al alloy, with x=0.21, 0.33 and 0.85%. The dilute Al atoms are randomly distributed [1]. Around Landau filling ν =1,the samples exhibit microwave resonances which differ from pinning mode resonances observed [2] near ν =1 in unalloyed samples. The alloyed samples have larger resonance frequencies, and resonances that exist over wider ranges of ν, extending to $|\nu\text{-}1|\sim$ 0.2. Also in the disordered samples, the resonances are not quasiparticle-quasihole symmetric around ν =1, and there is strong frequency and ν dependence in the spectra away from rational fractional ν, down to 0.6.

[1] W. Li *et al.*, *Appl.Phys. Lett.* **83**, 2832 (2003).
[2] Y. P. Chen et al., Phys. Rev. Lett. **91**,016801 (2003).

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