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Activation energies for the ν=5/2 Fractional Quantum Hall Effect at 10 Tesla[1] CHI ZHANG, R.R. DU, Rice University, L.N. PFEIFFER, K.W. WEST, Bell-Labs, Alcatel-Lucent, and Princeton University — We reported on the low-temperature magnetotransport in a high-purity (mobility $\sim 1\times10^7$cm^2/Vs) modulation-doped GaAs/AlGaAs quantum well with a high electron density (6×10^{11} cm^{-2}). A quantized ν=5/2 Hall plateau is observed at B $\sim$ 10 T, with an activation gap $\Delta_{5/2} \sim 125\pm10$ mK; the plateau can persist up to $\sim 25^o$ tilt-field. We determined the activation energies Δ and quasi-gap energies Δ^{quasi} for the ν=5/2, 7/3, and 8/3 fractional quantum Hall states in tilted-magnetic field (θ). The $\Delta_{5/2}$, $\Delta_{7/3}$ and the $\Delta^{quasi}_{5/2}$, $\Delta^{quasi}_{7/3}$are found to decrease in θ. We will present the systematic data and discuss their implications on the spin-polarization of ν=5/2 states observed at 10 T.

[1] R. Willett, Phys. Rev. Lett. **59**, 1776 (1987).
[2] W. Pan et al, Solid State Commun. **119**, 641 (2001).

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