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Fragile Fractional Quantum Hall States in the Lowest and the Second Landau Level GABOR CSATHY, ETHAN KLEINBAUM, Purdue University, ASHWANI KUMAR, Monmouth College, NODAR SAMKHARADZE, Purdue University, LOREN PFEIFFER, KEN WEST, Princeton University — Ultra-low temperature measurements of the two-dimensional electron gas have revealed some of the most fragile fractional quantum Hall states. In these experiments electron thermalization was achieved using a He-3 immersion cell and the temperature of the bath is monitored using a quartz tuning fork viscometer. We will review the recently discovered fractional quantum Hall state at filling factor $\nu = 3 + 1/3$ observed in the second Landau level and those at the filling factor $\nu = 4/11$ and $5/13$ in the lowest Landau level. The work at Purdue was supported by NSF DMR 1207375 and 1505866 grants. The work at Princeton University was funded by the Gordon and Betty Moore Foundation through the EPiQS initiative Grant GBMF4420, and by the National Science Foundation MRSEC Grant DMR-1420541.

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