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Coupling a quantum Hall droplet to a microwave transmission line JENNIFER CANO, UCSB, CHETAN NAYAK, UCSB and Microsoft Station Q — Electromagnetically coupling a quantum Hall droplet to a microwave transmission line establishes a realm of new experiments that might provide a more direct measurement of certain physical properties. Specifically, peaks in the absorption spectrum would occur at multiples of the ratio of the edge velocity to the perimeter of the droplet, potentially offering a more precise measurement of the velocity of edge modes than the few existing measurements. If the droplet is at filling fraction 5/2 and deformed to allowing tunneling between edges, additional peaks would emerge corresponding to the velocity of the neutral mode, which has never before been measured. In addition, the set-up could be used as an interferometer in fractional quantum Hall states by observing shifts in the magnitude of the absorption peak at fixed frequency as the number of quasiparticles is varied via the magnetic field. This would be complementary to existing interferometry measurements of fractional statistics.

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