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Adiabatic Transport of Geometric Singularities in the Quantum Hall Effect MICHAEL LASKIN, YU HUNG CHU, University of Chicago, TANKUT CAN, SUNY Stonybrook, PAUL WIEGMANN, University of Chicago — We present a framework for studying the fractional Quantum Hall Effect (FQHE) on singular surfaces - in particular surfaces with multiple geometric singularities. It is now known that, aside from the Hall conductance and viscosity, there exists a third universal transport coefficient of the FQHE - the gravitational anomaly. This coefficient is difficult to measure since it usually appears as a higher order correction to observable quantities, such as the particle density. Singular surfaces are the first setting where the gravitational anomaly appears as a leading order effect. These surfaces are therefore ideal for studying geometric response and the gravitational anomaly within the FQHE. We expand the generating functional in the large N limit on such surfaces. From there, we braid the conical singularities of the surface and find a remarkable result - the gravitational anomaly determines the braiding statistics of the transported conical singularities.

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