Frictional Coulomb drag in strong magnetic fields - DTU Orbit (15/04/2019)

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A treatment of frictional Coulomb drag between two two-dimensional electron layers in a strong perpendicular magnetic field, within the independent electron picture, is presented. Assuming fully resolved Landau levels, the linear response theory expression for the transresistivity $\rho_{21}$ is evaluated using diagrammatic techniques. The transresistivity is given by an integral over energy and momentum transfer weighted by the product of the screened interlayer interaction and the phase space for scattering events. We demonstrate, by a numerical analysis of the transresistivity, that for well-resolved Landau levels the interplay between these two factors leads to characteristic features in both the magnetic field and the temperature dependence of $\rho_{21}$. Numerical results are compared with recent experiments.