Condensed Matter Theory Center Seminar

Wednesday, September 18
11:00 am – 12:30 pm, Physics Building 2205

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"On the effective hydrodynamics of the fractional quantum Hall effect"

Many features of Fractional Quantum Hall effect (FQHE) can be understood considering electrons on the surface of semiconductros as a very peculiar, charged, two-dimensional fluid in the presence of strong magnetic field. In this talk I will present a classical hydrodynamic model of such a fluid. The model incorporates a relation between the vorticity and density of the fluid specific for FQHE and exhibits the Hall viscosity and Hall conductivity found in FQHE liquids. The relation of the model to previous effective models such as the Chern–Simons–Ginzburg– Landau theory of FQHE is explained. It is also shown how the Laughlin's wavefunction is annihilated by the quantum velocity operator.

(All are welcome to attend)

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