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(I) Electron Hydrodynamics

Tuesday, 7 June 2022 15:45 (30 minutes)

Wolfgang Pauli called solid-state physics "the physics of dirt effects", and this name might appear well-deserved at first sight since transport properties are more often than not set by extrinsic properties, like impurities. In this talk, I will present solid-state systems in which electrons behave like a hydrodynamic fluid, and for which transport properties are instead set by intrinsic properties, like the viscosity. This new regime of transport opens the way for a "viscous electronics", and provides a new angle to study how quantum mechanics can constrain and/or enrich hydrodynamics.

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Session Classification: T4-4 Hot Topics From Theory Made Accessible (DTP) | Sujets chauds de la théorie rendus accessibles (DPT)

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