

## **Quantum hydrodynamic models: derivation, analysis, simulation**

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Quantum hydrodynamic equations allow for the macroscopic modeling of plasma and semiconductor devices and may be computationally cheap alternatives to Schroedinger or kinetic models. In this talk, the derivation of macroscopic quantum models via quantum entropy maximization is reviewed. Furthermore, some analytical results of these models and numerical simulations of simple resonant tunneling diodes are presented.