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An Introduction to Kinetic Modelling

(2 Lectures)

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We start out from Newtonian/Hamiltonian dynamics and derive the kinetic Liouville/Vlasov equation by introducing a probabilistic concept in phase space. Scattering mechanisms are modelled on an ad-hoc basis. The fundamental concepts of entropy and entropy dissipation are presented. Examples from semiconductor theory, gas kinetics and chemotaxis are discussed.