

Connecting Particle Systems to Non-equilibrium Thermodynamics

Michiel Renger (Eindhoven University of Technology)

The statistical mechanics programme has provided us a deep understanding of the connection between stochastic particle systems at the microscopic level and thermodynamics on the macro level. The more recent discovery that diffusion processes are the gradient flow of entropy can potentially extend this knowledge to the non-equilibrium case. I will discuss how these gradient flows can be coupled to dynamic particles systems again, and how this connection can be used to derive new gradient flow structures.

(keywords: Wasserstein, gradient flows, large deviations, gamma convergence)