

**Speaker:** Cristian Giardinà

**Title:** Duality of Markov processes and non-equilibrium statistical physics

**Abstract:** We shall discuss a fruitful exchange of ideas between interacting particle systems and quantum spin chains. On one hand, the use of symmetries, which is common in statistical physics, makes intelligible several dualities of Markov processes that would otherwise look like "lucky events". On the other hand, duality theory turns out to be a fundamental tool in the analysis of several non-equilibrium processes with a current in their stationary state. We shall treat in particular the case of "exactly solvable" boundary-driven systems, for which we will prove long-range correlations and local equilibrium.