

Functional Renormalisation group for nonequilibrium systems

The Renormalisation Group (RG), as conceived by Wilson in the seventies, has been pivotal in understanding critical phenomena at equilibrium. Although at its origin it was intimately linked with perturbation theory (the ϵ expansion), it has deeply evolved since then into a modern formulation which allows for both functional and non-perturbative implementations (FRG) of the RG procedure. In these lectures, I will present the bases of the FRG formalism, and then illustrate it on applications to non-equilibrium critical phenomena, in particular the kinetic roughening of stochastically growing interfaces described by the Kardar-Parisi-Zhang equation.