
FRG for systems with non-linear constraints

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Abstract

Field theories with (non-linear) constraints are ubiquitous in quantum and statistical field theories. These constraints can be inherent to the model (fixed length of classical spins), due to a finite Hilbert space (hardcore bosons and quantum spins), or arise after integrating out massive modes (e.g. non-linear sigma models).

I will discuss how these constraints can be taken into account in the FRG, in the framework of the Lattice-FRG. I will show that if the sources are not correctly chosen, then the effective action is not defined, due to the reduced number of true degrees of freedom. I will discuss how these issues can be circumvented, taking examples from some matrix models.

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