Seminario de análisis matemático y aplicaciones
Analisi matematikoa eta aplikazioak mintegia

Mean field dynamics of some open quantum systems

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ABSTRACT: We consider the dynamics of a large number N of quantum particles interacting in a mean field way. We first review the hierarchical method used by Spohn in 1980 to derive the nonlinear evolution equation for $n \ll N$ among the N pairwise interacting particles. We then present a similar result for an explicitly solvable model, but where the particles interact indirectly via a reservoir. (Say, spins or qubits pinned on a substrate.) We then analyze an open system model which is not explicitly solvable and derive some properties of the system- and the reservoir dynamics.

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