SÉMINAIRE du GROUPE THÉORIE

UNIVERSITÉ PARIS SUD

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Non-Markovian dynamics of fermionic and bosonic systems

Non-Markovian Langevin approach is applied to study the dynamics of fermionic (bosonic) subsystem, linearly coupled to fermionic (bosonic) environment. The analytical expressions for occupation numbers in two different type of couplings (RWA -"rotating wave approximation" and FC "fully coupled") are compared and discussed. The weak coupling, high and low temperature limits are considered as well. The sameness of the results, obtained with both Langevin approach and Discretized Environment Method are shown. Short and long time non-equilibrium dynamics of fermionic and bosonic open quantum systems are analyzed both analytically and numerically. The conditions under which the environment imposes its thermal equilibrium to the system are discussed.

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