

Numerical analysis of the Lindblad master equation

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In this talk, we will present recent advances in the numerical approximation of the Lindblad master equation, focusing on infinite-dimensional Hilbert spaces. After reviewing the key properties of the evolution of the Lindblad equation, we will discuss both spatial discretization using Galerkin approximations and temporal discretization methods. The first highlighted contribution is the introduction of an a posteriori error estimate. The second is the analysis of new structure-preserving time discretization schemes. These contributions are the result of joint works with Paul-Louis Etienney, Pierre Rouchon and Lev-Arcady Sellem.