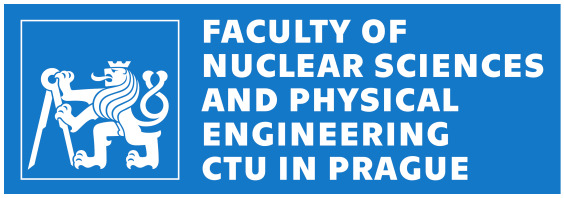

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Asymptotic synchronization and phase-locking in qubit networks

Wednesday, 25 May 2022 17:10 (20 minutes)

The work concerns asymptotic synchronization and phase-locking in qubit networks undergoing Markovian evolution described by the GKSL master equation with normal Lindblad operators. For a two-qubit system, all synchronization and phase-locking mechanisms within the given framework are obtained and classified, using solely analytic methods. In the case of synchronization, the results are generalized to qubit networks, n-qubit systems with bipartite interactions. It is shown how the two-qubit synchronization-enforcing Lindblad operators can be used to synchronize an arbitrarily large qubit network via construction of a suitable Lindbladian. Selected properties of the synchronization and phase-locking mechanisms are discussed.

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