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Memory kernel and Divisibility of Gaussian Collisional Models

Memory effects in open systems dynamics have been the subject of significant interest in the last decades. Methods quantifying this effect, however, are often difficult to compute and lack analytical insight. With this in mind, we consider Gaussian collisional models, where non-Markovianity is introduced by means of interactions between neighboring environments. We show that the dynamics can be cast in terms of a Markovian Embedding of the covariance matrix, which yields closed form expressions for the memory kernel and the CP-divisibility monotone. Our results aim to help understand the intricate mechanisms behind memory effects in the quantum domain.

[1] <https://arxiv.org/abs/2008.00765>

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