

Unraveling correlation in quantum master equations for open system dynamics

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In this talk I will discuss the range of validity of commonly used quantum master equations for reduced dynamics of open quantum systems [1]. I will use our recently developed correlation picture [2] to unravel the exact form of correlation appearing in such equations [3].

- [1] Vasilii Vadimov, Jani Tuorila, Jurgen Stockburger, Tapio Ala-Nissila, Joachim Ankerhold, and Mikko Mottonen, *Phys. Rev. B* 103, 214308 (2021).
- [2] S. Alipour, A.T. Rezakhani, A.P. Babu, K. Molmer, M. Mottonen, and T. Ala-Nissila, *Phys. Rev. X* 10, 041024 (2020).
- [3] A. P. Babu, S. Alipour, A.T. Rezakhani, and T. Ala-Nissila, to appear in *Phys. Rev. Res.* (2024).