

OpenQMBP2023: New perspectives in the out-of-equilibrium dynamics of open many-body quantum systems



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Sensing dynamical phase transitions

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We will consider a parallel quantum dot as an example of an open quantum system that can feature a strong parity symmetry. For the dot, due to the presence of interactions, this symmetry results in the bistability characterised by distinct particle currents, while its explicit breaking leads to metastability. We will discuss when parameters of the dynamics can be estimated by continuously measuring the particle currents, despite their fluctuations diverging in the proximity to such a dynamical phase transition.

Reference: S. Matern, K. Macieszczak, S. Wozny, and M. Leijnse, Metastability and quantum coherence assisted sensing in interacting parallel quantum dots, *Phys. Rev. B* 107, 125424 (2023).

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