Title: Quantum dynamics in driven spin systems with neural-network quantum states
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Neural-network quantum states (NQS) provide an effective variational representation of quantum states, which can be used for the study of many-body quantum systems [1]. NQS can be time-propagated using time-dependent variational Monte Carlo (tVMC) [1,2], making it possible to simulate non-equilibrium phenomena. In particular, this approach can be used to compute dynamical properties of two-dimensional spin systems [3], a setting that has proven challenging for established numerical techniques. In this talk, we study magnetic excitations in a driven two-dimensional Heisenberg antiferromagnet. Further, we provide benchmarks of time-dependent NQS against results obtained from exact calculations for small systems as well as results obtained using a time-dependent matrix product state (t-MPS) approach.

[1] Carleo and Troyer. Science 355, 602 (2017).
[2] Carleo, Becca, Schiró, Fabrizio. Sci. Rep. 2, 243 (2012).
[3] Fabiani and Mentink. SciPost Phys. 7, 004 (2019).

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