



Seminar/Talk

Optimal steering of matrix product states and quantum many-body scars

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Host: Maksym Serbyn

Ongoing development of quantum simulators allows for a progressively finer degree of control of quantum many-body systems. This motivates the development of efficient approaches to facilitate the control of such systems and enable the preparation of non-trivial quantum states using a limited set of available controls. In this talk I will present a new approach which can be used to find the locally optimal driving protocol for trajectories within a matrix product state manifold. I will then focus on a specific example, namely the PXP model, where I will compare our approach to counter-diabatic driving using numerical simulations. Lastly, I will present two use cases. Firstly, I will present how this approach can be used to stabilize quantum scars by constructing a Floquet model with nearly ideal scars and secondly, I will present a step towards full trajectory optimization and demonstrate the entanglement steering capabilities that allow us to construct entangled states with high fidelity.

Wednesday, May 4, 2022 01:30pm - 02:30pm

Big Seminar Room B (big) 63 seats (I23.EG.102)



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.

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<https://ista.ac.at/en/campus/how-to-get-here/> The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.