



## Physical Sciences Seminar

# Integrability, Thermalization, and Quantum Scars in a constrained Hamiltonian

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**Host: Maksym Serbyn**

We study the quantum dynamics of a simple translation invariant, center-of-mass preserving model of interacting fermions in one dimension, which arises in multiple experimentally realizable contexts. We show that this model exhibits a Hilbert space that fractures into exponentially many dynamically disconnected Krylov subspaces. We find examples of several integrable and non-integrable subspaces. This model thus exhibits phenomenology associated with quantum scars, i.e. the fate of an initial product state under time-evolution depends on the properties of the Krylov subspaces it has weights in. In addition, some of the non-integrable Krylov subspaces show conventional quantum scars, which manifest themselves as revivals and slow thermalization of certain charge density wave configurations.

**Friday, November 29, 2019 02:00pm - 03:00pm**

IST Austria Campus Heinzl Seminar Room / Office Bldg West (I21.EG.101)



This invitation is valid as a ticket for the IST Shuttle from and to Heiligenstadt Station. Please find a schedule of the IST Shuttle on our webpage: <https://ist.ac.at/en/campus/how-to-get-here/> The IST Shuttle bus is marked IST Shuttle (#142) and has the Institute Logo printed on the side.