Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Thermalization timescales in a 1d Hubbard model with slightly broken integrability FABIAN BIEBL, STEFAN KEHREIN, Univ. Goettingen — Understanding relaxation in quantum systems is essential to determine whether an experimental setup can be described by equilibrium concepts. For example integrable systems do not thermalize, but develop into non-thermal steady states. By slightly breaking integrability, thermalization of such non-thermal (prethermalized) states becomes possible. An important question is to identify the corresponding timescale for thermalization due to the breaking of integrability. We investigate this question for a fermionic Hubbard chain. The integrability breaking term is a small next to nearest neighbor hopping term [1,2]. The thermalization timescale is extracted from the quantum Boltzmann equation and depends strongly on temperature.

[1] M. L. R. Fürst et al., Phys. Rev. E 86, 031122 (2012).
[2] M. L. R. Fürst et al., Phys. Rev. E 88, 012108 (2013).

Fabian Biebl
Univ. Goettingen

Date submitted: 13 Nov 2013 Electronic form version 1.4