凝縮系物理学ゼミナール
Online Condensed Matter Seminar

Online ~~Location: **Room 413**, School of Science Bldg. 5 (理学 5 号館 413 号室)~~

Date: **13:30-15:00**, Wednesday, 3 June 2020

"Fock space localization in the Sachdev-Ye-Kitaev model"

Speaker:

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Abstract:

Many-body localization is a counterexample of thermalization in quantum systems with interaction. Here we study the case of the Majorana Sachdev-Ye-Kitaev (SYK) model perturbed by a one-body Hamiltonian. In the basis diagonalizing the one-body Hamiltonian, many-body localization in this system can be interpreted as Anderson localization in the Fock space. We consider the statistics of many body wave functions and spectra as the strength of the one-body term is ramped up from an ergodic phase via a phase of non-ergodic yet extended states into a (Fock space) Anderson localized phase. Our results are obtained from an effective low energy theory, derived from the microscopic model by matrix integral techniques used in the theory of disordered electronic systems. The analytical results obtained by this formalism are compared against numerical ones for up to 30 Majorana fermions.

References:

[1] Felipe Monteiro, Tobias Micklitz, MT, and Alexander Altland, in preparation