MajuLab Seminar

Wednesday, March 3, 2021
4:30 PM Singapore time / 9:30 AM French time
Online via Zoom, registration is required. Please register at: https://nus-sg.zoom.us/meeting/register/tZErceuppjwtHdXkh4HwyBoOMH_o1Mv9Zfep

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Nicolas Laflorencie is Directeur de Recherche at CNRS and works at the Laboratoire de Physique Théorique in Toulouse, France. His research covers several subfields of condensed matter theory, such as quantum magnetism, entanglement properties in condensed matter physics, quantum disordered systems. Recently, he has been heavily involved in the very intense international activity related to Many-Body Localization physics.

An introduction to many-body localization in condensed matter physics

The first aim of this seminar is to give a general and pedagogical introduction to the so-called Many-Body Localization (MBL) phenomenon which occurs in a large class of disordered and interacting quantum systems. In a second part, I will focus on recent results obtained for the random-field Heisenberg chain: multifractal properties across the MBL transition [1], and a newly discovered chain breaking mechanism [2] which characterises the MBL regime.

[1] N. Macé, F. Alet, N. Laflorencie, Multifractal scalings across the many-body localization transition, Phys. Rev. Lett. 123, 180601 (2019).
[2] N. Laflorencie, G. Lemarié, N. Macé, Chain breaking and Kosterlitz-Thouless scaling at the many-body localization transition in the random-field Heisenberg spin chain, Physical Review Research 2, 042033 (2020).

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