



7th Les Houches school in computational physics
Dynamics of Complex Quantum Systems :
from Theory to Computation
April 12-23, 2021

The aim of the school is to introduce young researchers (starting from PhD level) to the physics of out-of equilibrium dynamics and thermalisation occurring in quantum many-body systems. The focus will be on learning numerical tools and methods to address and solve model problems in condensed matter systems and ultracold atomic gases.

Invited lecturers:

Mari-Carmen Banuls (MPI, Garching)
Giuseppe Carleo (EPFL, Lausanne)
Anushya Chandran* (Boston University)
Michel Ferrero (CPHT, Palaiseau)
Serge Florens (Institut Néel, Grenoble)
Markus Heyl (MPI-PKS, Dresden)
Katharina Hyatt* (Flatiron Institut, New York)
(* to be confirmed)

David J. Luitz (MPI-PKS, Dresden)
Adam Nahum (ENS, Paris)
Cécile Repellin (LPMMC, Grenoble)
Guillaume Roux (LPTMS, Orsay)
Tommaso Roscilde (ENS, Lyon)
Lea Santos (Yeshiva University, New York)
Marco Schiro (IPhT, Saclay)
Xavier Waintal (CEA, Grenoble)

Main topics will cover:

- Thermalization in closed, disordered systems
- Open, driven-dissipative systems
- Matrix-Product states methods : DMRG/TEBD/PEPS
- Quantum Monte Carlo methods in and out-of equilibrium
- Exact Diagonalization and exact numerical methods
- Machine learning
- Many-body localization, quench dynamics, quantum computation, cold-atoms, photonic systems,...

Les Houches is a village located in Chamonix valley, in the French Alps. Established in 1951, the Physics School is located at 1150 m above sea level with breathtaking views on the Mont-Blanc.

Registration:

Application form and more information at
<https://comp-quant-2021.sciencesconf.org>.

Organizers:

F. Alet (LPT, Toulouse), D. Basko (LPMMC, Grenoble), N. Laflorencie (LPT, Toulouse), A. Rosso (LPTMS, Orsay), M. Holzmann (LPMMC & ILL, Grenoble)

