Abstract of two lectures by Professor Laurent Thomann

Quasi-invariance of Gibbs measures for time-dependent Hamiltonians

We consider linear, time-dependent, Hamiltonian systems, for which we try to understand the long time behaviour for some random initial conditions. When the Hamiltonian is independent of time, and under some natural assumptions, one can define measures which are invariant by the flow: one example of such measures are the Gibbs measures.It is natural to address a similar question for time-dependent Hamiltonian systems. In this case, there is no natural measure which is invariant by the flow, but we will prove quasi-invariance results with quantitative estimates. This is a joint work with Nicolas Burq (Université Paris-Saclay) and Nikolay Tzvetkov (École Normale Supérieure de Lyon).

On the Lowest Landau Level equation in periodic frameworks

We study the Lowest Landau Level (LLL) equation defined in strips or in lattices. To begin with, we study well-posedness issues and establish the existence of stationary solutions. In a second time, we study the linear stability of a stationary solution on the lattice. We will see how the (hexagonal) Abrikosov lattice plays a special role. This is a joint work with Pierre Germain (Imperial College London) and Valentin Schwinte (Université de Lorraine).