ID de Contribution: **363** Type: **Contribution orale**

From topological to chaotic quantum dynamics

mercredi 5 juillet 2023 09:00 (15 minutes)

Topological adiabatic dynamics is at the origin of the transport properties of topological insulators, topological pumps, or the recently proposed frequency converters.
In this talk I will discuss the fate of such topological properties beyond the adiabatic regime. I will consider a simple setup of two quantum harmonic oscillators strongly coupled to a qubit. On short timescales, this simplified model displays a topological dynamics which transfers energy at a quantized rate from one oscillator to the other.
On larger timescales, a chaotic dynamics takes place, reminiscent of the topological coupling between the oscillators and the qubit. This dynamical behavior reflects itself on the eigenstates of the system, which belong to two distinct families. One family is chaotic, with a characteristic level repulsion, while the other one is not.

Affiliation de l'auteur principal

CNRS - ENS de Lyon

Auteur principal: CARPENTIER, David (CNRS - ENS de Lyon)

Co-auteurs: DOUÇOT, Benoît (CNRS - Sorbonne Université); LUNEAU, Jacquelin (ENS de Lyon); ROSCILDE, Tommaso (ENS de Lyon)

Orateur: CARPENTIER, David (CNRS - ENS de Lyon)

Classification de Session: Mini-colloques: MC20 Physique mésoscopique

Classification de thématique: MC20 Physique mésoscopique