

Séminaire d'algèbre, topologie et géométrie

Jeudi 8 février à 14h

Salle I

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Bulk-edge correspondence for Floquet topological insulators

Floquet topological insulators describe independent electrons on a lattice driven out of equilibrium by a time-periodic Hamiltonian, beyond the usual adiabatic approximation. In dimension two such systems are characterized by integer-valued topological indices associated to the unitary propagator, alternatively in the bulk or at the edge of a sample. In this talk I will give new definitions of the two indices, relying neither on translation invariance nor on averaging, and show that they are equal. In particular weak disorder and defects are intrinsically taken into account. Finally indices can be defined when two driven samples are placed next to one another either in space or in time, and then shown to be equal. The edge index is interpreted as a quantized pumping occurring at the interface with an effective vacuum.