One-page abstract (2) for the book JMC15

D.-T. Tran¹ & A. Dauphin¹,² & N. Goldman¹,³ & P. Gaspard¹

¹ Center for Nonlinear Phenomena and Complex Systems, Université Libre de Bruxelles, CP 231, Campus Plaine, B-1050 Brussels, Belgium
² Departamento de Física Teórica I, Universidad Complutense, 28040 Madrid, Spain
³ Laboratoire Kastler Brossel, CNRS, UPMC, ENS, Collège de France, 11 place Marcelin Berthelot, 75005, Paris, France

In this talk, we demonstrate the simultaneous existence of quasi-periodicity and topological order in a two-dimensional quasi-crystal subjected to a strong magnetic field. In particular, the quasi-periodic system is shown to present the main characteristics of topological insulating states: robust chiral edge modes and a topologically-ordered bulk. This topological characterization is achieved through a local (real-space) topological marker, which is well suited to analyse non-periodic systems. This work opens a route for the exploration of topological-insulating materials in a wide range of nonperiodic lattice systems, including photonic crystals and cold atoms in optical lattices.