

Simposio de Tecnologías Cuánticas

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ABSTRACT

Driven-dissipative Quantum Phases

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In this talk, I will explain how quantum simulators can produce novel phases of matter known as driven-dissipative quantum phases. Just like equilibrium phases of matter, systems out-of-equilibrium display critical behavior when transitioning from an ordered to a disordered phase. However, the appearance of different steady-state ordering is of purely dynamical origin and cannot be reduced to the usual equilibrium results. Within this framework, I will show how a combination of powerful numerical and analytical tools beyond mean-field theory unveils novel phases of matter and quantum many-body physics not present under purely equilibrium conditions. I will also discuss how these effects and phases can be found using state-of-the-art quantum simulators. As a bonus track, I will present recent experimental results where we simulate finite temperature topological phases in a quantum simulator of superconducting qubits.