

Seminar/Talk

"Self-Similar Quantum Revivals in Quasiperiodic Drives"

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Host: Maksym Serbyn

Abstract:Generic driven many-body systems are expected to heat toward featureless infinite-temperature states. In this talk, I will introduce a distinct form of nonergodic nonequilibrium temporal order: self-similar quantum revivals generated by quasiperiodic spiral kicks in both noninteracting and interacting quantum systems. In these dynamics, the system recurrently returns close to its initial state at a hierarchically nested sequence of Fibonacci-related times, accompanied by self-similar structures in fidelity and entanglement growth. I will explain the underlying mechanism first in the noninteracting setting, in terms of momentum-resolved SU(2) cocycles and an emergent dynamical attractor, which coherently synchronizes different modes at Fibonacci times. I will then extend the discussion to interacting many-body systems, where an underlying symmetry protects the nonergodic dynamics against interactions. Finally, I will discuss how the framework enables tunable entanglement growth, demonstrating that nonergodic quantum revivals can coexist with volume-law entanglement entropy.

Thursday, January 14, 2027 01:00pm - 02:00pm
Sunstone Bldg / Ground floor / Big Seminar Room A

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