

Physics Seminar: Cenke Xu

Wednesday, March 4 · 2:00 – 3:00pm in room 313

Title: Symmetry origin of quantum-classical transition, hydrodynamics, decodability

Abstract: We address the following question: when a quantum system evolves into a classical one, can this evolution exhibit a sharp transition? We will show that strong-to-weak spontaneous symmetry breaking (SW-SSB) provides a sharp onset of classical behavior. We will present the theoretical framework for SW-SSB and summarize ongoing experimental progress. Finally, we will discuss key consequences of SW-SSB, including the emergence of hydrodynamics and its information-theoretic implications, such as a transition in decodability and distinguishability.