

Joint seminar of the NPI of the CAS

16. 4. 2026

doc. Mgr. Pavel Stránský, Ph.D. (Institute of Particle and Nuclear Physics, MFF CUNI): *The Birth and Death of Schrödinger's Cats*

Abstract:

Schrödinger cat states — superpositions of macroscopically distinct quantum states — provide both a testing ground for the foundations of quantum mechanics and a resource for quantum technologies. Their emergence and stability are often governed by quantum criticality. In this seminar, we will use the Rabi model, which describes a two-level system coupled to a harmonic oscillator, as a simple yet powerful platform to explore critical behaviour in quantum systems. We will see how quantum phase transitions give rise to various types of Schrödinger cat states, and how small symmetry breaking can trigger their collapse through a purely unitary process. The phenomena will be illustrated by detailed animations of the cat-state dynamics.