

Abstract Submitted
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Dynamical tunneling in macroscopic systems¹ IOANA SERBAN,
FRANK WILHELM, Institute for Quantum Computing — We investigate macroscopic dynamical quantum tunneling (MDQT) in the driven Duffing oscillator, characteristic for Josephson junction physics and nanomechanics. Under resonant conditions between stable coexisting states of such systems we calculate the tunneling rate. In macroscopic systems coupled to a heat bath, MDQT can be masked by driving-induced activation. We compare both processes, identify conditions under which tunneling can be detected with present day experimental means and suggest a protocol for its observation [1].

[1] I. Serban and F. K. Wilhelm, Phys. Rev. Lett. 99, 137001 (2007)

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