

Abstract Submitted
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Dynamical tunneling in macroscopic systems¹ IOANA SERBAN,
FRANK WILHELM, Institute for Quantum Computing — We investigate macro-
scopic dynamical quantum tunneling (MDQT) in the driven Duffing oscillator, char-
acteristic for Josephson junction physics and nanomechanics. Under resonant con-
ditions 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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