



**Location** University of Regensburg, Dept. of Physics  
Room PHY 5.0.21

**Time** Thursday, 25th October 2007  
3:15 p.m.

**Speaker** Ioana Serban,  
Inst. of Quantum Computing, Univ. of Waterloo, Canada  
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**Title** Dynamical tunneling in macroscopic systems

**Abstract**

We investigate macroscopic dynamical quantum tunneling (MDQT) in the driven Duffing oscillator, characteristic for Josephson junction physics and nanomechanics. We find the resonant tunneling condition between stable coexisting states of such systems and calculate analytically the tunneling rate. In macroscopic systems coupled to a heat bath, MDQT can be masked by driving-induced classical activation. We compare both processes, identify conditions under which MDQT can be detected with present day experimental means and suggest a protocol for its observation.

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