

Einladung zum Physikalischen Kolloquium

13.02.2026 Alexander Shnirman, Alexey Ustinov, Ioan Pop, KIT
»Nobel Prize in Physics 2025, Quantum mechanics on a chip«
Einführung: J. Schmalian

Nobel Prize in Physics 2025



Ill. Niklas Elmehed © Nobel Prize Outreach

John Clarke

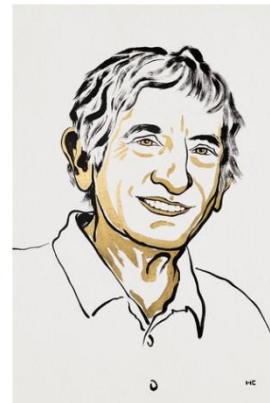
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Michel H. Devoret

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John M. Martinis

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In 1985 two papers were published by Michel Devoret, John Martinis and John Clarke. They have unambiguously demonstrated that the phase of the superconducting order parameter, a variable governing the collective dynamics of macroscopic numbers of electrons, shows quantum behavior. In particular they have observed the phenomenon of macroscopic quantum tunneling (MQT). This breakthrough has led to enormous progress in superconducting quantum circuits, culminating in nowadays intermediate scale quantum computers with coherence times reaching milliseconds. It has also proven that laws of quantum mechanics are not limited to single particles or atoms.

In this colloquium we will review the theoretical and historical background of this discovery, the experimental challenges, the alternative explanations and, finally, the current state of the quantum superconducting technology.

Der Vortrag findet am Freitag, den 13. Februar 2026 um 15:45 Uhr im Otto-Lehmann-Hörsaal, Physik-Flachbau (Geb. 30.22), KIT-Campus Süd statt.