

Physikalisches Kolloquium

Ioan Pop, KIT

»The quest for the quantum transistor:

Can superconducting circuits offer the solution?«

Einführung: A. Ustinov

As quantum communication and algorithms are advancing, heralding a new paradigm in information technology, the development of quantum hardware is still in its infancy. A central piece in quantum information processing systems is the quantum bit, which can be loosely associated to the quantum version of a classical transistor. Quantum bits have to be able to store quantum superposition states for relatively long times, and in the same time be able to interact with other quantum bits in a strongly interconnected lattice. The notorious fragility of quantum states renders these requirements almost orthogonal, and makes the quest for a quantum transistor particularly challenging. In this talk I will present the operating principles of superconducting quantum circuits, a promising avenue for quantum hardware implementation. In particular, I will emphasize the potential of an emerging approach, pioneered at KIT: high impedance quantum circuits.

Freitag, 14.12.2018, 15:45 Uhr,

**KIT, Campus Süd,
Otto-Lehmann-Hörsaal, Physik-Flachbau (Geb. 30.22).
Anschließend Nachsitzung.**