

Großes Physikalisches Kolloquium an der Universität zu Köln

Prof. Dr. Leo Kouwenhoven

TU Delft



Majorana Qubits

08.05.2018

16⁴⁵ Uhr / HS III



Majoranas in semiconductor nanowires can be probed via various electrical measurements. Tunnel spectroscopy have revealed zero-bias peaks in the differential conductance. New observations include quantum superpositions of Majorana states leading, for instance, to a 4π current phase relation or a fractional Josephson effect. When the existence of Majoranas is firmly established, the next challenge is to build Majorana qubits. We discuss the different qubit schemes and report on our first building blocks. The promise of Majorana qubits is that the error rate is very low yielding a relativele simple scalable architecture.

