



SFB/TRR 21 - Colloquium

9. Mai 2014, Tübingen

## Frank Wilhelm-Mauch

(Universität des Saarlandes, Saarbrücken)

### Engineered microwave modes for quantum simulations in circuit QED

Circuit QED studies the strong interaction of engineered superconducting qubits with microwaves on the single photon level. In this talk, we will discuss applications of engineering the mode structure of these microwaves with the goal of providing analogues to important problems of many-body physics. As a first instance we will study a one-dimensional left-handed transmission line realized as a metamaterial which allows to study a quantum-to-classical localization transition in a qubit attached to it. Furthermore, we will show localization of photons in Fibonacci chains as well as the prospect to study Anderson localization of free and interacting photons with them.

9. Mai 2014, 15:30 Uhr

Universität Tübingen, Raum D4 A19  
Auf der Morgenstelle 14, 72076 Tübingen

