



Britton Plourde

(Syracuse University, Syracuse, NY, USA)

Superconducting qubits: sidebands, cavities, and vortices

There has been tremendous progress in recent years with the development of superconducting qubits and cavities. I will describe several recent and ongoing efforts in this area at Syracuse University. We have implemented a frequency-modulated driving technique with asymmetric transmon qubits for generating first-order sideband transitions for the rapid exchange of excitations between qubits and cavities. Following recent advances in the use of three-dimensional waveguide cavities for coupling to superconducting qubits, we have been exploring various surface treatments for thermalizing the cavity walls and the qubit chips mounted inside of the cavities. Finally, vortices play an important role in the performance of superconducting resonators and qubits. We are currently working on experiments with structures for trapping a single vortex in a superconducting microwave resonator.

16. December 2013, 15:15 Uhr

**Universität Tübingen, Raum C9 G09
Auf der Morgenstelle 14, 72076 Tübingen**

