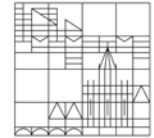


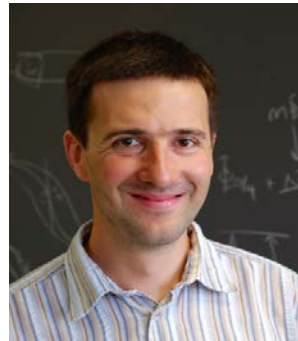
SFB 767

Seminar

Universität
Konstanz



Fr 21 Jul 2017
10:00
P 602



Dr. Ioan Pop

Karlsruhe Institute of Technology

Circuit quantum electrodynamics of granular aluminum resonators

Granular Aluminum (GrAl) is a self assembled material, easily obtained by standard aluminum deposition under oxygen atmosphere. Its properties have been studied extensively since the 60's, in particular motivated by the measurement of the superconductor-to-insulator transition, and the increase of the superconducting gap with increasing granularity. Recently, the material has been used for gap engineering in superconducting quantum bits [1] and for high kinetic inductance resonators [2]. In this talk I will focus on the the nonlinear properties of GrAl. I will present a circuit quantum electrodynamics (cQED) model to calculate the Kerr coefficients of GrAl microwave resonators, starting from their nano-structure, and I will show measurements which support the cQED model. I will argue that GrAl is a promising material for non-linear quantum optics in the microwave domain.

Contact:
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[1] L. Sun et al. *PRL* (2012)

[2] H. Rotzinger et al. *Supercond. Sci & Tech.* (2016)