



Eduard Driessen

(CEA Grenoble, France)

Microwave electrodynamics as a probe for strongly disordered s-wave superconductors

In contrast to established belief, disorder in superconducting films does affect the superconducting state. For sufficiently disordered superconductors, a direct transition of superconducting to insulating behaviour is observed. In the vicinity of this transition, the superconducting state becomes inhomogeneous, and Cooper pairs might get localised. In this talk, I will describe how one can use the microwave response of superconducting resonators, to study the effects of disorder on the superconducting state. In particular, we studied NbTiN and TiN resonators in the few-GHz range. We find clear deviations from the conventional Mattis-Bardeen description, that progress systematically with increasing disorder. We analyse our results assuming that the disorder affects the quasiparticle density of states. The results are compared to recent scanning tunnelling experiments.

14. Mai 2013, 13:00 Uhr

Universität Stuttgart, NWZII, Raum 3.531
Pfaffenwaldring 57, 70569 Stuttgart

