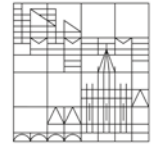


SFB 767

Colloquium

Universität
Konstanz



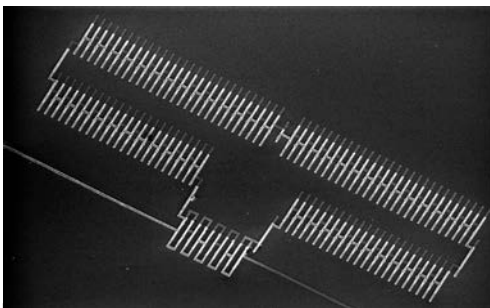
Thu 11 May 2017
Coffee and tea 15:15
Talk 15:30
P 603



Prof. Dr. Wiebke Guichard
Université Grenoble Alpes - Institut Néel (F)

Weak and strong non-linear effects in Josephson junction chains

In the first part of my talk I will present our microwave transmission measurements on propagation modes in Josephson junction chains containing several hundreds of junctions. After some preliminary measurements [1] we have done a more systematic measurement in an improved measurement-set-up that I will present. Some of the chains have been imbedded into the microwave strip line, while others have been coupled capacitively to it. The latter configuration enables a study of the internal quality factor of the chain while the first one is more suited to study quantitatively the Kerr effects occurring between different modes in the chain. The experimental dispersion curve fits well the theoretical prediction. We measured the Self- and Cross Kerr effects by two-tone spectroscopy measurements. We deduce from our measurements the Self- and Cross Kerr coefficients for the first 8 modes and compare them to theory. In the second part of my talk, I will show our recent results on the realization of a fluxonium qubit. I will discuss spectroscopy measurements and measurements of the relaxation and decoherence time of this qubit. At the end I will discuss future experiments with fluxonium type devices.



Fluxonium qubit realized at the Néel Institute in Grenoble

Contact:
Gianluca Rastelli, 3802



[1] T. Weissl, B. Küng, E. Dumur, A. K. Feofanov, I. Matei, C. Naud, O. Buisson, F. W. J. Hekking, and W. Guichard, *Phys. Rev. B* 92, 104508 (2015)

[2] T. Weissl, G. Rastelli, I. Matei, I.M. Pop, O. Buisson, F.W.J. Hekking and W. Guichard, *Phys. Rev. B*, 91, 014507 (2015)