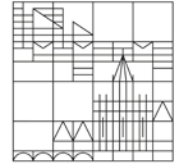


SFB 767

Colloquium

Universität
Konstanz



Dec 13, 2018
Coffee and tea 15:15
Talk 15:30
P 603

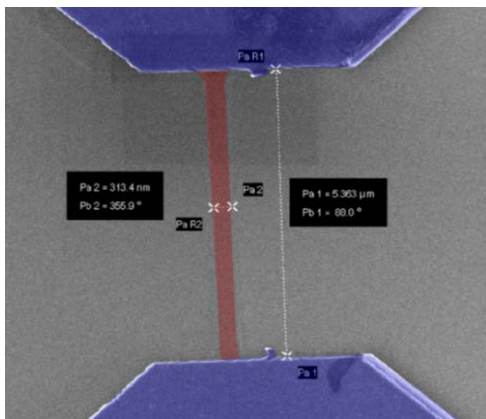


Prof. Dr. Bertrand Reulet

Université de Sherbrooke (Canada)

Dynamical effects in the electronic noise generated by a metallic wire

A metallic wire may seem to be the dullest conductor one can think of. With two experiments we will show that it may yet provide surprises ! First we will consider how fast its noise, i.e. the variance of current fluctuations it generates, can respond to an ac excitation. We will show that by answering this question one can extract the time constants of energy relaxation in the wire. In particular, this allows for the measurement of the electron-phonon interaction time, the diffusion time along the sample, and even the heat capacity of a sample orders of magnitude smaller than what can be studied in conventional experiments. In a second experiment we will show that a wire exhibits non-Gaussian noise, not only at very low temperature where it is phase-coherent, but also in the high temperature regime where it behaves as a mere electric heater. And this is linked with the dynamical response of noise mentioned above!



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