

# Kolloquium

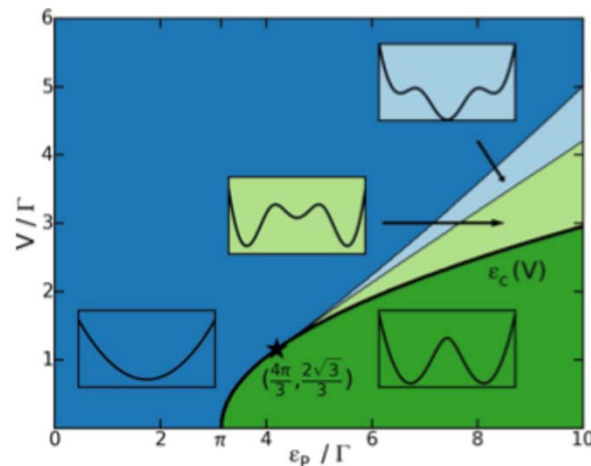
## Theoretische Physik

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**Prof. Dr. Fabio Pistolesi**  
Director of LOMA, Bordeaux  
Université Bordeaux, France

### The bistability transition induced by a strong nano-electromechanical coupling



I will discuss the mechanical bistability transition induced in a nano electromechanical oscillator coupled capacitively to quantum dot. We have recently shown that at the transition the mechanical mode becomes soft, and the mechanical response presents several peculiarities. The most striking one is an important broadening of the resonance with a universal quality factor at the transition. These results have been obtained in the limit of slow classical oscillator with respect to the tunneling rate of electrons. In this talk I will discuss also the opposite case, of fast quantum mechanical mode in the tunneling limit, and show that the displacement correlation function presents also remarkable features.

R. Avriller, B. Murr, F.P., arXiv:1801.03747 (2018)  
G. Micchi, R. Avriller, F.P., Phys. Rev. B, (2016).  
G. Micchi, R. Avriller, F.P., Phys. Rev. Lett. (2015).