CARL VON OSSIETZKY universität OLDENBURG
Institut für PHYSIK

PHYSICAL COLLOQUIUM

INVITATION

Monday, 14.05.2018, 4.15 p.m., W2-1-148

speaks

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about

The Many-Body-Physics of Ion Coulomb Crystals

Ion traps are a versatile tool for a broad range of applications, such as quantum information and optical clocks. They offer a well-controlled experimental environment in which single ions can be stored and manipulated. If the ions are cooled to energies lower than the potential energy of the Coulomb system, they form crystals, which can be used as quantum simulators or emulators for non-equilibrium statistical physics.

A great advantage of trapped ion crystals is the in-situ access to the dynamics of the atomic particles, which are often not accessible in the emulated system. We emulate the boundary of two atomically flat solids with a self-assembled ion Coulomb crystal in the zigzag phase and study the nanofriction between these back-acting ion chains. In this system, we study second-order phase transitions and the formation and dynamics of topological defects.

All interested persons are cordially invited.

Sgd. Prof. Dr. Claus Lämmerzahl

Sgd. Prof. Dr. Christoph Lienau