

Ion Trap Physics Seminars

Thursday, Oct. 15, 10:05 – 12:00

Place: 1525-323

10:05-10:15: Coffee and buns

Time: 10:15-11:00

Speaker:

Martina Knoop
CNRS/Aix-Marseille University, France

Title: Fast and efficient transport of large ion clouds

Abstract:

Transporting charged particles between different traps has become an important feature in high-precision spectroscopy experiments to take advantage of different experimental environments. In our double linear radio-frequency trap, we have implemented a fast protocol allowing to shuttle large ion clouds very efficiently between traps, in times shorter than a millisecond. Moreover, our shuttling protocol is a one-way process, allowing to add ions to an existing cloud without loss of the already trapped sample. This feature makes accumulation possible, resulting in the creation of large ion clouds. Experimental results show, that ion clouds of large size are reached with laser-cooling, however, the described mechanism does not rely on any cooling process.

Time: 11:15-12:00

Speaker:

Tobias Schätz
Freiburg University, Germany

Title: New concepts of ion traps

Abstract:

Experiments on the quantum level with ions in rf traps permit seminal results and insight into complex quantum dynamics. However, the system under control of motional and electronical degrees of freedom is currently limited to the order of ten ions arranged in a linear string and a common trapping potential. Experimental approaches to scaling particle numbers and dimensionality of trapped-ion arrangements are discussed.