

FAKULTÄT für PHYSIK  
LUDWIG-MAXIMILIANS-UNIVERSITÄT  
MÜNCHEN/GARCHING

PHYSIK-DEPARTMENT  
TECHNISCHE UNIVERSITÄT MÜNCHEN  
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## MLL-KOLLOQUIUM

Donnerstag, 29.01.2015, 16<sup>15</sup> Uhr

Seminarraum 127, TUM, Physik II, Erdgeschoss/Nord  
Treffen zum gemeinsamen Kaffee 16 Uhr

Dr. Christine Weber  
(LMU München)

### Ion traps for precision experiments on rare isotopes

Accurate mass determination employing Penning ion traps has gained increasing importance since the installation of several on-line mass-spectrometer facilities at accelerator labs. These setups combine the unique production schemes for very rare isotopes with techniques providing excellent mass separation and highest mass accuracy. Atomic masses reflect the nuclear binding energy as one of the fundamental ground-state properties of each nucleus. With their detailed study, many physics applications can be addressed, such as nuclear structure, nuclear astrophysics, weak-interaction, and neutrino physics.

Moreover, purified samples of stored ions can be regarded as ideal sources for nuclear decay-spectroscopy experiments, since they are essentially free from any background effects. A basic introduction into the techniques of ion traps and mass spectrometry will be given, accompanied by highlight physics examples. An overview on recent developments for a novel in-trap decay-spectroscopy setup with an outlook to emerging radioactive beam facilities will be presented.

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