

Precision mass measurements, experimental aspects

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Like few other parameters, the mass of an atom, and its inherent connection with the atomic and nuclear binding energy is a fundamental property, a unique fingerprint of the atomic nucleus. Each nuclide comes with its own mass value different from all others. For short-lived exotic atomic nuclei the importance of its mass ranges from the verification of nuclear models to a test of the Standard Model, in particular with regard to the weak interaction and the unitarity of the Cabibbo-Kobayashi-Maskawa quark mixing matrix. In respect to the later application the most important recent results on the measurement of decay energies Q but also on the study of half-lives $T_{1/2}$ and branching ratios R will be discussed.

Primary author: Dr BLAUM, Klaus (Univeristy of Mainz)

Presenter: Dr BLAUM, Klaus (Univeristy of Mainz)

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