



Contribution ID: 18

Type: poster with financial aid

Recent mass measurements at ISOLTRAP

Precision mass measurements are performed at the mass spectrometer ISOLTRAP which is located at the isotope separator ISOLDE/CERN. The time-of-flight method is employed to determine the frequency of an ion stored in a Penning trap from which the mass can be extracted. Of special interest are exotic nuclei whose mass can be determined with a relative uncertainty of down to 10^{-8} . These values help to examine nuclear structure effects, revising mass models or are incorporated into nucleo-synthesis calculations. In the past year, ISOLTRAP delivered precious data to some of these applications: Determining the two neutron separation energy of $^{64-66}\text{Mn}$ allowing for ruling out a possible shell closure at $N=40$. The nucleus ^{66}Mn with a half-life of only 64ms is thereby the shortest-lived nuclei ever to be measured at ISOLTRAP. In addition, the masses of $^{96,97}\text{Kr}$ disproved the assumption of some mass models –such as e.g. HFB17 –that a region of deformed nuclei existed around $N=60$. Nuclei lying far from stability can furthermore be used to test mass models, thus shedding light on the r-process; one of them being the masses of $^{122-124}\text{Ag}$. Finally, the determination of the mass of ^{194}Hg allows for improving the reachable limit for the electron neutrino mass to about 20eV.

Is this an invited talk? (please answer yes or no)

no

Would you prefer your contribution to be a poster presentation? (please answer yes or no)

no

Would you prefer your contribution to be an oral presentation? (please answer yes or no)

yes

Are you a student, postdoc or an attendee from an “emerging” country and would like to apply for financial support?

no

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Track Classification: Shell structure far from stability