

Nuclear structure studies with high-precision mass measurements of spontaneous fission fragments at the FRS-IC

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Abstract

At the FRS - Ion Catcher (FRS-IC) [1] setup at GSI, high-precision mass measurements of ^{252}Cf fission products have been performed with a multiple-reflection time-of-flight mass-spectrometer (MR-TOF-MS) [2].

In this work we focus on the analysis of fission fragments at $N=90$ and $Z=56-62$. The results include new measured masses and first direct mass measurements of several isotopes. The two neutron separation energies, S_{2n} , and the average interaction of the last protons with the last neutrons, δV_{pn} , were extended with the new measurements. Their implications in ground-state phase transitions [3] and shell structure [4] are discussed. The mass measurements are compared with the existing data of indirect measurements and with the most recent atomic mass evaluation (AME) [5] values.

References

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