

Beta decay studies in the HISPEC/DESPEC FAIR Phase-0 campaign at GSI

Friday, 21 June 2024 17:40 (20 minutes)

The work presented is focused on experimental results from two experiments performed using the FRS+DESPEC setup at GSI-FAIR in spring 2021. The two experiments aimed at studying two different regions of the nuclear chart, extending from the heavy n-rich side around $A \sim 225$ towards the p-rich ^{100}Sn region.

The main results from the analysis of the heavy n-rich region is the first measurement of β -decay half-lives. A comparison with theoretical models highlights the role of first-forbidden transition and are fundamental inputs for the description of the r-process nucleosynthesis.

The β -delayed decay pattern was studied in $^{100,101,102}\text{Cd}$. New levels were added to the level scheme of ^{101}Cd , and compared to large-scale shell model calculations. In the same experiment, lifetimes of low-lying excited states below the 8^+ seniority isomer in the neutron-deficient $^{98,100}\text{Cd}$ isotopes were performed and the calculated $B(E2)$ values were compared with state-of-the-art shell model calculations.

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Session Classification: On-going analysis

Track Classification: Beta-decay