



Contribution ID: 152

Type: **Invited**

Beta-decay along the $N=Z$ line and its relevance in rp -process and X-Ray bursts

Wednesday 7 September 2022 09:00 (30 minutes)

Nucleosynthesis in Type I X-ray bursts (XRB) proceeds eventually through the rp -process near the proton drip-line. Several $N=Z$ nuclei act as waiting points in the reaction network chain. Astrophysical calculations of XRB light curves depend upon the theoretical modelling of the beta decays of interest, with the $N=Z$ and their second-neighbours $N=Z+2$ being key nuclei in this context.

Several such theoretical calculations have shown that, in the high-density and high-temperature scenario of the XRB, continuum electron capture and decay rates from excited states play an important role, in particular for nuclear species at and around the waiting-point nuclei.

In this contribution I will present the experimental results of different campaigns carried out at ISOLDE (CERN) to measure properly the $B(GT)$ distributions in the decay of several $N=Z$ & $N=Z+2$ of particular relevance in rp -process calculations. These results provide benchmarks for testing and constraining models under terrestrial conditions that can be used later for predictions in stellar environments.

Field of work

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