

# First preliminary results on the s-process branchings $^{79}\text{Se}(n,g)$ and $^{94}\text{Nb}(n,g)$ and future prospects

The recent upgrade of the CERN n\_TOF neutron-spallation target has resulted in improved experimental conditions regarding neutron-energy resolution and background level. A concomitant effort has been also made in terms of detection systems, thereby remarkably improving some limitations of previous set-ups. These upgrades, together with a major effort on sample production at PSI and ILL, have enabled the first direct neutron-capture cross section measurements on the radioactive isotopes  $^{79}\text{Se}$  and  $^{94}\text{Nb}$ . On one hand, the beta-decay of  $^{79}\text{Se}$  shows a prominent thermal dependency, which can be exploited to probe the thermal conditions during core He-burning and shell C-burning in massive stars. On the other hand, the interplay between beta-decay and neutron-capture at  $^{94}\text{Nb}$  in AGB stars may influence the production of  $^{94}\text{Mo}$ , whose isotopic abundance in presolar SiC grains is yet an important topic of debate. A short summary will be presented on the innovative experimental approaches used to perform these two challenging experiments and first preliminary results will be presented to highlight the quality of the results and to discuss their potential impact on s-process nucleosynthesis.

## Length of presentation requested

Oral presentation: 17 min + 3 min questions

## Please select between one and three keywords related to your abstract

Nuclear physics - experimental

## 2nd keyword (optional)

Nucleosynthesis

## 3rd keyword (optional)

Instrumentation

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