

Results of cross-section measurements of proton-capture reactions on stable Rubidium isotopes

Wednesday 16 October 2024 11:30 (10 minutes)

The existence of some stable neutron deficient nuclei - the p nuclei - can not be explained by neutron-capture processes [1]. Therefore, other types of reactions - dominantly photodisintegration reactions - come into play. This is called the γ process. Statistical model calculations play a crucial role in modelling this process as cross sections for many of these photodisintegration reactions are not known through experiments.

Two in-beam experiments were performed at the University of Cologne's high-efficiency HPGe γ -ray spectrometer HORUS to study the $^{85,87}\text{Rb}(p, \gamma)^{86,88}\text{Sr}$ reactions. A 10 MV FN Tandem accelerator provided proton beams between $E_p = 2$ and 5 MeV. Total cross-section values were determined for six different proton-beam energies for the $^{87}\text{Rb}(p, \gamma)^{88}\text{Sr}$ reaction and for three different proton-beam energies for the $^{85}\text{Rb}(p, \gamma)^{86}\text{Sr}$ reaction. These first experimental cross-section values for the $^{85,87}\text{Rb}(p, \gamma)^{86,88}\text{Sr}$ reactions help to constrain the nuclear physics input for statistical model calculations.

Supported by the DFG (ZI 510/8-2).

[1]T. Rauscher et al., Rep. Prog. Phys. 76 (2013) 066201.

Length of presentation requested

Oral presentation: 8 min + 2 min questions (Poster-type talk)

Please select a keyword related to your abstract

Author: WILDEN, Svenja (University of Cologne)

Presenter: WILDEN, Svenja (University of Cologne)

Session Classification: Morning session