

$^{90}\text{Zr}(p,\gamma)^{91}\text{Nb}$ for γ -process nucleosynthesis



Nucleosynthesis of proton-rich isotopes of elements beyond iron remains a question to astrophysical models. In particular production of Mo/Ru isotopes remains a challenge, as the unusually high solar abundances of these isotopes cannot be reproduced by models. $^{90}\text{Zr}(p,\gamma)^{91}\text{Nb}$ is one of the reactions in the production path of ^{92}Mo and previous experimental data showed a substantial

discrepancy in the measured cross section. This work performed at the NSL using a γ -summing detector – HECTOR – resolved the disagreement confirming the lower experimental cross section. An updated reaction rate has also been calculated from the Hauser-Feshbach model that fits the data. The new rate is up to 30% higher than that reported in the REACLIB database.

