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Cross sections of the $^{89}\text{Y}(\text{p},\gamma)$ reaction relevant to the p process ¹

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The cross section of the $^{89}\text{Y}(\text{p},\gamma)^{90}\text{Zr}$ reaction was determined at $E_p=1.4\text{--}4.8$ MeV via angle-integrated measurements carried out by means of a 4π NaI summing detector as well as via angular distribution measurements using an array of 4 HPGe detectors with 100% relative efficiency. The resulting cross sections vary from 0.5 to 5 mb. Astrophysical S factors and reaction rates have also been derived. A good agreement between the experimental rates and the predictions of statistical theory has been found.

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