

Status and perspectives of thick target measurement of (alpha,n) reactions using the miniBELEN detector

Monday, 27 November 2023 16:40 (45 minutes)

The MANY (Measurement of Alpha Neutron Yields and Spectra) collaboration is a coordinated effort aiming to conduct measurements of (alpha,n) production yields, reaction cross-sections, and neutron energy spectra. MANY relies on the alpha beams generated by the accelerator facilities at CMAM (Madrid) [1] and CNA (Sevilla) [2]. The miniBELEN-10A neutron counter [3] is one of the detection systems available within MANY. This work reports the commissioning experiment carried out at CMAM using natural aluminum targets. Specifically, we present the results from measurements of the $^{27}\text{Al}(\alpha,n)^{30}\text{P}$ thick target production yields using the miniBELEN-10A detector. Based on the commissioning results, the potential upgrade of miniBELEN is discussed. Finally, the future perspectives for measurements using this detector are outlined.

REFERENCES

- [1] A Redondo-Cubero et al. Eur Phys J Plus 136 (2021) 175
- [2] J Gómez-Camacho et al. Eur Phys J Plus 136 (2021) 273N
- [3] Mont-Geli et al. EPJ Web of Conferences 284 (2020)

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