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Study of the alpha-nucleus optical potential in the mass range relevant to the gamma-process nucleosynthesis

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Experimental data collected in the last two decades give a clear indication that the low-energy alpha-nucleus optical potential (α-OMP) is a crucial and not sufficiently known nuclear physics parameter in the modeling of the γ-process of heavy element nucleosynthesis. A new α-OMP called Atomki-V2 has been developed for low energy nuclear astrophysics purposes [1]. This potential provides a reproduction of most of the available experimental reaction cross sections better than the other available global α-OMPs. In this presentation, after giving a brief description of the experiments, the performance of this potential will be examined further in the case of two recent (α,n) cross section measurements on ^{144}Sm [2] and on several Te isotopes [3].

[1] P. Mohr *et al.* At. Data Nucl. Data Tables **142**, 101453 (2021)
[2] Gy. Gyürky *et al.*, Phys. Rev. C **107**, 025803 (2023)
[3] Zs. Mátyus *et al.*, Phys. Rev. C *submitted*

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