

Kaonic atom optical potential by the high precision data of Kaonic He atoms

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We investigate the constraints on the kaonic atom optical potential deduced from the latest extremely high precision data of the 2p states of the kaonic ^3He and ^4He atoms [1].

In our analyses, we consider the phenomenological optical potentials proportional to the nuclear density distributions, and the potentials inspired by the theoretical studies of the chiral unitary model and the χ^2 fitting to the previous data. We find that the data in Ref. [1] together with the previous data of heavier kaonic atoms could provide the relevant constraints to the kaonic atom optical potential [2].

[1] T. Hashimoto et al. [J-PARC E62], Phys. Rev. Lett. 128, no.11, 112503 (2022).

[2] J. Yamagata-Sekihara et al., in preparation.

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