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Elastic scattering of alpha particles: going beyond optical potential models

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The elastic scattering of alpha particles on N=Z nuclei exhibits a significant enhancement of the cross section at large scattering angles, a phenomenon known as anomalous large angle scattering (ALAS) [1]. Several studies [2] suggest that ALAS is linked to the alpha-like correlations present in N=Z nuclei. Moreover, this behavior cannot be satisfactorily explained within the standard framework of optical potential models [3]. In this study, the potential describing the interaction between the alpha particle and the target nucleus is obtained using a single folding procedure [4]. This method incorporates an alpha-nucleon potential [5] and the nuclear density of the target nucleus, the latter being evaluated based on microscopic quantum approaches.
[1] G. Gaul et al., Nucl. Phys. A137 (1969) 177.
[2] N. C. Schmeing, Nucl. Phys. A142 (1970) 449.
[3] X.-W. Su, and Y.-L. Han, Int. J. Mod. Phys. E, vol. 24, no. 12 (2015).
[4] G. R. Satchler, and W. G. Love, Phys. Rep. 55 (1979) 183-254.
[5] F. E. Bertrand et al., Phys. Rev. C22 (1980) 1832.

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