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OPTICAL-MODEL ANALYSIS OF THE DEUTERON ELASTIC SCATTERING ON 12C NUCLEUS WITH RESONANT PART CONTRIBUTION

The fitting of all available experimental data of deuteron elastic scattering on 12C nucleus (differential cross sections at deuteron energies from 0.45 to 270 MeV and total 12C+d reaction cross sections from 0.43 to 171 MeV) with the use of the resonant optical-model code OptModel [1,2] was performed. Violation of scattering matrix unitarity (optical-model + resonance) at several energies did not exceed 15% what corresponds to the mean errors of the data analyzed. Energy dependences of amplitude VV, radius rVv and diffuseness aVv of the real volume potential obtained at the present work (solid bold line) and values presented from literature (other symbols) were shown in fig. a-c, respectively.

References

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Section

Experimental and theoretical studies of nuclear reactions

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