Cluster Model Analysis of Kaon Scattering from 12C

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Abstract:

Angular distributions of differential cross sections for the interaction of K+ mesons with 12C nucleus at beam momenta of 635, 715, and 800 MeV/c have been analyzed using 3\(\alpha\)-particle model of 12C. Differential cross sections for inelastic transitions to the 2\(^+\) (4.44 MeV) and 3\(^−\) (9.64 MeV) states in 12C are calculated, and deformation lengths \(\delta_2\) and \(\delta_3\) are extracted and consistent with other works. Good agreement with experimental data of elastic and inelastic K±-12C scattering is obtained.

Keywords:

Kaon-nucleus scattering · Cluster model · Distorted wave theory · Nuclear models

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