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Elastic Scattering of ^{6}He based on a Cluster Description[1]
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— Recently elastic scattering of ^{6}He off a polarized proton target has been measured for the first time at an energy of 71 MeV/nucleon. The experiment finds that the analyzing power becomes negative around 50°, a feature which can not be described by simple folding models for the optical potential, which do not take into account the halo character of the ^{6}He nucleus. In this work, the cluster structure of ^{6}He is incorporated in an optical potential for the reaction p+^{6}He in the framework of the Watson ansatz for the multiple scattering theory. We find that the analyzing power at 71 MeV/nucleon is sensitive to the cluster structure of ^{6}He, whereas the differential cross section is not. We also present predictions for higher energies which also show a lack of sensitivity.

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