Halo structure of $^{11}$Be nucleus: A folding model description

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Abstract

Different versions of the double-folding optical model have been constructed to describe the halo nucleus $^{11}$Be elastic scattering. Successful predictions were obtained for $^{11}$Be+$^{12}$C elastic scattering at 49.3 MeV/n using the generated potentials. The effect of the nuclear matter density of $^{11}$Be was considered.