

Glauber model Investigations in probable bubble nuclei.

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A strong depletion of the nuclear central density can have nuclear structure effects leading to the formation of “bubble” nuclei. Nonetheless, probing the density profile of the nuclear interior is, in general, very challenging. We shall illustrate that the high-energy nucleon-nucleus scattering under the aegis of the Glauber model offers a unique and practical way to quantify the nuclear bubble. The effectiveness of this method is tested on ^{28}Si with harmonic-oscillator densities, before applying it on $N = 14$ isotones with realistic densities obtained from antisymmetrized molecular dynamics (AMD). I will show that the bubble structure information is imprinted on the nucleon-nucleus elastic scattering differential cross section and relationship between the bubble structure and the nuclear surface profile.

Field of your work

Theoretical nuclear physics

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