DREB2022 - Direct Reactions with Exotic Beams



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Consistent description for 11Li scattering from light to heavy targets

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The Borromean nucleus ¹¹Li presents a two-neutron halo structure that still hides a lot of information about it. Several experimental and theoretical works have tried to shed light in its structure and reaction dynamics during the past decade [Phys. Rev. Lett 109 (2012) 262701; 110 (2013) 142701; 114 (2015) 192502; Phys. Lett. B 774 (2017) 268; Phys. Rev. C 85 (2012) 054610; 92 (2015) 044608; 101 (2020) 064611; Prog. Theor. Exp. Phys. (2019) 123D02]. The existence of a dipole resonance, its character and its position in energy is under discussion.

We present here a consistent description of reactions induced by 11Li on different targets, including ²⁰⁸Pb, protons and deuterons, within the same four-body formalism. The continuum-discretized coupled-channels method [Phys. Rev. C 77 (2008) 064609; 80 (2009) 051601(R)] is used with the same structure model for all the reactions. This model provides a dipole resonance at about 0.70 MeV over the ground state. The results for alternative positions for this resonance will be also discussed.

Topic

Theory

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