

Effect of Coulomb breakup on the elastic cross section of 8B proton-halo projectile on the 208Pb heavy target

We investigate the role of the breakup channel in the elastic and breakup cross sections, in collisions of proton-halo nuclei. For this purpose, we perform continuum discretized couple channel calculations for the 8B + 208 Pb system. We study also the individual contributions of the Coulomb and nuclear couplings to the cross sections. Polarization potentials for this reaction were also derived, using two options for the imaginary part of the optical potential, with long or short range. The effect of these short and long imaginary potentials on the breakup angular distributions are also investigated. To compare the effects of the breakup channel in proton-halo and neutro-halo nuclei, we perform calculations treating 8B as a 7B + n core-nucleon system, using an artificially low breakup threshold.

J.Lubian J. Rangel, L.F. Canto and P.R.S. Gomes