

Coulomb nuclear interference effect on breakup observables in proton halo breakup reactions

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The effect of Coulomb nuclear interference on breakup observables have been studied in proton removal reactions from proton halo nuclei. Theoretical study is performed for ^{23}Al and ^{31}Cl nucleus breakup reactions on different targets i.e. ^{12}C , ^{58}Ni and ^{208}Pb at 40-100 MeV/n incident energies. Single proton breakup cross section and width of longitudinal momentum distribution are analysed using sudden approximation to all orders formulation and eikonal approximation for Coulomb and nuclear breakup mechanism respectively [1-3]. The interference effect on proton breakup cross section and width of longitudinal momentum distribution are found significant and quite sensitive to the size of the target and incident energy. The results seems helpful for better understanding of breakup mechanisms and interpretation of experimental results.

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- [2] A. Garcia Camacho *et al.*, Phys. Rev. C **76** (2007) 014607.
- [3] Ravinder Kumar and Angela Bonaccorso, Phys. Rev. C **84** (2011) 014613.