

Structure effects and dynamics in fusion reaction of light weakly bound nuclei

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The study of the fusion in collision around the Coulomb barrier, induced by radioactive or stable weakly bound nuclei, has been the subject of many experiments in the last years [1]. From a semiclassical point of view, direct processes like break-up or transfer may be favored by the low binding energies and one might also expect suppressed fusion cross section due to the competition with the breakup. However, according to the Coupled Channel calculations (CC), it is well known that the presence of strong open reaction channels can be responsible for a fusion cross-section enhancement.

For the above reasons, the ${}^6\text{Li}+{}^{64}\text{Zn}$ collision has been studied at several energies around the coulomb barrier, measuring the single production yield for the residues and the fusion cross section by an activation technique [2].

[1] L. F. Canto, P. R. S. Gomes, R. Donangelo, and M. S. Hussein, Phys. Rep. 424, 1 (2006).

[2] DiPietro et al., Phys.Rev., C69, 044613, (2004)

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