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# Sub-barrier fusion of 6He + 208Pb

*Thursday 10 June 2010 15:30 (20 minutes)*

During the last years there have been an increasing interest in understanding the process of sub-barrier fusion induced by halo nuclei. The fusion probability is largely affected by two main features, the extended density distribution and the weak binding energy of these exotic systems. In addition to this, one and two neutron transfer can also play an important role in the dynamics of the fusion process. Sub-barrier fusion of 6He was studied in [1, 2, 3] but no clear signature of fusion enhancement was found. This picture is consistent with the observation of large yields of alpha particles [4] which could be attributed only to neutron transfer (incomplete fusion) and projectile breakup. However in a recent measurement [5], a large enhancement of the fusion channel was observed in the scattering of 6He+206Pb at deep sub-barrier energies. The authors explained their finding using a sequential neutron transfer mechanism [6] that increases the fusion probability and is able to reproduces the data. To clarify the situation we have performed a new measurement of the fusion cross-sections for the system 6He + 206Pb, in the range of energies 14-18 MeV (Lab) using the target activation technique. The experiment was performed at the RIB facility of the Cyclotron Research Center (UCL) at Louvain-la Neuve (Belgium). The irradiated targets were analyzed in the Detector Laboratory at the University of Huelva (Spain). The details of the experimental method and the new fusion data will be presented and discussed.

References

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No

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