



Reaction mechanisms of stable weakly bound projectiles

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Abstract

Understanding how the breakup process affects the fusion cross section is crucial to know the reaction rate of radioactive nuclei in stellar environments. Even if experiments with radioactive beam are being done since many years ago, systematic studies with stable weakly bound projectiles can also shed light on the effect of the breakup process on other reaction channels. Here, we will present a series of experiments performed at the 20 UD TANDAR Accelerator with stable weakly bound projectiles aiming to understand how the breakup process affects their elastic scattering, transfer and fusion cross sections. These experiments include online detection of (in)elastically scattered products, offline detection of beta-delayed gamma rays after transfer and (in)complete fusion-evaporation processes, and detection in kinematic coincidence of breakup fragments. In particular, we will focus on the $^{10}\text{B} + ^{197}\text{Au}$ system [1,2], recently studied in collaboration with the universities of Sao Paulo (Brazil) and Seville (Spain), and on ^9Be [3,4] and ^2H [5] + ^{197}Au , in collaboration with the

universities Federal Fluminense (Brazil) and Rosario (Argentina). Planned studies for the ${}^6,7\text{Li} + {}^{196}\text{Pt}$ will be also commented.

References

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