Direct Reactions with Unstable Nuclei

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Abstract
This talk describes the evolution of our understanding of the reaction mechanisms involved in the scattering of exotic nuclei as recently presented in Ref.[1]. Starting from the first measurements of reaction cross section in the 80’s up to the most recent and advanced exclusive experiments for dripline unbound nuclei. We shall mainly cover nuclear and Coulomb breakup reactions and total reaction cross section measurements. Some open problems like kinematical effects on core parallel momentum distributions, the existence of a proton halo, the determination of the ground state of unbound nuclei such as $^{13}$Be, will be discussed in detail. A general framework for the reaction theory will be used, based on a time dependent perturbation theory approach and when suitable on its eikonal limit.