TOTAL REACTION CROSS SECTIONS FOR ^{6,8}He, ^{8,9}Li, $^{7,9-12}$Be NUCLEI ON Si AND Ta

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The total nuclear reaction cross sections σ_R measurements have long been of interest since they tell us about the radii of these nuclei and give some clues to understanding of their structure. The first data on the interaction cross section σ_I, for unstable nuclei [1] were obtained at 800 *A*·MeV energy which includes only those reactions which destroy the projectile but excludes target reactions which leave the projectile intact.

Preliminary results of measurements of the total reaction cross sections σ_R for weakly bound ^{6,8}He, ^{8,9}Li, $^{7,9-12}$Be nuclei at energy range (25–45)/*A*·MeV on ^{28}Si and ^{181}Ta targets are presented. These secondary beams were obtained by a fragmentation of a primary ^{15}N beam at 50 *A*·MeV and intensity up to 1 pμA by the U-400M cyclotron of the Flerov Laboratory of Nuclear Reactions. The COMBAS fragment-separator was used for purification of the secondary beam ions. They were detected by a telescope consisting of five Si Δ*E* detectors 100, 620, 300, 300, 500 μm and *E* detector (CsI/Tl) with thickness 15 mm (Fig 1.).

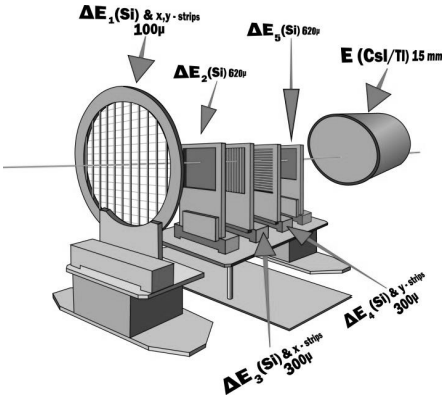

Fig 1. The detector system.

Our goal is to study total reaction cross sections σ_R by a direct measurement technique (the so called beam attenuation or transmission method) which allows to extract model independent information [2].

Preliminary results of the total reaction cross section measurement on Si and Ta targets are presented.

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2. R.E.Warner *et al.* // Phys. Rev. C. 1996. V.54. P.1700.