Contribution ID: **77** Type: **poster with financial aid**

11Li+208Pb at energies near to the coulomb barrier

The scattering of 11Li on a high-Z target at energies near and below the Coulomb barrier can unveil new features of halo nuclei. Due to the halo structure one expects departures from Rutherford scattering and this deviation can shed light on the nuclear halo. In particular, the effect of dipole polarizability is known to affect strongly the elastic scattering of halo nuclei on heavy targets, even at energies below the Coulomb barrier, where nuclear forces should not be dominant. Two effects are noticeable: First, Coulomb break-up reduces the elastic cross sections. Second, the distortion of the wave function generated by the displacement of the charged core with respect to the center of mass of the nucleus reduces the Coulomb repulsion, and with it the elastic cross sections.

We report here on an experiment, performed in 2008 at the ISAC-II facility at TRIUMF, where we measured the break-up and elastic differential cross section of 11Li on 208Pb at laboratory energies of 2.2 and 2.7 MeV/u and the scattering of its core 9Li at the same CM energies. We used a set of four telescopes with DSSSD, SSSD and PAD silicon detectors in order to clearly identify all fragments in the full detection angles covering 10-140 degrees.

It has been found that the measured 11Li+208Pb elastic cross sections show significant deviations from Rutherford cross sections even at energies below the Coulomb barrier. The break-up probabilities are important, even when the distance from projectile to target is very large. When break-up probabilities are properly scaled, and plotted versus the collision time, the reduced break-up probability becomes independent on the collision energy. In this contribution we will present the preliminary results and the comparison with theory and the main conclusions achieved.

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