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Measurements of the unbound ^{10}Li with (d,p)

The region of neutron-rich light nuclei has seen a great rise in attention over the last few decades. ^{11}Li is a famous example of a so-called “nuclear halo”, where loosely bound neutrons extends to large distances. However, to understand and aid the theoretical description we require better experimental information on both ^{11}Li itself, but also ^{10}Li and ^9Li .

I will present our current understanding as measured by (d,p). In particular I will report on results from a campaign of (d,p) reactions using ^9Li that has been carried out at ISOLDE, CERN. The newly upgrade called HIE-ISOLDE has made it possible to reach a beam energy of 8 MeV/A, giving us a large range of different beam energies in which we can compare our theoretical models for both the structure and the reaction models. I will report from experiments carried out at 2.32, 2.65, 6.7 and 8 MeV/A, and compare them to (d,p) experiments carried out at other facilities, to establish a consistent theoretical description of ^{10}Li .

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