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

The region of neutron-rich light nuclei has seen a great rise in attention over the last few decades. 11Li 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 11Li itself, but also 10Li 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 10Li.

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