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Reactions with 9Li beams at HIE-ISOLDE

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The recent upgrade to the ISOLDE radioactive beam facility, the HIE-ISOLDE project, opens new possibilities for studies of exotic nuclei. At the current stage HIE-ISOLDE can provide up to 8MeV/A post-accelerated radioactive beam, and will reach 10MeV/A in the summer of 2018. Combined with ISOLDE's high purity and intensity beams, we can take on the challenge of studying light nuclei near the driplines, where unbound states are known to play an important role. Experimental data is still lacking to make detailed theoretical descriptions of such systems.

In particular we want to study neutron rich Li isotopes with neutron transfer reactions using an accelerated ⁹Li beam. Bombarding either deuterons or tritons, we can reach final ⁸Li-¹¹Li states as well as many other. We are particularly interested in the reactions leading to ¹⁰Li and ¹¹Li, in which the finer structure is still highly debated.

I shall report from two recent experiments carried out at HIE-ISOLDE, one with a deuterated plastic target and one with a titanium backed triton target. Both experiments were performed in the Scattering Experiments Chamber (SEC). I will furthermore compare the results with two older experiments, carried out with the old REX-ISOLDE post-acceleration stage.

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