

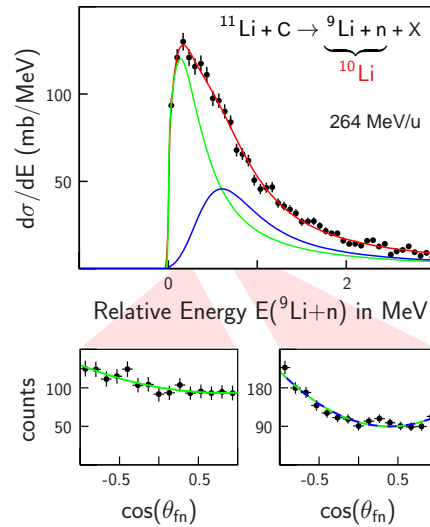
# Studies of $^{11,10}\text{Li}$ and $^{14,13}\text{Be}$

*Haik Simon for the S135 collaboration*

*Institut für Kernphysik, Technische Universität Darmstadt,  
Schloßgartenstr. 9, D-64289 Darmstadt, Germany*

The study of exotic nuclei – far from the valley of  $\beta$ -stability – has become one of the main topics in modern nuclear structure physics.

**Figure:** Relative energy spectrum of  $^{10}\text{Li}$ . Spectroscopic information can be deduced from the energy gated angular correlation plots shown below.



Results of experimental investigations probing the single particle and cluster structure of light exotic nuclei are presented and consequences for nuclear models are drawn. Selected examples of experiments performed at GSI with relativistic secondary beams with energies between 0.2-0.7 GeV/nucleon are given, where cross sections, momentum distributions, angular and energy correlations after break-up reactions have been measured. Continuum spectroscopy provides a powerful tool to understand the intermediate, unbound systems in the exit channel as well as the ground state properties of the projectiles in the entrance channel of the break-up reactions.

Of particular interest is a recently performed experiment on knockout reactions where recoil protons from a liquid hydrogen target could be detected. This allows to distinguish different channels where e.g. a clear separation between alpha and neutron removal can be achieved. Future perspectives, arising from this new opportunities will be given.