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Li, here we go again···

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The post-accelerator for radioactive beams, REX-ISOLDE, provides beams of energies of 0.3-3.1 MeV/u. Thus, it enables the study of the majority of the nuclides available at CERN-ISOLDE through low-energy reactions. This opens the possibility to use Coulomb excitation, fusion and transfer reactions as spectroscopic tools for studying exotic nuclei.

Exotic light nuclei are being studied through a campaign of transfer-reaction experiments. The present aim is to investigate the structure of neutron-rich lithium isotopes. The scientific motivation for these studies is manifold. First, the isotopic chain of lithium ends in the emblematic two-neutron halo nucleus 11Li. Second, spectroscopic factors for known and hitherto unobserved excited states are being predicted by ab-initio and shell model calculations and can thus be tested experimentally. Third, these loosely bound systems present a challenge to our modelling of reaction mechanisms.

The project described here is a benchmark experiment where a beam of 8Li was impinging on a deuterated polypropylene target in inverse kinematics. This mainly gives information on 9Li through a one neutron pick-up reaction, which in the inverse kinematics corresponds to a (d,p)-reaction. However, the reaction channels (d,d) and (d,t) can also be studied. The goal of the experiment is to study the reaction mechanism and the coupling to the continuum.

This presentation will be a status report. All steps (calibration of the detectors, background subtraction, acceptance corrections, excitation energies and simulations) leading up to the angular distributions on an absolute scale have been performed. At present the angular distributions await theoretical interpretations.

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