

Making transfers: the present and future with RIBs

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The study of single particle structure in exotic nuclei requires us to be able to perform transfer reaction studies such as (d,p) and (d,t), (p,d) etc., using radioactive beams in inverse kinematics. This poses a number of experimental challenges which different groups are choosing to address in different ways. The diversity in approach will be briefly discussed and rationalised in terms of the strengths, weaknesses and hence applicability of the different methods. Beyond that, we discuss the question of how reliable the spectroscopic factor information can be, that is extracted from a traditional analysis. Different theoretical approaches can either be fine-tuned to reproduce numbers that are directly comparable with shell model calculations (giving useful feedback into improving our shell model understanding) or else to give agreement with the quenching of single particle strength seen in (e, e'p) experiments (giving support to experimental results from nucleon knockout reactions). This opens up the question of what we really want to measure, and what we really think we can learn, from transfer. In any case, it is clear that transfer studies provide the best way to measure certain properties that we do need to know about, for exotic nuclei, and which we perhaps have to work a little bit harder to interpret more fully.