

Spectroscopy and correlation studies using two-nucleon knockout

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One-nucleon (and also selected two-nucleon) knockout reactions from intermediate energy secondary beams of exotic nuclei proceed as sudden, direct reactions [1,2,3]. When combined with coincident gamma-ray (or other final-state-selective) detection with the reaction residue, enabling partial cross section measurements, these provide a demanding test of modern theoretical nuclear structure predictions [1,3,4]. Recent applications to light/medium mass nuclei include two-proton removal from neutron-rich ^{28}Mg [2,3], ^{44}S [4] and ^{54}Ti [5] and two-neutron removal from the ^{34}Ar , ^{30}S and ^{26}Si [6] neutron-deficient nuclei. The reaction theory is able to include both inelastic and elastic nucleon removal mechanisms break-up mechanisms [3,7].

In this paper the use of these two-nucleon removal reaction methods for the population and study of (seniority-2) high-spin isomeric states in selected heavier systems is considered - such as arises in two-proton knockout to ^{206}Hg - where data on cross sections and isomeric ratios are becoming available [8].

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