REACTION SPECTROSCOPY AT FRAGMENTATION BEAM ENERGIES

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Intermediate energy single-nucleon knockout reactions have become an established ingredient in studies of the single-particle spectroscopy of exotic nuclei, see e.g. [1]. The capabilities and the sensitivities of two-nucleon knockout reaction measurements, in combination with coincident gamma ray detection [2], to probe nuclear structure models, specific final-state configurations [8], and to investigate nucleon pair-correlations in exotic nuclei are far less-well understood [3,7]. However, several very recent measurements [2-6], when combined with a more complete theoretical reaction description [7], are allowing such questions to be asked - at both a qualitative and a quantitative level.

This contribution will discuss how such final-state-exclusive two nucleon-removal reaction data provide a demanding test of the two-removed-nucleon wave functions, as predicted by modern nuclear structure calculations [2,7], such as the shell model. Recent insights, gained from analyses of two-nucleon removal reactions from light, medium-mass and heavy nuclei, including two-proton removal from ^{28}Mg [2,3], ^{44}S [4], ^{54}Ti [5], and ^{208}Pb [8], and two-neutron removal from the neutron-deficient ^{34}Ar, ^{30}S and ^{26}Si systems [6], will be considered.

References

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