Occupation of shell model orbitals extracted from knockout reactions

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Abstract. The issues that affect the occupation of shell model orbitals for nucleons in the vicinity of the Fermi surface are known in principle, but it nevertheless needs to be studied in refined detail.

As is well known, a consistent reduction to about 70% of the prediction of the extreme shell model is well-established in electron scattering knockout over a wide mass range from stable nuclei. It was recently confirmed that a consistent re-analysis [1] of the large set of available (p,2p) knockout data provides values which are in excellent quantitative agreement with the known degree of suppression of the extracted spectroscopic information found for electron studies. Gade *et al.* [2] demonstrated an interesting correlation of the reduction of spectroscopic strength with as a function of the specific separation energy difference between protons and neutrons.

These issues are of interest for a current program of Crespo *et al.* [3] to compare different reaction-model approaches to describe (p,2p) observables. The purpose of my presentation is to review the details of the (p,2p) investigations. The focus will be on sensitivities and limitations which are inherent to the distorted-wave impulse approximation when it is used to extract the physics.

References

[1] T. Wakasa, K. Ogata, and T. Noro, Prog. Part. Nucl. Phys. **96**, 32 (2017).
[2] A. Gade *et al.*, Phys. Rev. C **77**, 044306 (2008).
[3] R. Crespo *et al.* in progress.