^{124}Sn(p,t)^{122}Sn Reaction: Analysis of the Angular Distributions

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Accurate measurements of the differential cross sections for 63 transitions to final states of ^{122}Sn up to an excitation energy of 4.004 MeV, including two unresolved doublets, allow us to determine the angular momentum transfer to 65 levels and assign spin and parity to each of them. The present contribution deals with the analysis of the experimental angular distributions obtained in a high resolution measurement of the ^{124}Sn(p,t)^{122}Sn reaction [1]. The analysis is performed in the framework of a direct one-step (p,t) transfer reaction, that on an even-even 0^+ target nucleus, as ^{124}Sn, populates only natural parity states of the residual nucleus, with a unique L-transfer value, in the hypothesis that the two neutrons are transferred with a relative angular momentum of zero. A DWBA analysis of the experimental data has been performed using the TWOFNR code [2] and following the same lines of those performed in the case of ^{120}Sn [3]. In the figure some examples of experimental data (dots) and calculation results (solid lines) for $J^\pi = 0^+$ left and $J^\pi = 2^+$ right, are reported.

References

[1] P. Guazzoni *et al.* Annual report 2007, p. 12.
[2] M. Igarashi, Computer code TWOFNR, (1977).
[3] P. Guazzoni *et al.*, Phys. Rev. **C78** (2008) 064608