Spectroscopy of ^{88}Y via ^{91}Zr($\vec{p},\alpha$) $\diamond$

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To complete the study [1] of the ^{91}Zr($\vec{p},\alpha$)^{88}Y reaction angular distributions of $\sigma(\theta)$ and A$_y$ from 10° up to 62.5° have been measured in a high resolution experiment at 22 MeV incident energy using the Munich Tandem polarized proton beam, the Q3D magnetic spectrograph and the position and angle resolving light ion detector. The polarized proton beam current was about 60 nA with up and down polarization values of 0.70. A detector solid angle of 11.038 msr and a ^{91}Zr target of 50 μg/cm^2 on a Carbon backing of 12μg/cm^2 were used. The obtained resolution was about 16 keV, mainly due to the target thickness. ^{88}Y levels up to 2.5 MeV of excitation energy have been identified using Nuclear Data Sheets [2] γ spectroscopy data and a polynomial of rank 3 for the calibration of the energy scale.

In fig.1 $\sigma(\theta)$ and A$_y$ for the ^{88}Y ground state 4$^-$ and 0.707 MeV 2$^-$ are analyzed in the framework of a semimicroscopic pick-up theory using the TWOFNR code and adding incoherently the individual j and l transfer components.

Due to the large number of partial waves, contributing to these low lying states, the angular distributions of cross sections and analyzing power are rather structureless in these cases as seen experimentally and as reproduced in these calculations.

References

[1] U. Atzrott et al., Jahresbericht 1993, p. 42

[2] N.W. Muller, Nucl. Data Sheets **54** (1988)

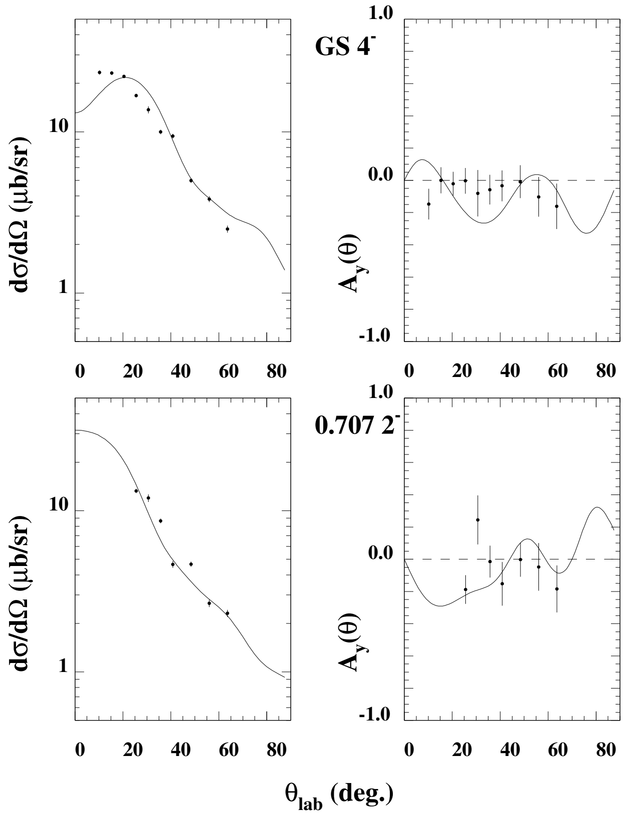

Fig. 1: Experimental angular distributions for cross sections and asymmetries (solid dots) compared with the results of TWOFNR code (solid lines), obtained in the framework of a semimicroscopic pick-up theory and adding incoherently the individual j and l transfer components

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