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1.11 Elastic Scattering of Polarized Protons on ^{6}Li. *)

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The A = 7 nuclei ^{7}Li and ^{7}Be have been recently investigated by Hofmann et al.[1] in a refined resonating group calculation on the basis of a multi-structure and multi-channel approach yielding some new resonant structures with $J^- = 1/2^-$, $3/2^-$ and $5/2^-$. The most simple test reactions for these calculations would be the elastic scattering of protons or neutrons on ^{6}Li, for which only a small data basis exists up to now[2-4].

In this contribution we report on a measurement of differential cross section and analyzing power for the elastic proton scattering on ^{6}Li for $30° \leq \theta_{Lab} \leq 170°$ and 4 MeV $\leq E_p \leq$ 10 MeV. Different targets have been used: ^{6}LiF on Ni backing and ^{6}Li as a sandwich between C and Al. The measurement was performed with the polarized beam produced with the Lamb-shift source and the EN tandem accelerator. The detectors were placed from 30° to 160° in a large target chamber and the beam polarization was continuously monitored with a ^{4}He polarimeter.

The analyzing power data are shown in fig. 1, compared with a conventional optical model calculation. These data are very similar to the recently measured n+ ^{6}Li data from the Duke University[4], but they show less structure than Hofmann's calculations. A phase shift analysis taking into account the complicated spin structure 1/2 + 1 is in progress.

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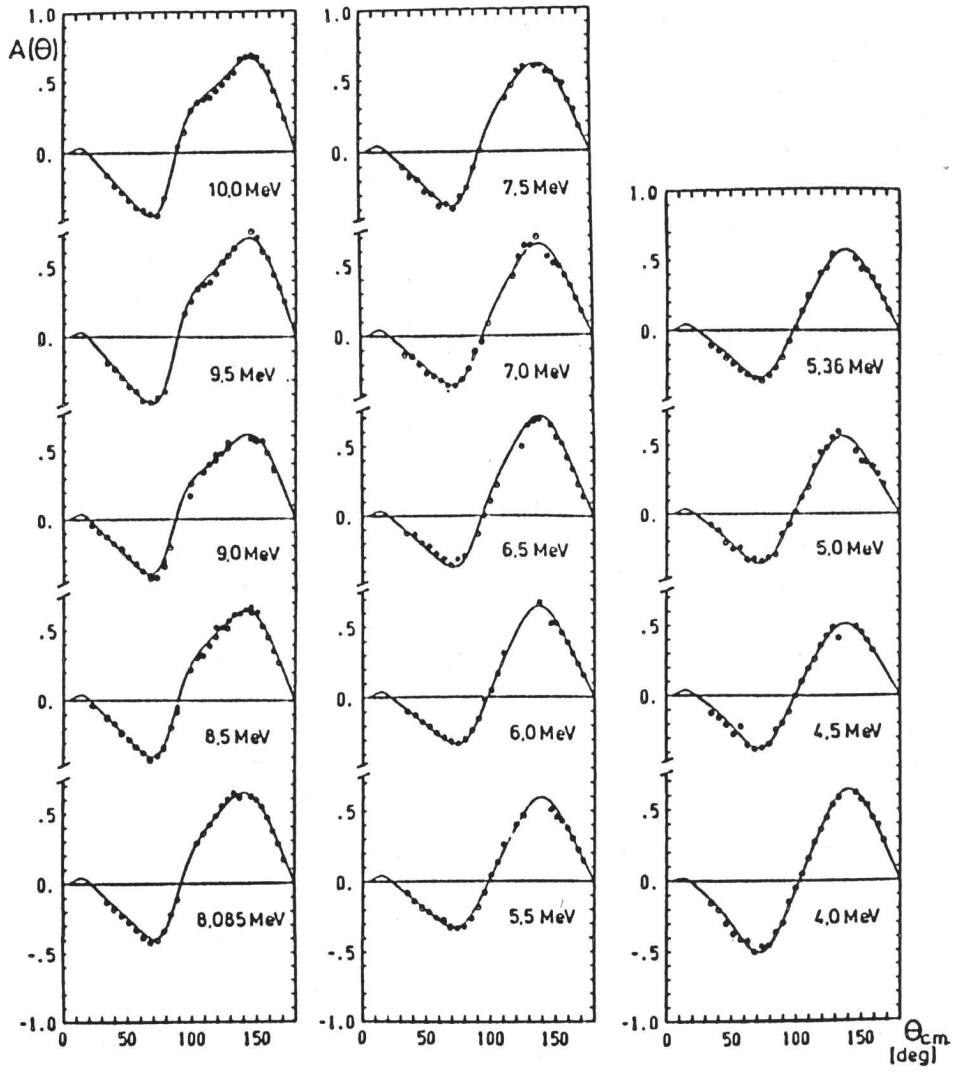

Fig. 1: Analyzing power of $^{6}Li(\vec{p},p_o)$ compared with optical model calculations