level is ~45% of that expected for a pure $(d^{-3}_{5/2} f_{7/2})6^-, T=2$ state and that only ~20% of the expected summed strength to the T=1 levels is observed.

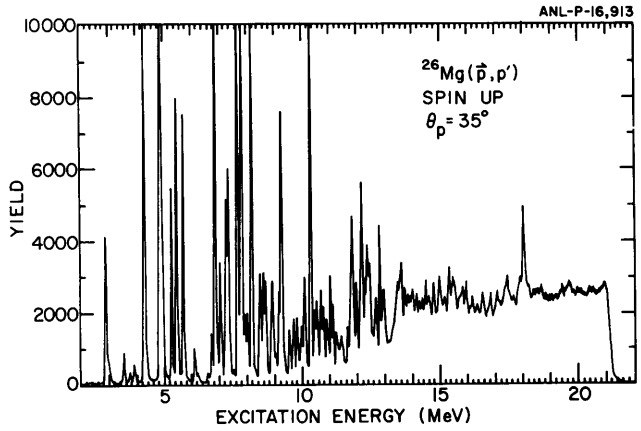

Figure 1. A proton spectrum at 35° resulting from the scattering of 135-MeV spin-up protons by ^{26}Mg. This spectrum is a composite of the data obtained with three momentum settings of the QDDM spectrometer.

With these data and the previously published data on ^{24}Mg and ^{28}Si,[2] we will be able to study the systematics of the quenching of the spin-flip strength under controlled changes in nuclear structure. This should provide important insight into the underlying quenching mechanism.

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HIGH-SPIN PARTICLE-HOLE STATES IN ^{116}Sn

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Studies of the excitation of high-spin particle-hole states in medium-energy inelastic proton scattering have been extended to ^{116}Sn. It had been thought that this might be a favorable case for correlating (p,p') strength with that found in transfer reactions, since Groningen experiments[1] had shown strong excitation of a number of apparently high-spin states between E_x = 4 and 7 MeV in the reactions ^{113,115}In(α,t), starting with the configuration $(g_{9/2})^{-1}$. In the experiment, however, carried out at E_p = 134 MeV with the QDDM spectrograph, it was found that no very strong correlation existed between excitation in (α,t) and in (p,p'). The 4-7 MeV region of excitation will require further detailed analysis.

Differential cross sections and analyzing powers were determined for 17 transitions of less than 4-MeV energy. One of the strongest transitions at large momentum transfer leads to a state at 3.5 MeV, probably either the 9^- or 10^+ state known[2] from the reaction $^{114}Cd(\alpha,2n\gamma)$. The 9^- state is expected to be excited through the $(g_{7/2})^{-1}h_{11/2}$ component, while the 10^+ excitation involves a recoupling of $(h_{11/2})^2$ from J=0 to J=10, and is less favored by ground-state occupation probabilities. Preliminary results for the differential cross section and the analyzing power are shown in Fig. 1. This state appears to be one of those high-spin isoscalar natural-parity states the shape of whose A_y distributions is given correctly by the interference between the spin-orbit and central interactions, as discussed by Love and Franey,[3] and is independent of the details of the wave functions. It is thus similar to the 9.70-MeV 5^- state in ^{28}Si[4] and the 3.59-MeV 8+ state in ^{90}Zr.[5]

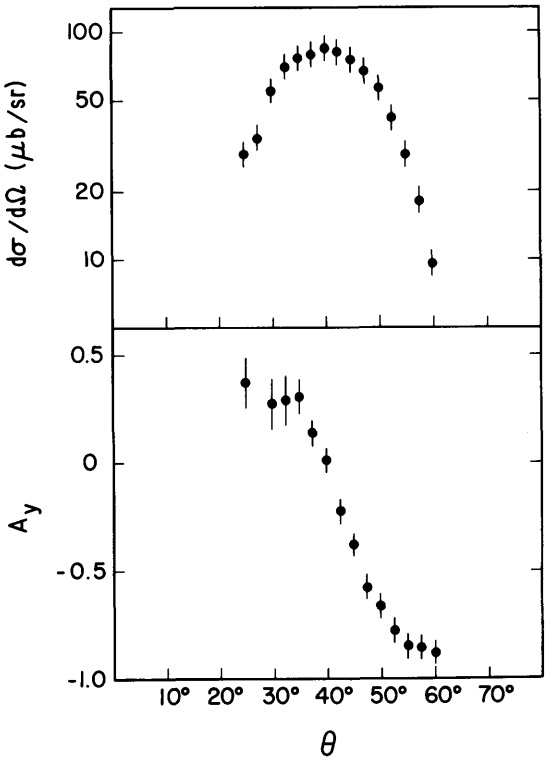

Figure 1. Differential cross section and analyzing power, A_y, for (p,p') excitation of the 3.547-MeV 10^+ state in ^{116}Sn at E_p = 134 MeV.

The results of this experiment will be compared with model calculations together with the results of further (α,t) and $(^3He,d)$ work from Groningen and inelastic electron scattering data from Amsterdam.

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