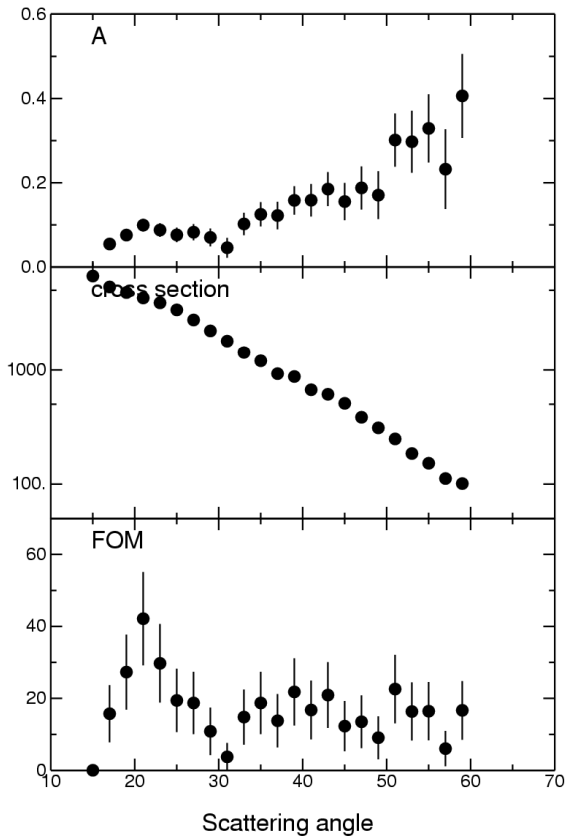


# Polarimeter modeling

Preliminary

Result: (5 MeV threshold)

200,000 events

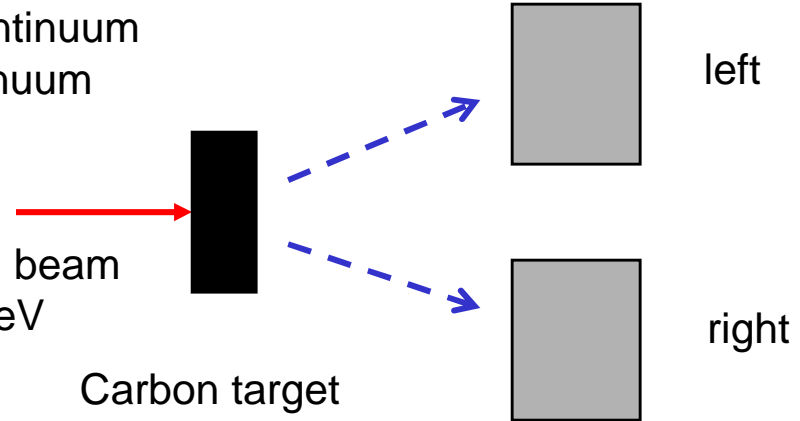


Take all angles  
upward of 18°.

efficiency = 2.5 %  
average A = 0.099  
figure of merit  
=  $2.11 \times 10^{-4}$

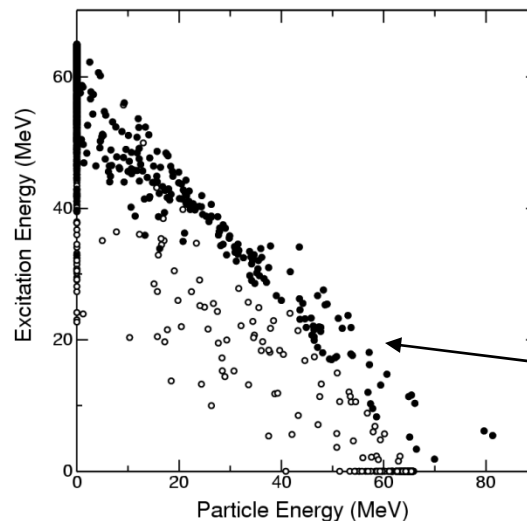
deuteron elastic  
deuteron continuum  
proton continuum

Deuteron beam  
at 126 MeV

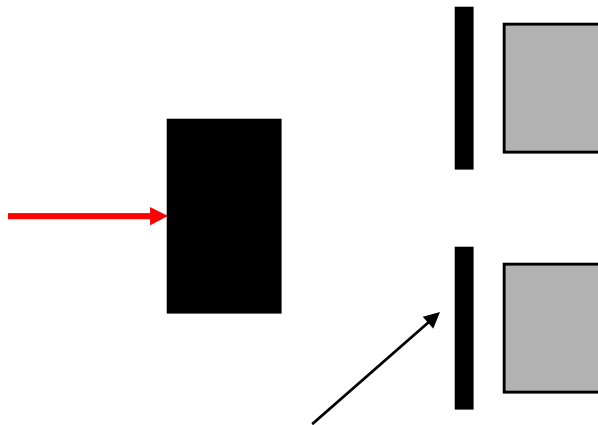


Carbon target  
is 2.3 cm thick  
at a density of  
2.22 gm/cm<sup>2</sup>.

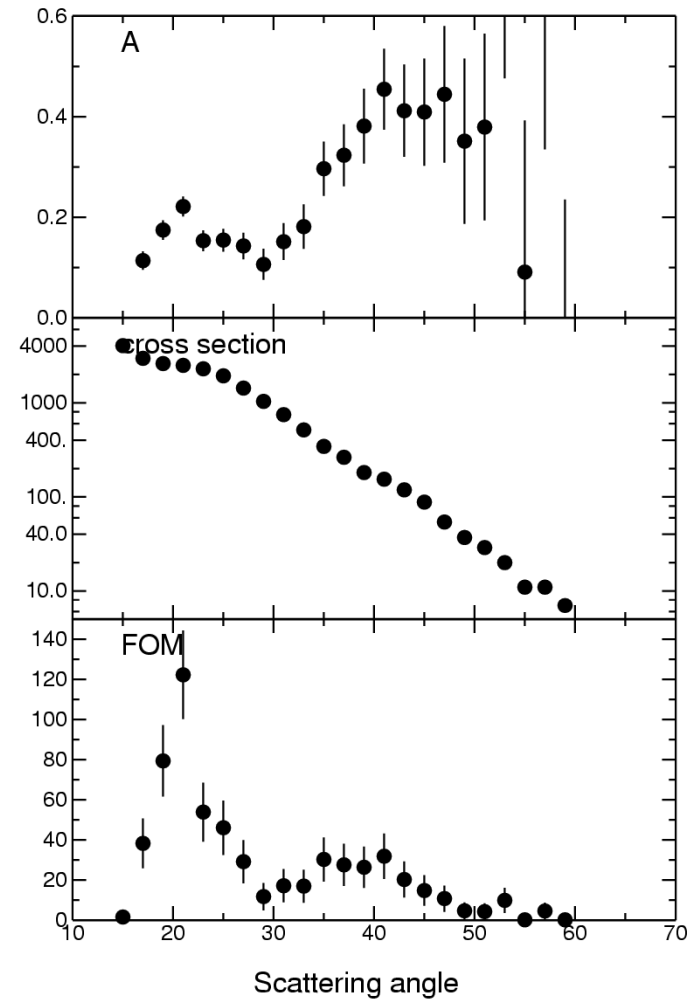
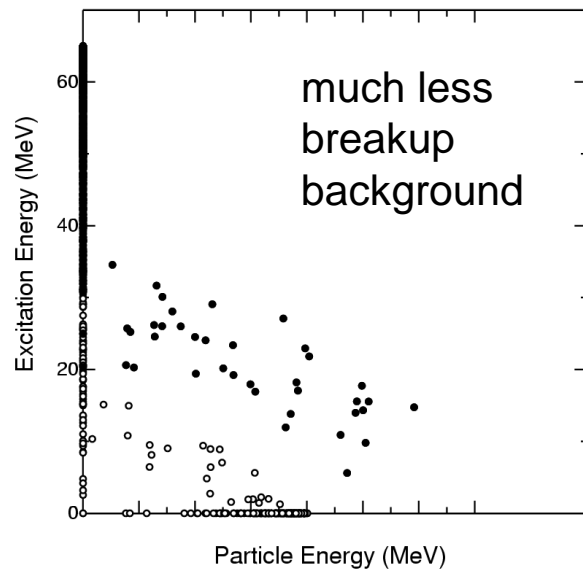
These detectors  
cover half of  
azimuth. The  
rest is used for  
in-plane  
component.



The problem with  
the low analyzing  
power is that too  
many breakup  
protons fall into  
the acceptance.



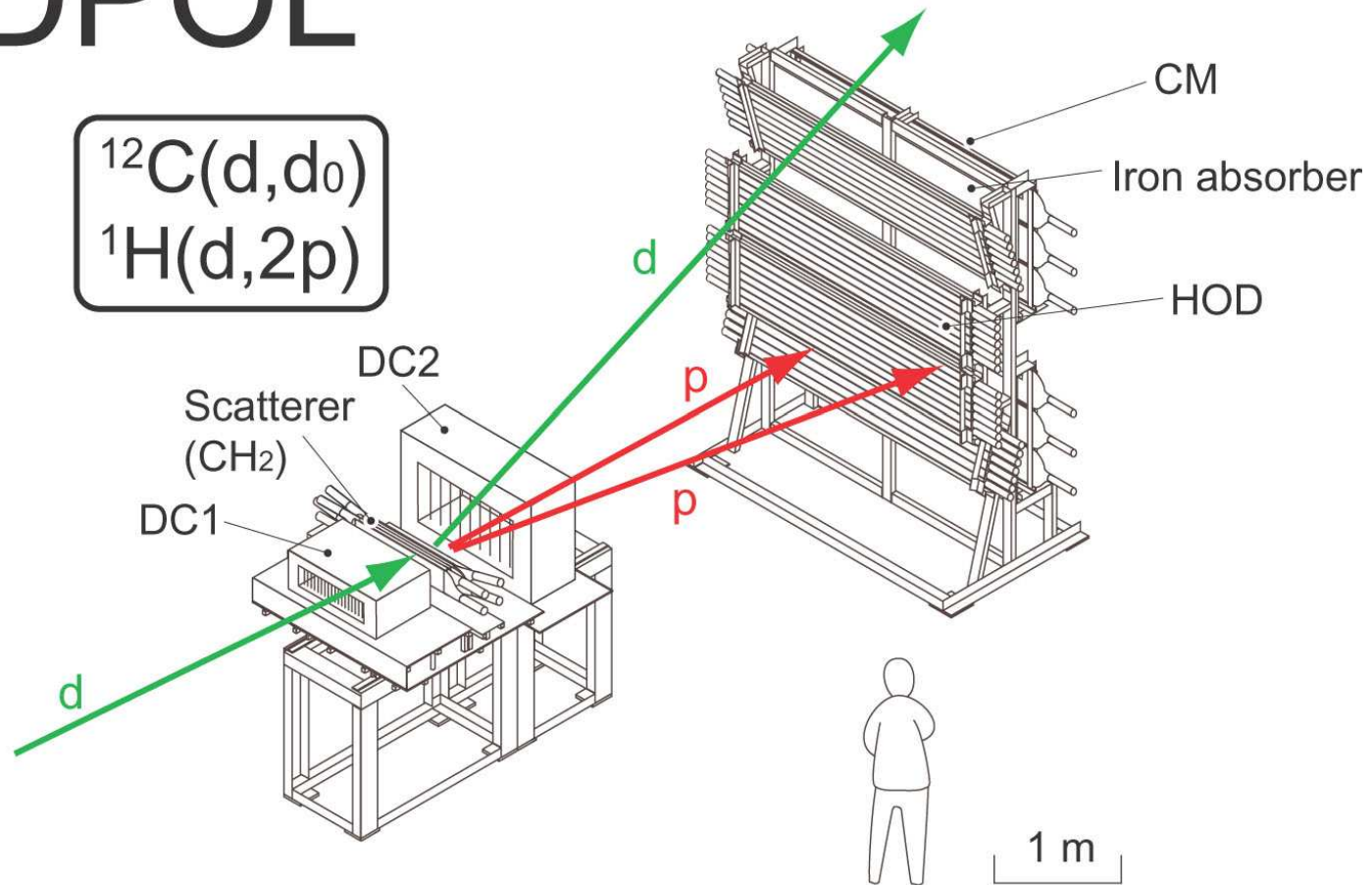
Add absorber of 6 mm thickness.



efficiency = 1.0 %  
 average A = 0.18  
 figure of merit =  $3.4 \times 10^{-4}$

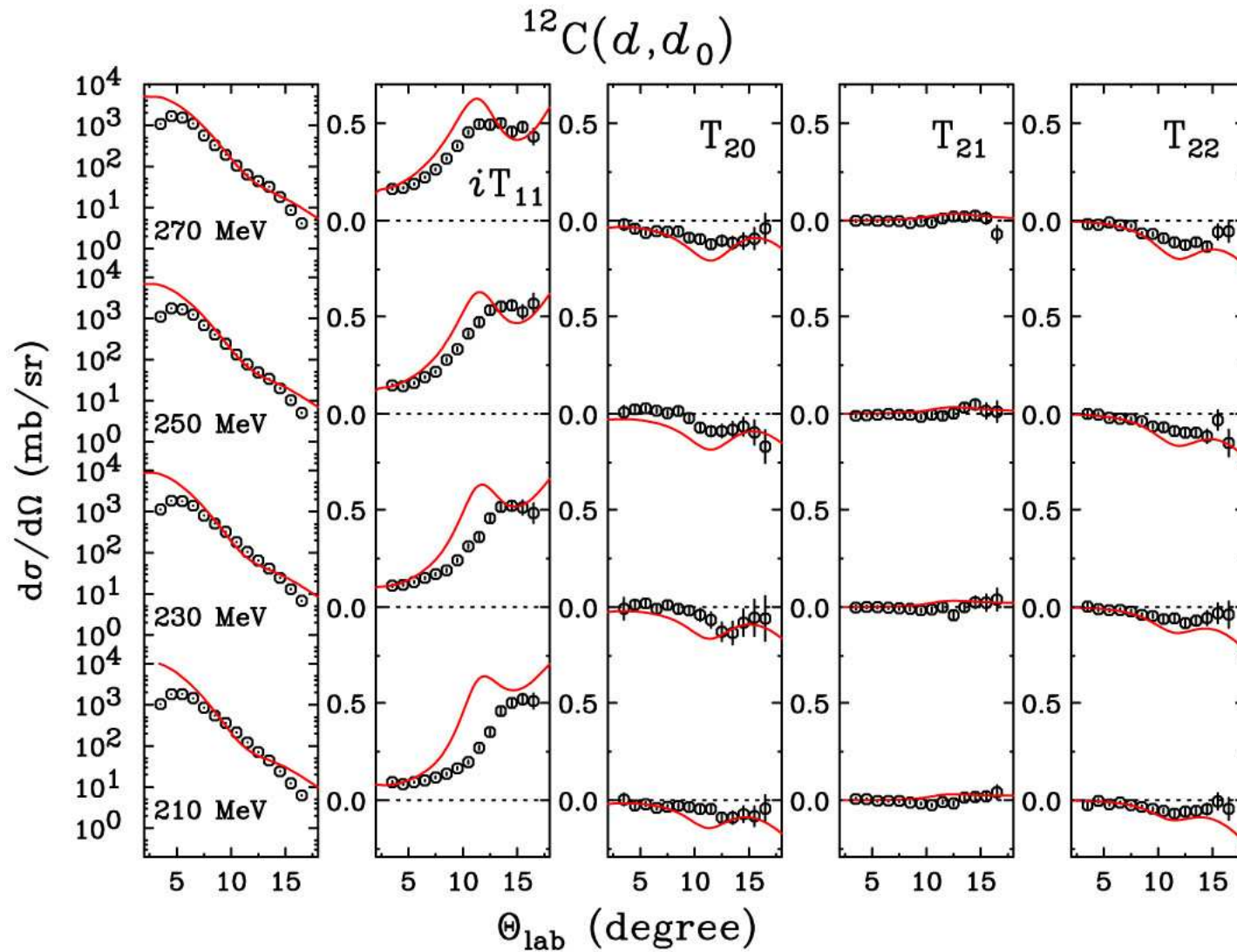
# Detector configuration

## DPOL

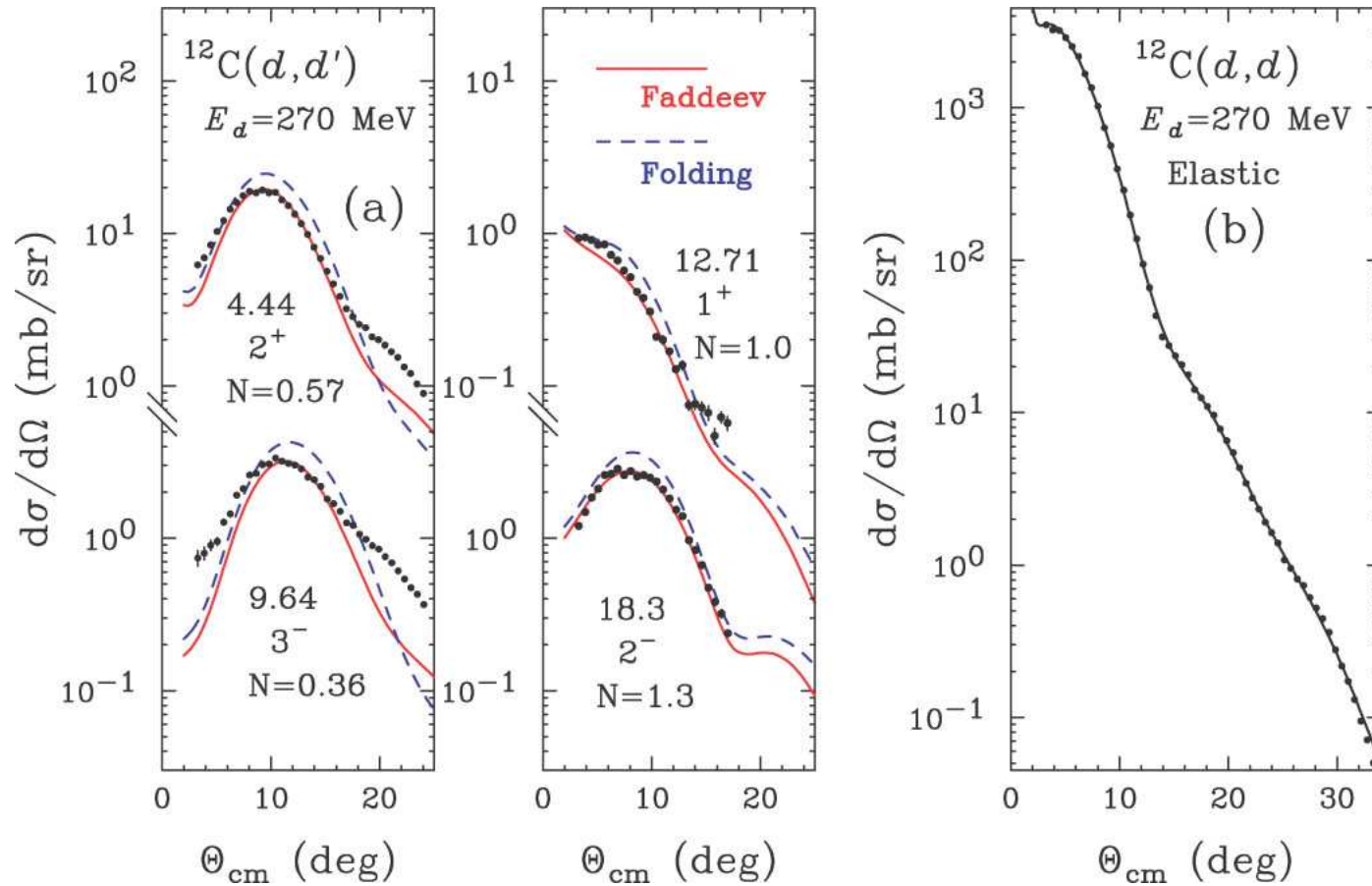


- The polarimeter has been calibrated at four different beam energies from 210 to 270 MeV in a step of 20 MeV.

# Results of the $^{12}\text{C}(d,d_0)$ reaction

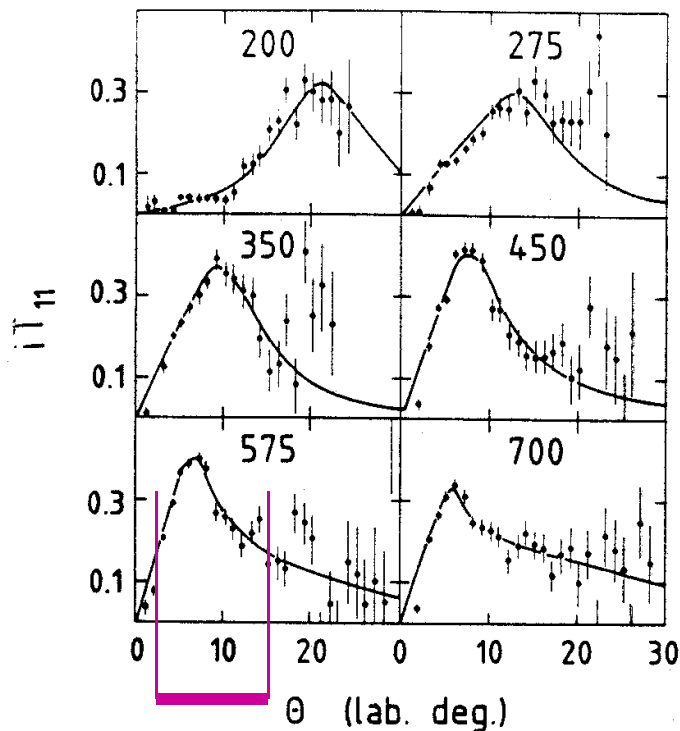


# Differential cross sections



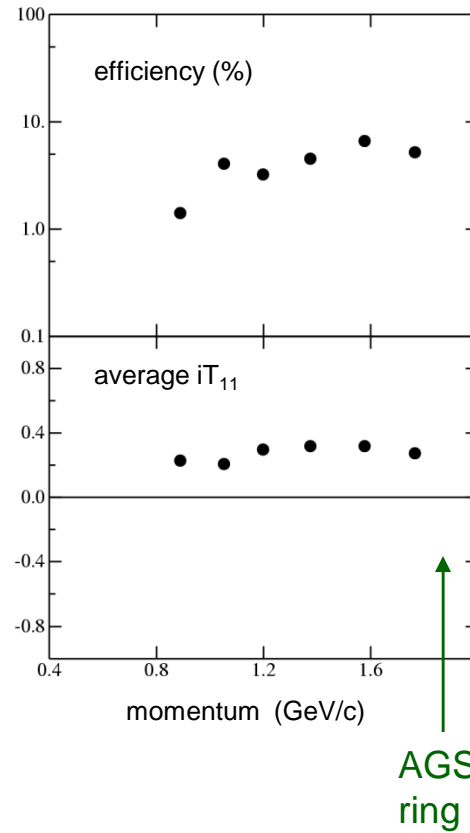
Energy > 200 MeV  
Absorptive spin-orbit

Absorption eventually reduces nuclear rainbow. But forward-angle spin-orbit effect grows in.



Work here.

Forward-angle cross sections are large!



Efficiency rises while average  $iT_{11}$  falls.

At about 700 MeV, the use of an iron absorber to separate the elastic scattering loses its effectiveness. Then  $iT_{11}$  starts to decline.