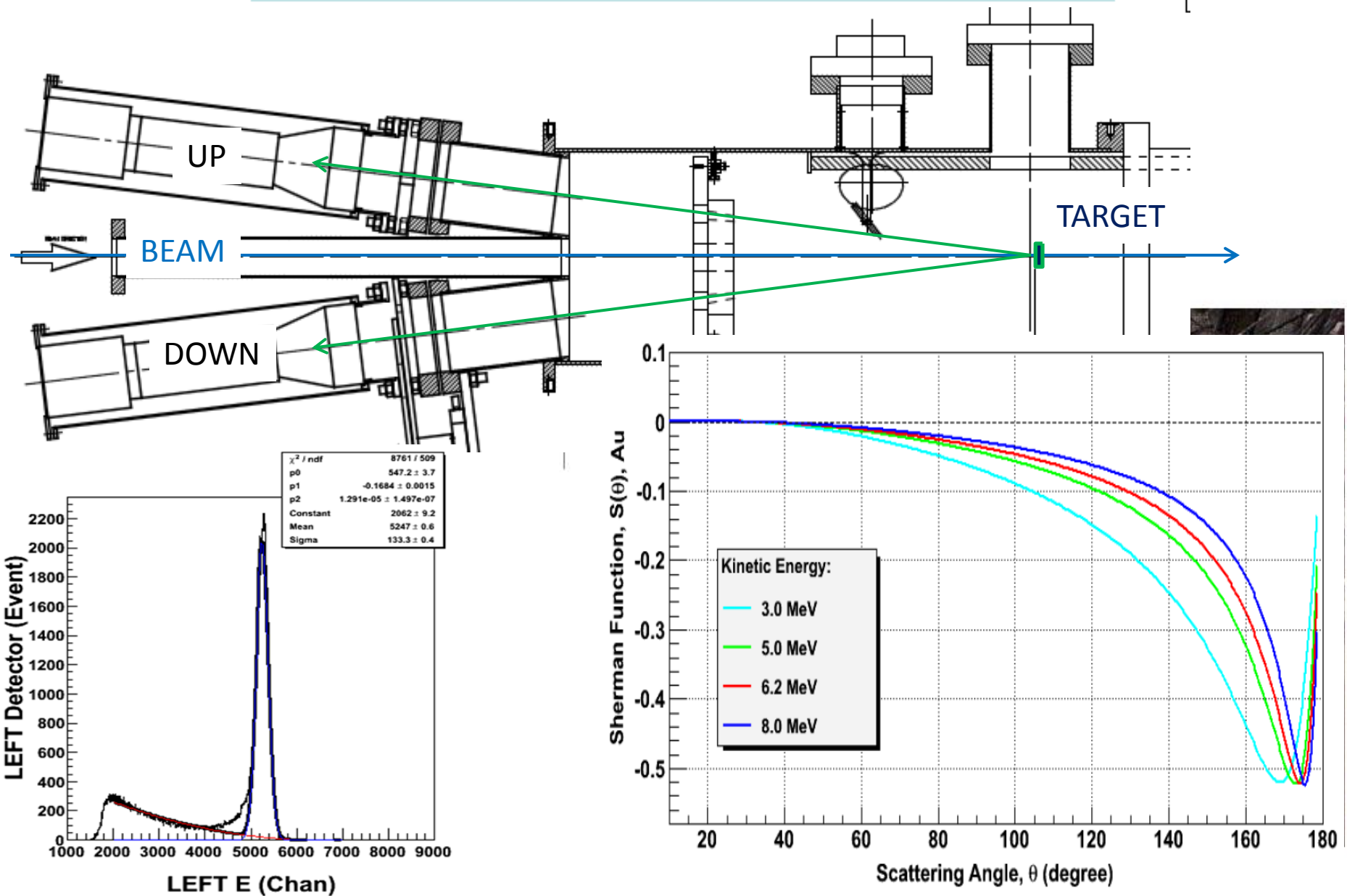
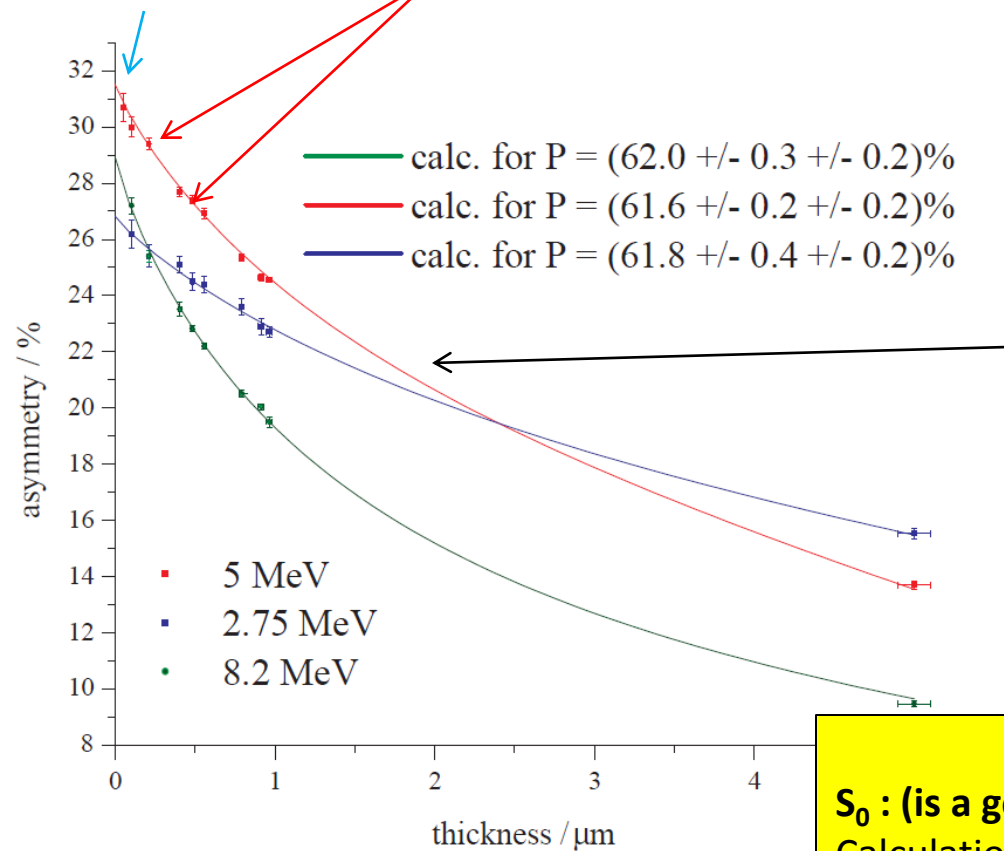


$$\sigma(\theta) = I(\theta)[1 + S(\theta)\vec{P} \cdot \hat{n}]$$



$$P = S_0 / A_0$$

S_{eff} (effective analyzing power) depends on foils thickness



In late 90's Mott was calibrated and with help of Charles Horowitz a model-dependency was successfully tested.

The results and analysis were not well documented or published in a peer reviewed journal.

We would like to repeat the calibration & model-dependent analysis, ensuring sound theoretical treatment and exploring improvements in simulation

Our goal is to demonstrate high precision $\sim 1\%$.

Strategy for Precision Mott Polarimetry

S_0 : (is a goal of $< 0.5\%$ possible?)

Calculation and estimate of uncertainty on nucl. size

Size of radiative corrections and relative accuracy $\sim 30\%$?

A_0, S_{eff} : (goal $< 0.5\%$)

Strategy is to provide simulation without approximation

Apply (σ, S, T, U) code/tables in Geant4 simulation

A_{exp} : (goal $< 0.5\%$)

Target induced background : quantify by simulation

Instrumental and statistical uncertainties can be kept $< 0.4\%$

