TPOL MC (V1-0-initial) short report

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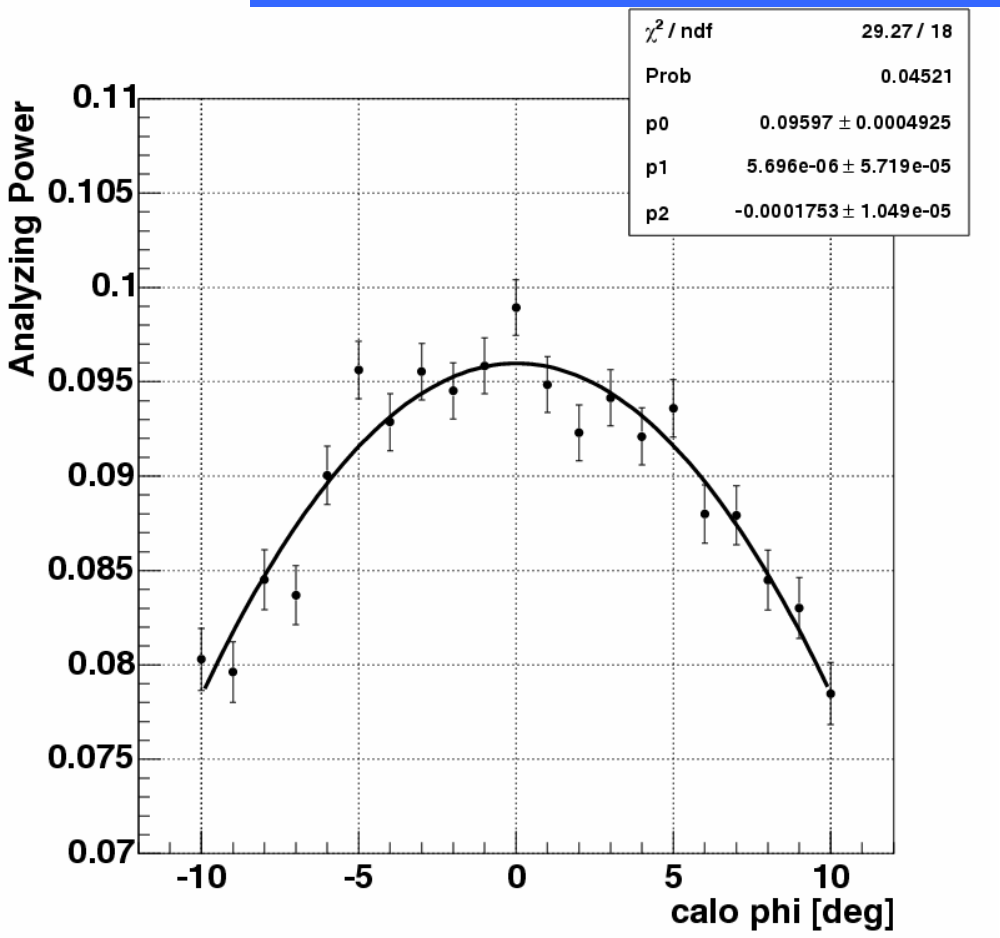
AP as a function of CAL phi (beam tilt)

Rotate CAL phi (correspond to the rotation of beam tilt)



each 300,000 events generated to check more precisely than previous study (17/11/04)

MC fitted by polynomial of degree 2

$$AP = P_0 + P_1 * focus + P_2 * focus**2$$

Calo phi [deg]	:	Analyzing Power
-5	:	0.0916
-3	:	0.0944
0	:	0.0960
3	:	0.0944
5	:	0.0916

δ AP(phi=3[deg])=1.7%, δ AP(phi=5[deg])=4.6%

Focus dependence from Geant3 - I

Change the emittance both x and y to check the Focus dependence

In tpolmc.cards ε x=5.4*10**-6 [cm*rad], ε y=2.4*10**-7 [cm*rad]

Vary the ε y from -50% to +50% with following constraint

ε y= K* ε x (K : betatron coupling)

At the moment K = 0.04 (ε y(= 2.4*10**-7) / ε x(= 5.4*10**-6))

Want to compare the focus dependence with Vahagn's MC

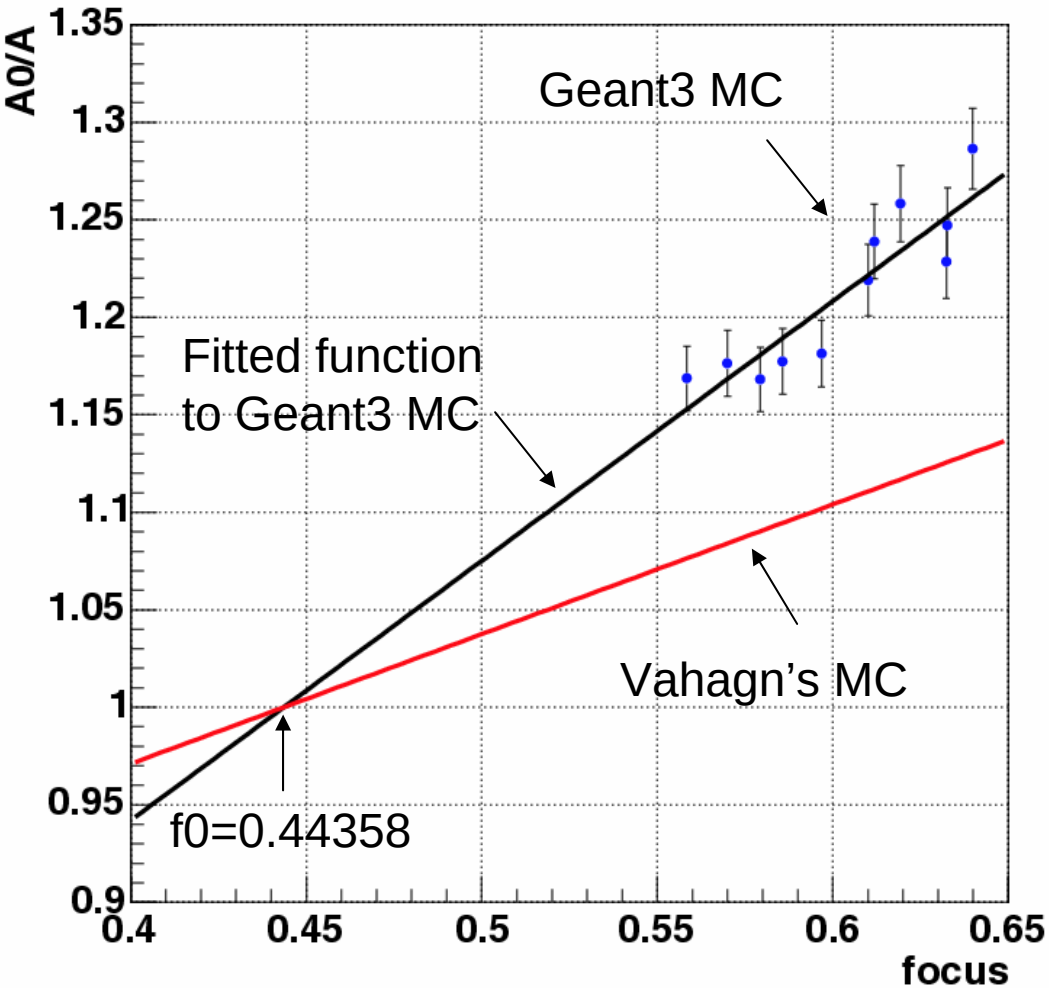
But, Geant3 is not performed the absolute calibration with HERA-I setup.

So at the moment, A0 is defined as follows : A0=A(focus=0.44358mm)

$$\frac{A_0}{A} = 1 + B(f - f_0)$$ A0 : online AP, A : AP from MC, f : focus

In Vahagn's MC B=0.6649 mm-1, f0=0.44358mm

Focus dependence from Geant3 - II



Fit function : $\frac{A_0}{A} = 1 + B(f - f_0)$

Geant3 MC : B=1.3313

Vahagn's MC : B=0.6649

Large difference is found.

Why?

Estimation of K is wrong?

Summary and Future Plan

Summary

✓Analyzing Power is sensitve to the tilt between CAL and beam

(δ AP(phi=3[deg])=1.7%, δ AP(phi=5[deg])=4.6%)

✓Found the difference of the focus dependence between Geant3 (B=1.3313) and Vahagn's MC (B=0.6649)

Future Plan

✓Further study on the focus dependence from Geant3 with other beam condition