

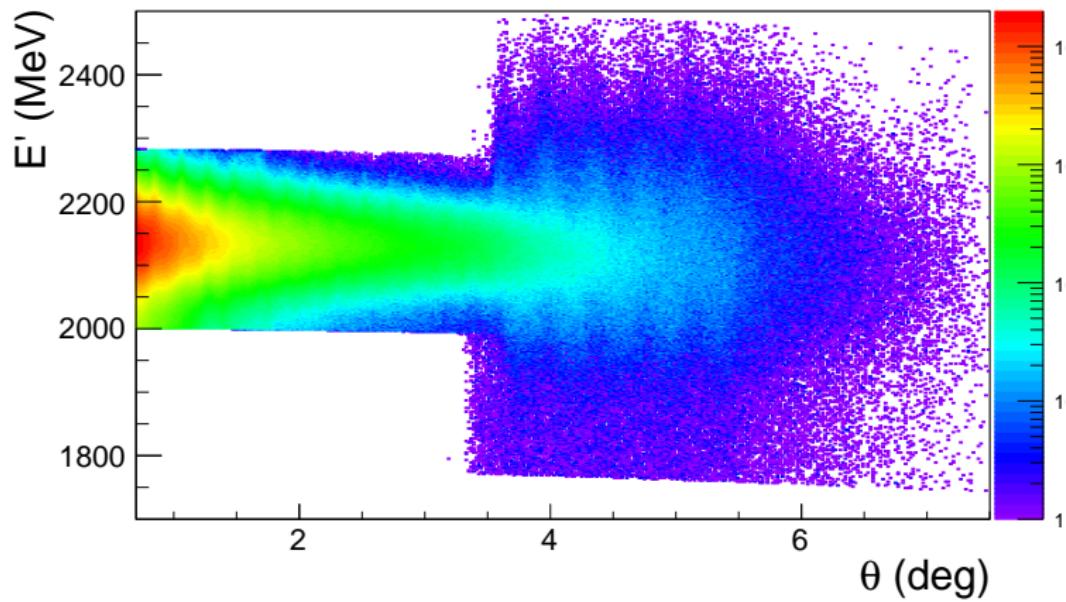
Energy Correction

Maxime Levillain

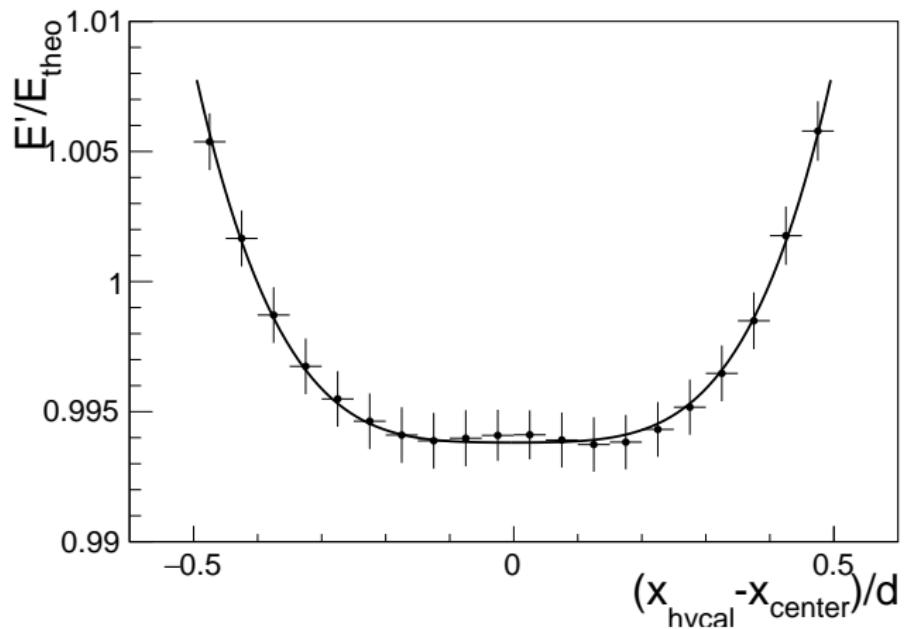
February 8, 2018



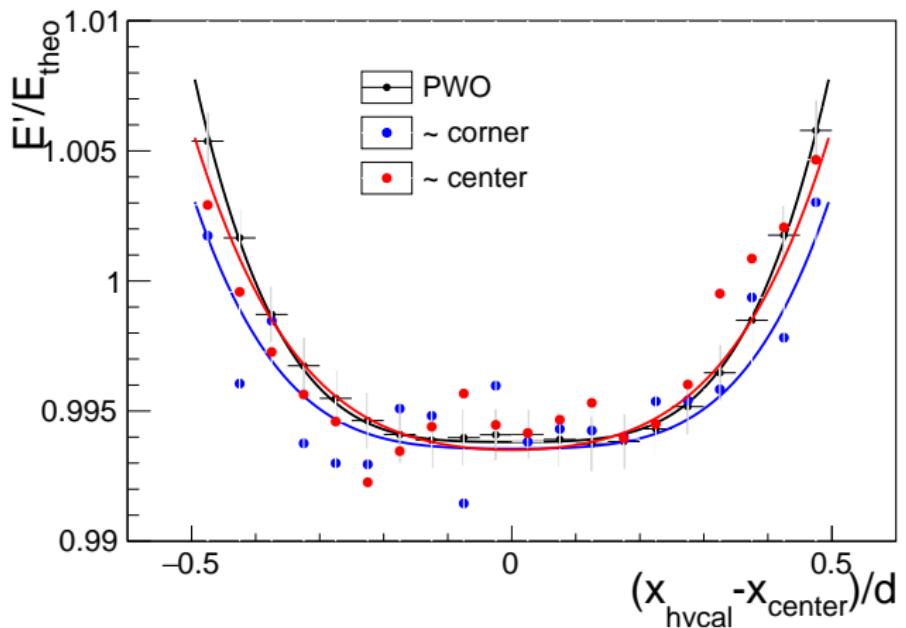
Energy wobbling



Energy Loss Profile for PWO ep

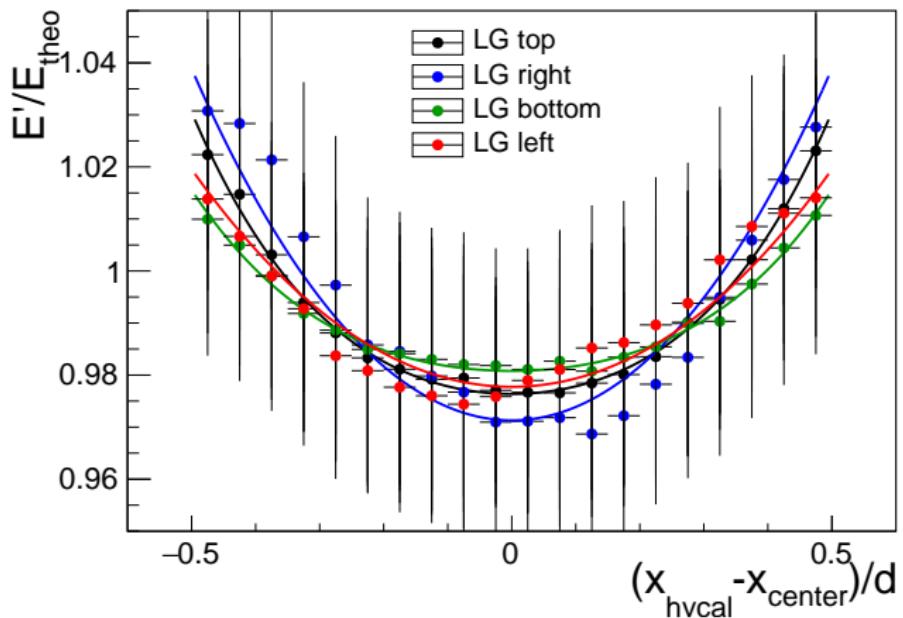


Energy Loss Profile for PWO ep



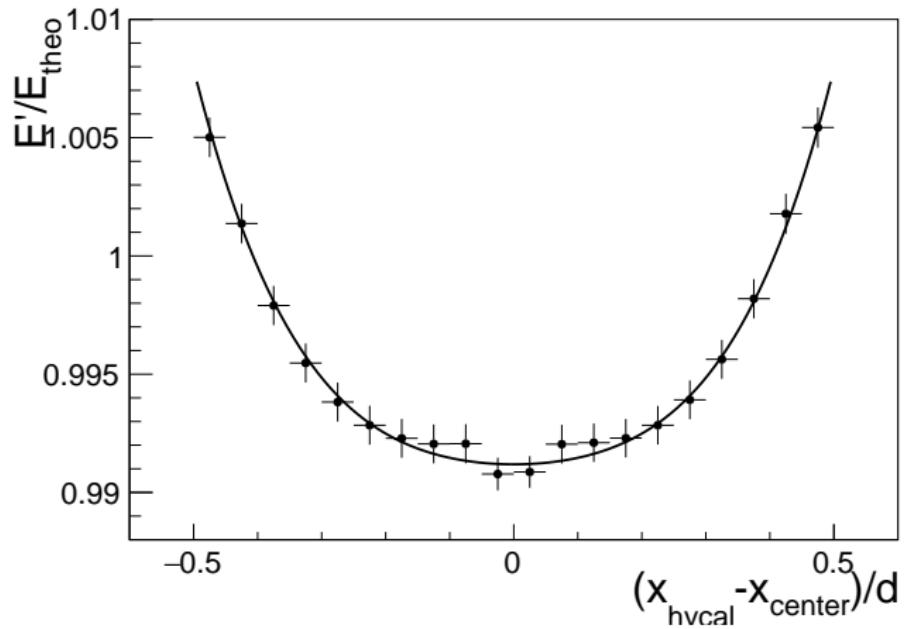
- ▶ Some small position dependency

Energy Loss Profile for LG ep



- Disparate amplitudes → needs different corrections

Energy Loss Profile for PWO ee



Fit Parameterisation

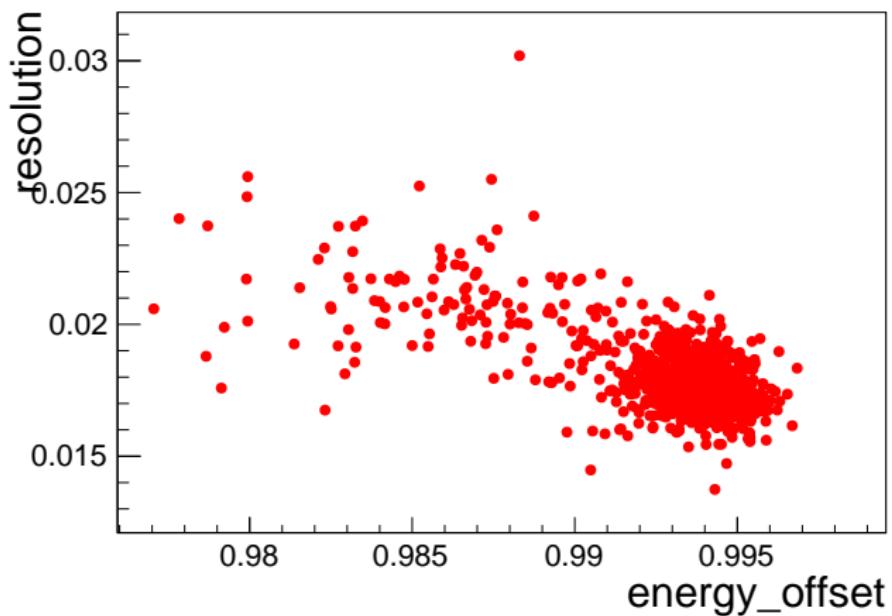
$$t_x = (x_{rec} - x_{center}) / (\text{cellsize})$$

$$t_y = (y_{rec} - y_{center}) / (\text{cellsize})$$

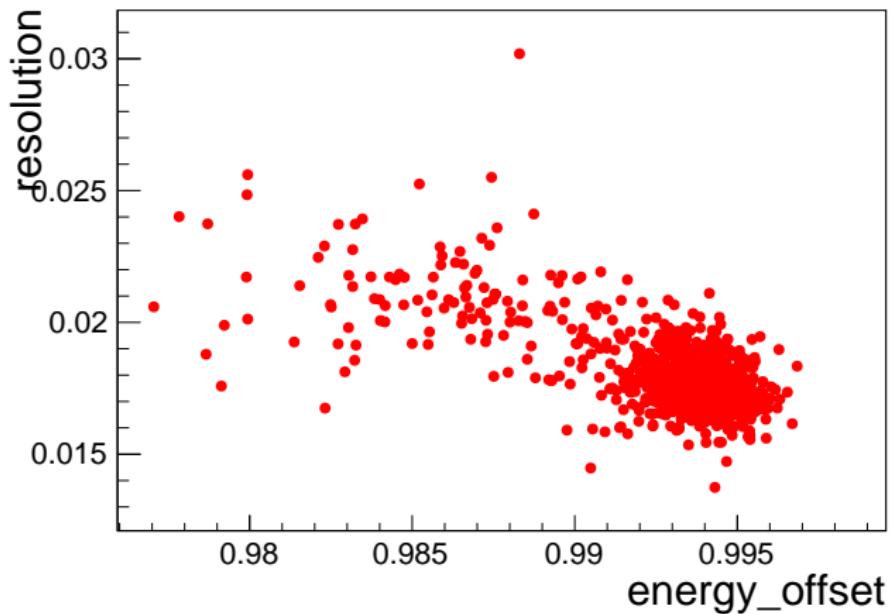
$$E_{corr} = \frac{E_0}{p_0 \cdot (1 + p_{1x} \cdot t_x^2 + p_{2x} \cdot t_x^4) \cdot (1 + p_{1y} \cdot t_y^2 + p_{2y} \cdot t_y^4)}$$

- ▶ Different from Ilya's ($\sim (1 + p_1 \cdot \exp(p_2/x^2))$)
- ▶ Better suited for LG with a parabolic profile

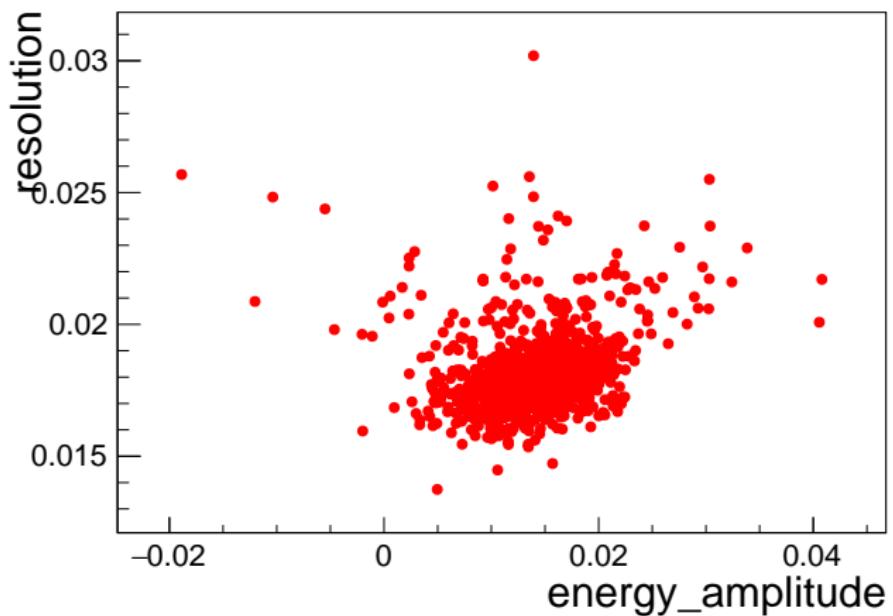
Dependency with Resolution (p_0) pwo



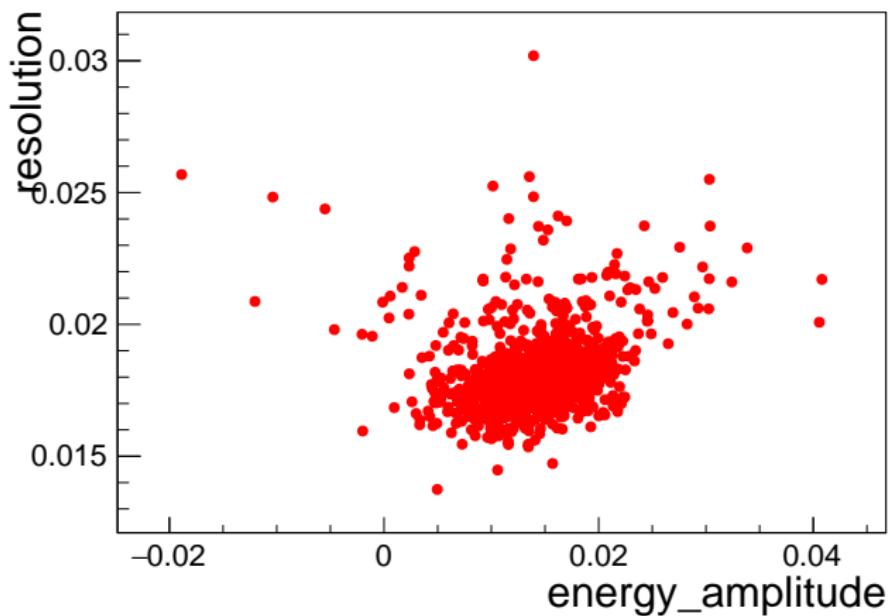
Dependency with Resolution (p_0) Ig



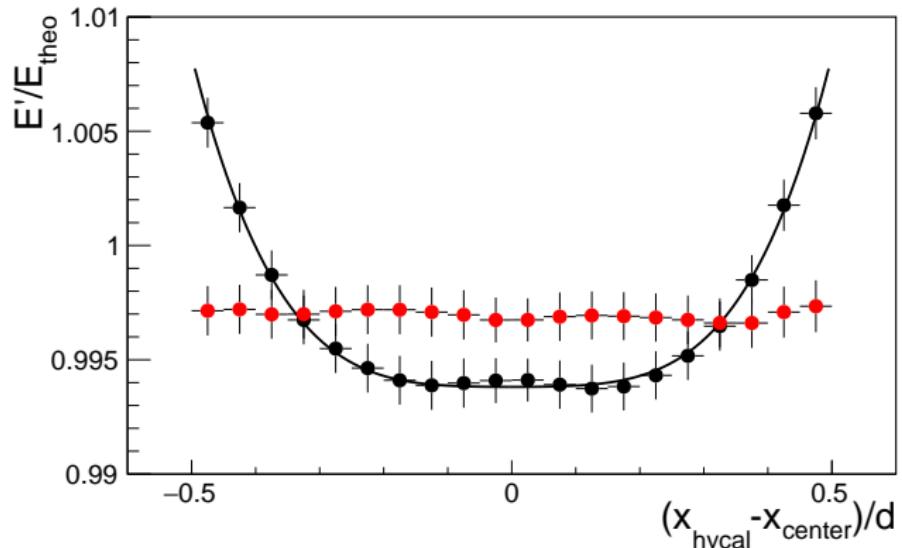
Dependency with Resolution ($p_1/4 + p_2/16$) p_W Proton Radius



Dependency with Resolution ($p_1/4 + p_2/16$) vs Proton Radius

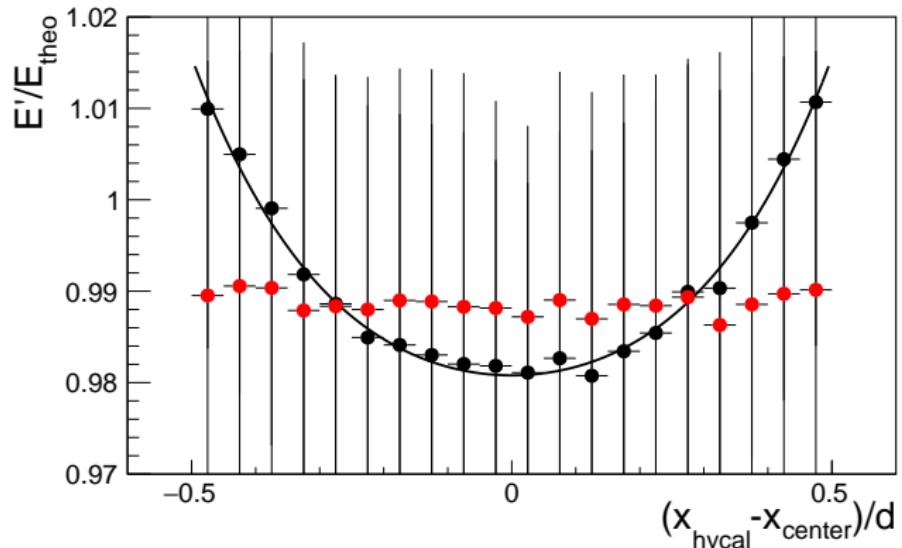


Results of Correction for PWO ep



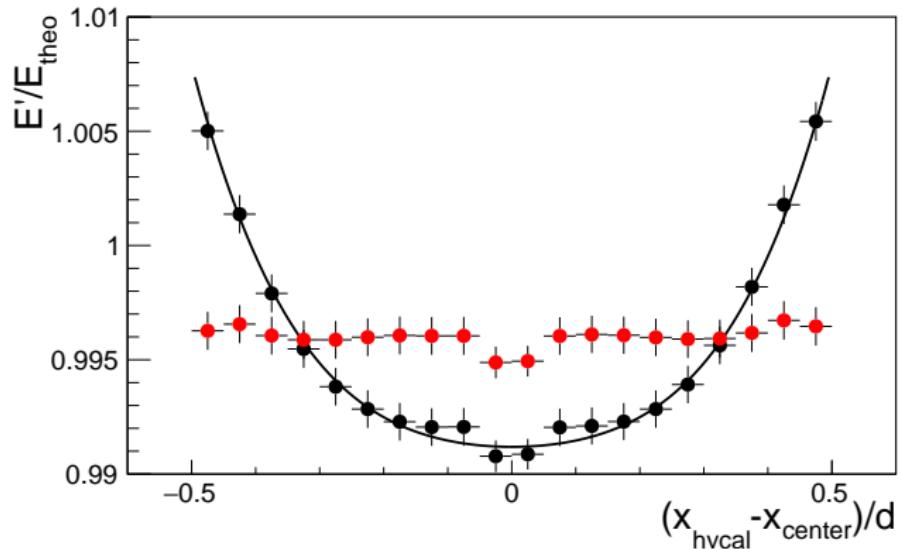
- ▶ 0.3% offset from calibration

Results of Correction for LG ep



- ▶ 1% offset from calibration

Results of Correction for PWO ee



- ▶ 0.4% offset from calibration

Results of Correction for phase space

PROton
Radius

