

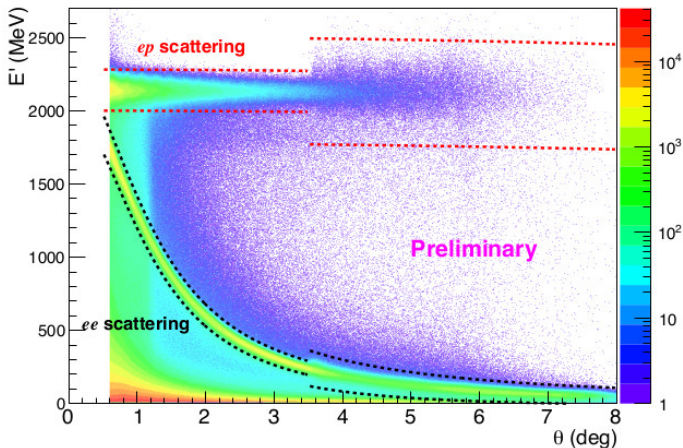
Energy Density Profile

Maxime Levillain

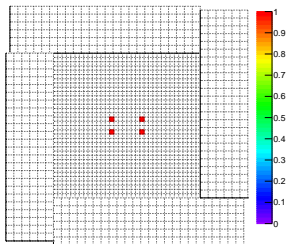
December 15, 2017

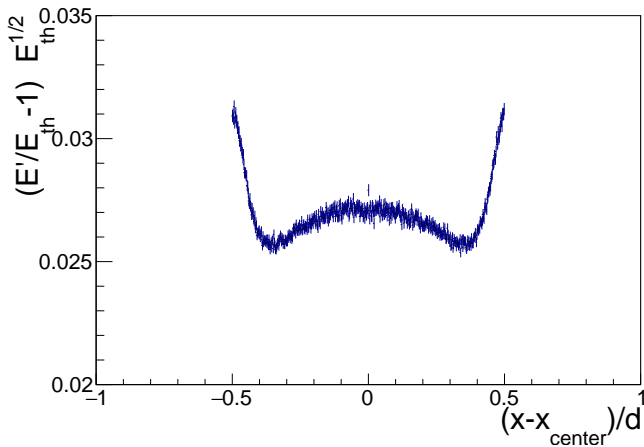


Cluster Energy E' v.s. scattering angle θ (2.2 GeV)



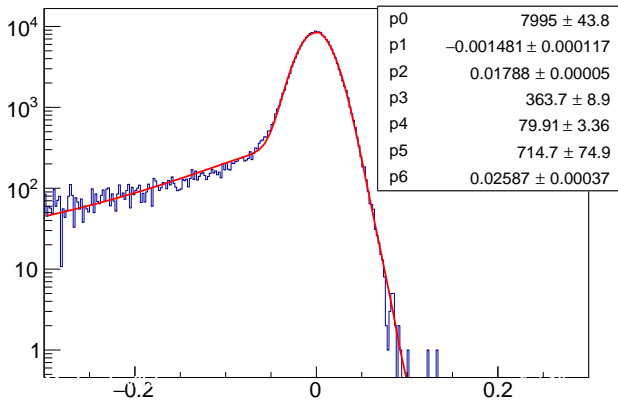
- ▶ Method and functions taken from A. A. Lednev, NIM Physics Research A 366 (1995) 292-297
- ▶ correction of reconstruction on the variable $x_0 = (x_{rec} - x_{center}) / size_{cell}$
- ▶ corrected variable $x = x_0 + c(x_0)$
- ▶ summation of 4 symmetrical modules to cancel out the physical distribution shape both in x and y coordinates

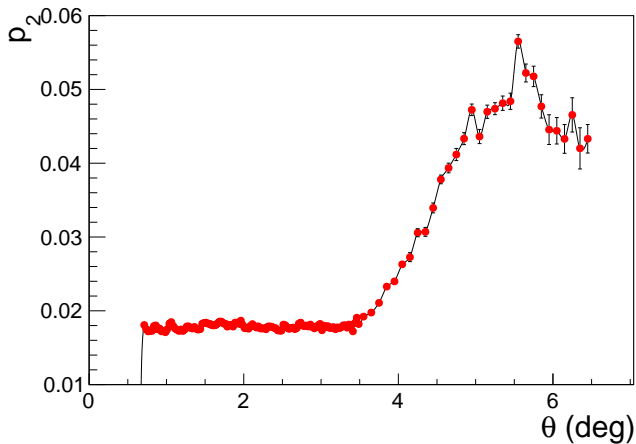


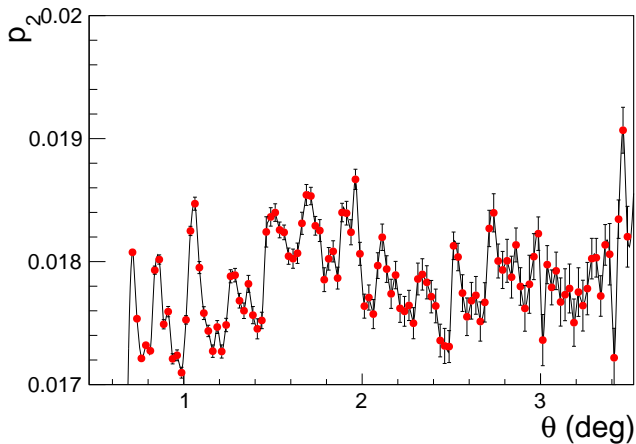


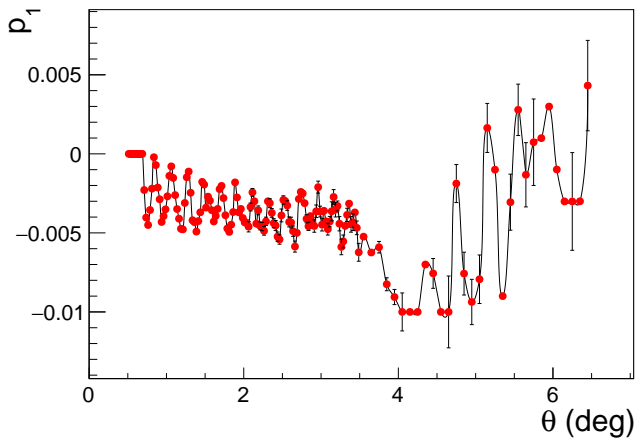
$$f(x = E'/E_{th} - 1) = p_0 \cdot e^{-(x-p_1)^2/(2p_2^2)} + \frac{p_3}{1+p_4(x-p_1)^2} \quad \text{if } x < p_1$$

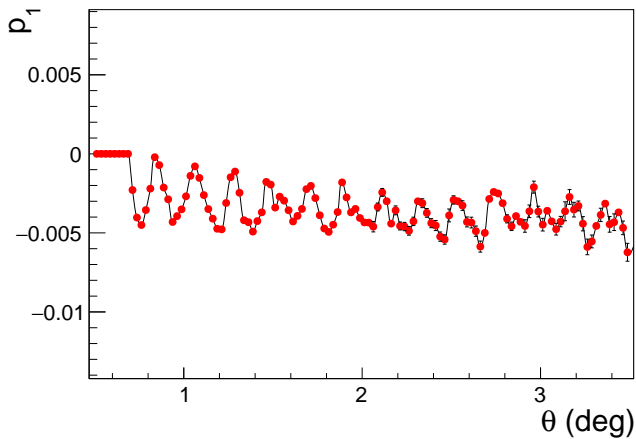
$$+ p_5 \cdot e^{-(x-p_1)^2/(2p_6^2)} \quad \text{if } x > p_1$$











- ▶ Some wobbling on the energy peak versus θ
- ▶ Still need to implement parameterisation in simulation (Dimitri's note) to see if it comes from this