

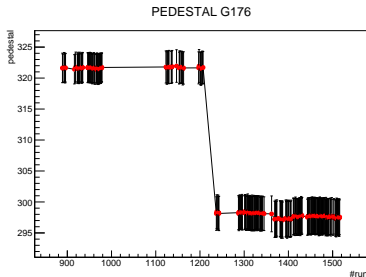
Stability - Calibration - Efficiency

Maxime Levillain

September 29, 2016



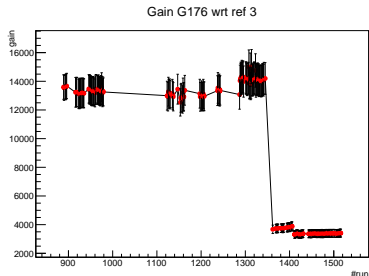
- ▶ Pedestal extracted from replayed files with trigger T4 (alpha)



- ▶ complete study showed by Weizhi (cf [presentation](#))
- ▶ values available at
/work/hallb/prad/mlevilla/pedestal_files/pedestal_#run_number.dat or at
/work/hallb/prad/mlevilla/pedestal_files_primana/mean_#run_number.txt
- ▶ graphs (pedestal vs run_number) for each module available on pdf at */work/hallb/prad/mlevilla/graphs/pedestal_graphs.pdf*

- ▶ formula:

$$\frac{\langle ALPHA_{REF} \rangle - \langle PED_{REF} \rangle}{\langle LED_{REF} \rangle - \langle PED_{REF} \rangle} \cdot \langle LED_{MODULE} \rangle - \langle PED_{MODULE} \rangle$$

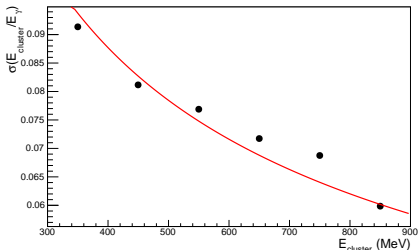


- ▶ no LMS for G900, G16, G107 and W835
- ▶ study run by run not complete for production (cf status files)

- ▶ values available at `/work/hallb/prad/mlevilla/lms_files(_primana)`
- ▶ graphs available at `/work/hallb/prad/mlevilla/graphs/lms_gains-#ref_graphs.pdf`

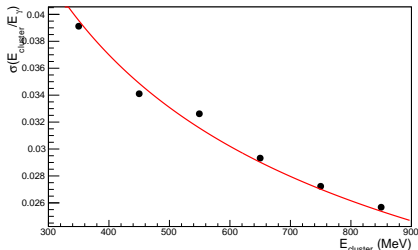
- Fit of $\sigma(E_{cluster}/E_\gamma)$ with $f(E_{cluster}) = r/\sqrt{E_{cluster}}$

G87



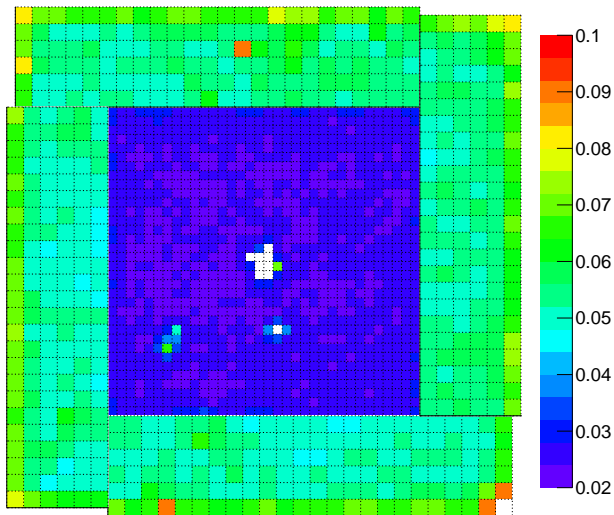
resolution = 0.0554

W222



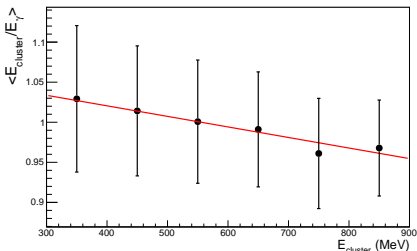
resolution = 0.0234

Resolution Map



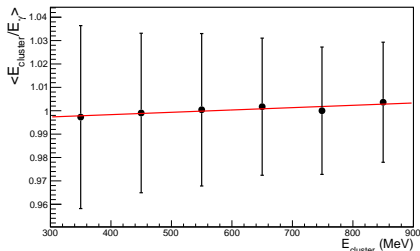
- Fit of $\langle E_{cluster}/E_{\gamma} \rangle$ with $f(E) = \alpha \cdot E_{cluster} + \beta$

G87



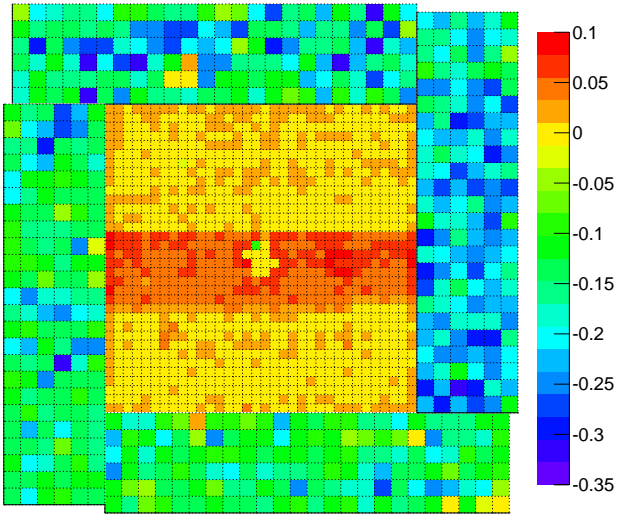
alpha = -0.132

W222



alpha = 0.01

Linearity Map



- ▶ Notations: T1 = Leaglass Trigger, T2 = TotalSum Trigger, T5 = Tagger Trigger

$$\epsilon_{T1} = \frac{N(T1)}{N(T1) + N(T5)}$$

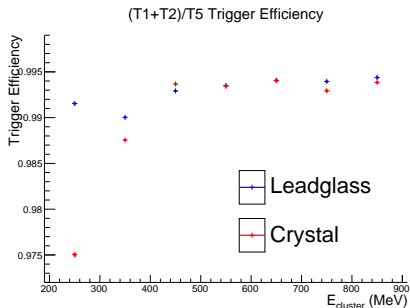
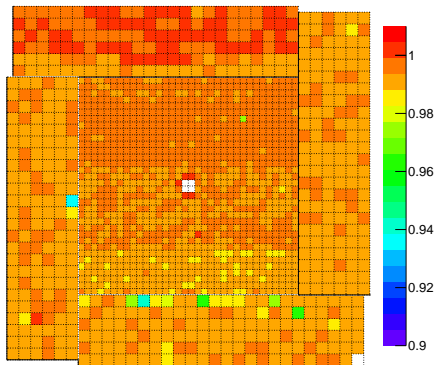
$$\epsilon_{T2} = \frac{N(T2)}{N(T2) + N(T5)}$$

$$\epsilon_{T1\&T2} = \frac{N(T1) + N(T2)}{N(T1) + N(T2) + N(T5)}$$

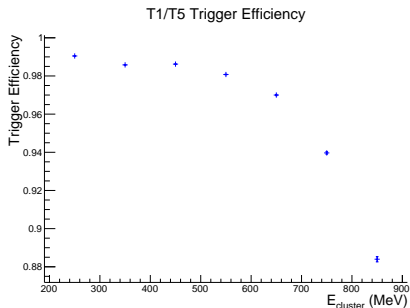
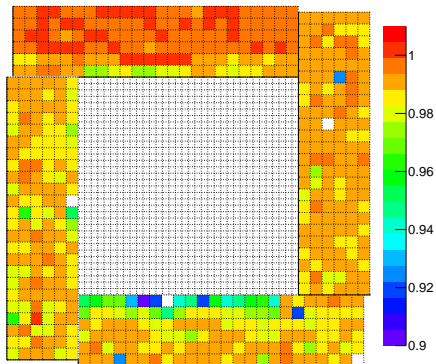
- ▶ selection:

- ▶ $N_{hitscluster} > 2$
- ▶ $\chi_{cluster}^2 < 1.$
- ▶ $E_{cluster} > 50 \text{ MeV}$
- ▶ $|E_{cluster}/E_{\gamma} - \langle E_{cluster}/E_{\gamma} \rangle| < 2 \cdot \sigma(E_{cluster}/E_{\gamma})$

500 - 600 MeV



200 - 300 MeV



500 - 600 MeV

