

Discussions – preliminary results beam test analysis

Yitao WU (吴奕涛)

IPHC, Université de Strasbourg

University of Science and Technology of China



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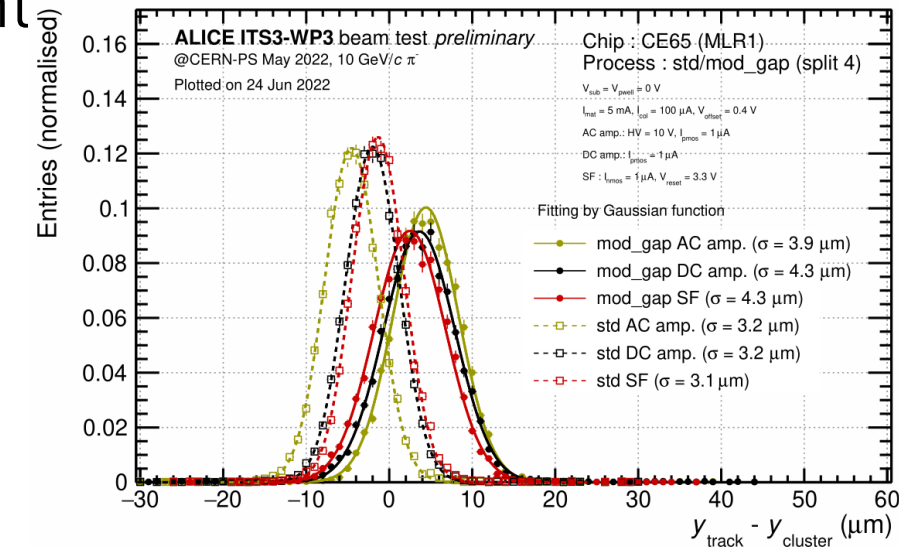
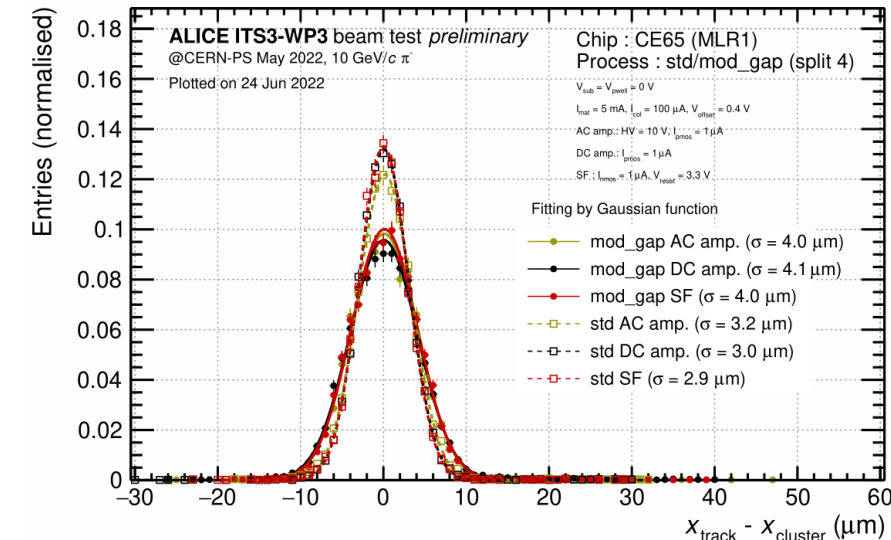
□ Issue

- Alignment on Y axis – shift among sub-matrices
- Bump in charge distribution, especially for DC amp.
- Efficiency
 - track association -> in-efficiency map (edge of ROI)
 - unassociated cluster on CE65
- Noise definition and SNR -> noisy pixel, improve seeding/clustering, ...

➤ TODO

- in-pixel analysis – coordinates (x,y) inside pixel
- Corry write TTree or flatten data instead of histograms
- database & scripts for automatic and standardized procedure
- Code cleanup & merge

- Tracking residuals
 - no shifts found in X axis
 - DUT aligned with SF (SNR>10)
 - 10k events
 - Attempts
 - analysis clustering params for DUT alignment
 - seed charge > 100e⁻, SNR > 3
 - rotation at Z with all events (50k)
- ? specific geometry for each sub-matrix



- Track association: $\Delta_x, \Delta_y < 50, 50 \text{ } (\mu\text{m})$
 - sensor edge: 2 pixels (for DUT only, not applied on ROI)
 - tracking: $\chi^2 / \text{ndf} < 1$
 - geometry: edge, ROI, masks

Raw efficiency : $99.7^{+0.1}_{-0.1} \%$

All tracks $N_{\text{trk}} : 46385$

- $\chi^2 / \text{Ndf} > 1 : -11828$

- outside DUT : -7329

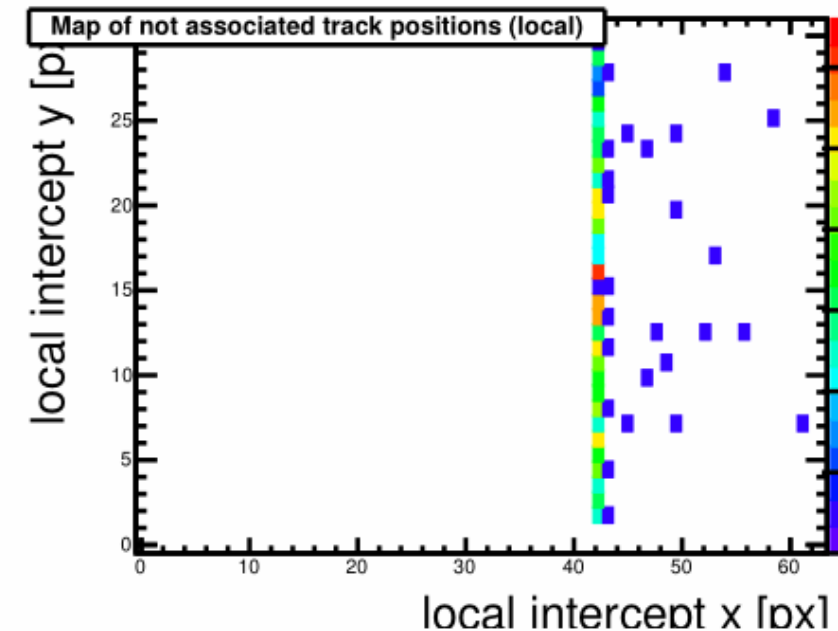
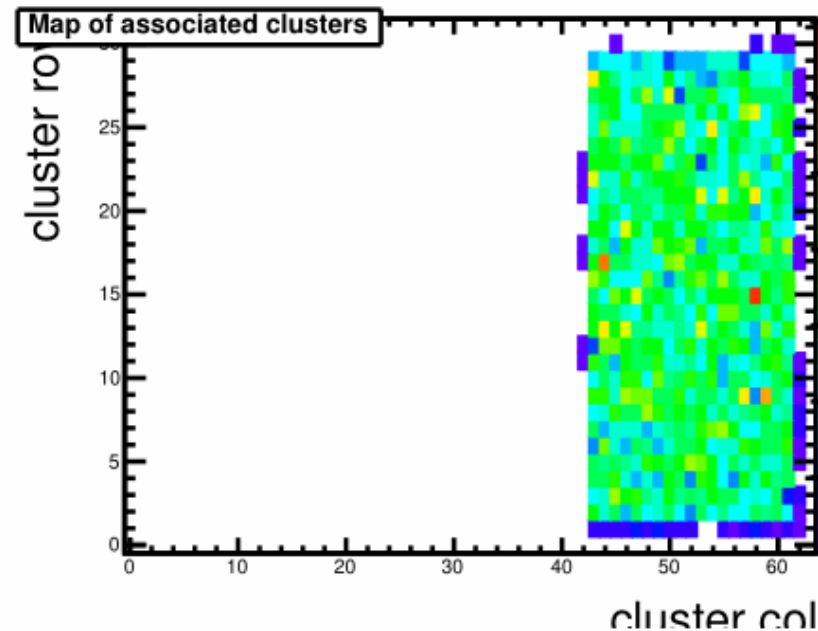
- outside ROI : -18356

- close to mask : -11828

- close to edge of sub-matrix : -212

Track pass selection : 8660

Associated clusters $N_{\text{assoc. cls.}} : 8634$



- Track association: $\Delta_x, \Delta_y < 50, 50 \text{ } (\mu\text{m})$
 - sensor edge: 2 pixels (for DUT only, not applied on ROI)
 - tracking: $\chi^2 / \text{ndf} < 1$
 - geometry: edge, ROI, masks

Raw efficiency : $93.3^{+0.3}_{-0.3} \%$

All tracks N_{trk} : 46385

- $\chi^2 / \text{Ndf} > 1$: -11828

- outside DUT : -7329

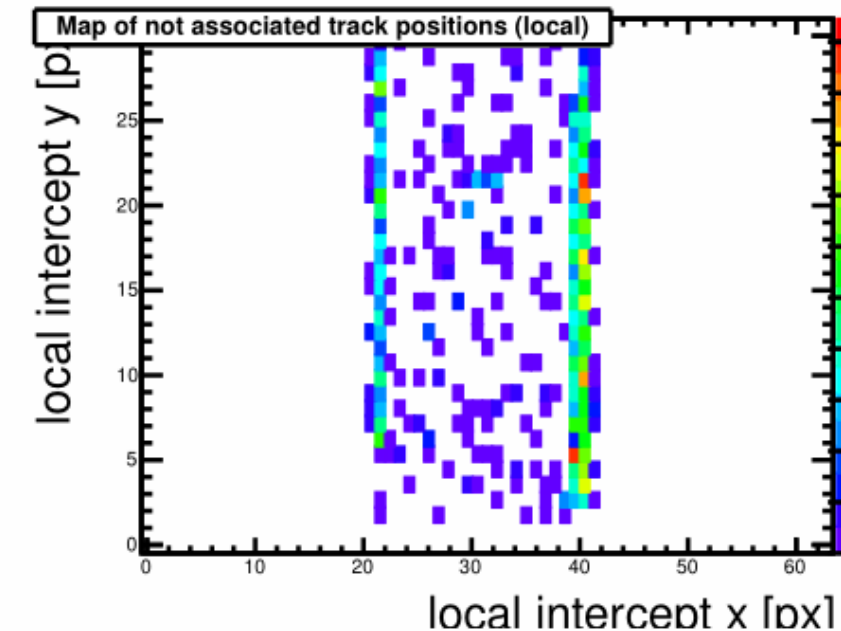
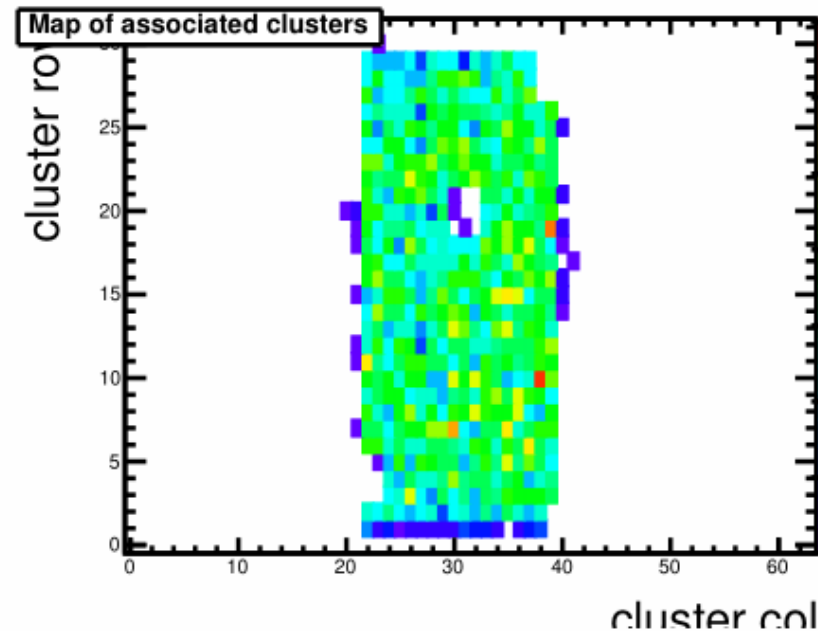
- outside ROI : -17900

- close to mask : -11828

- close to edge of sub-matrix : -394

Track pass selectoin : 8458

Associated clusters $N_{\text{assoc. cls.}}$: 7894



- Track association: $\Delta_x, \Delta_y < 50, 50 \text{ } (\mu m)$
 - sensor edge: 2 pixels (for DUT only, not applied on ROI)
 - tracking: $\chi^2 / ndf < 1$
 - geometry: edge, ROI, masks

Raw efficiency : $92.2^{+0.3}_{-0.3} \%$

All tracks $N_{\text{trk}} : 46385$

- $\chi^2 / Ndf > 1 : -11828$

- outside DUT : -7329

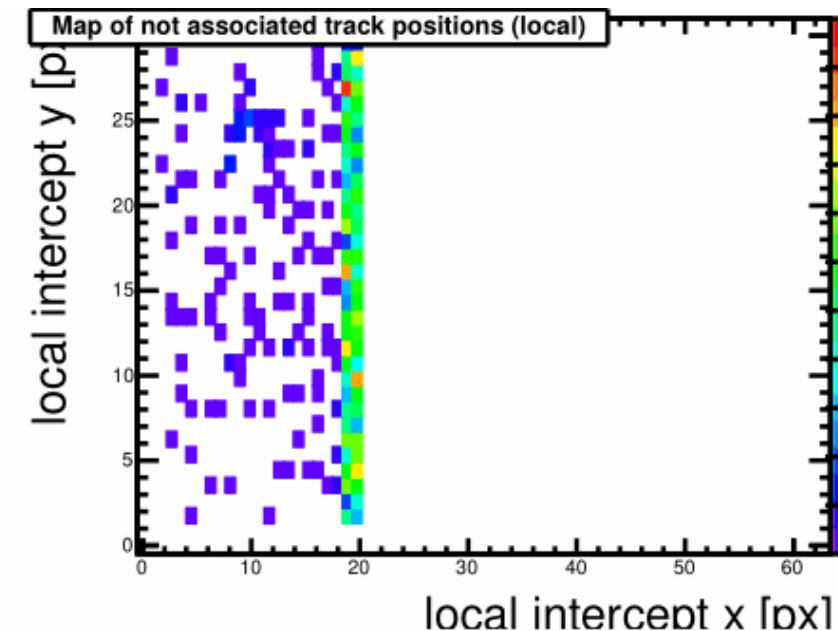
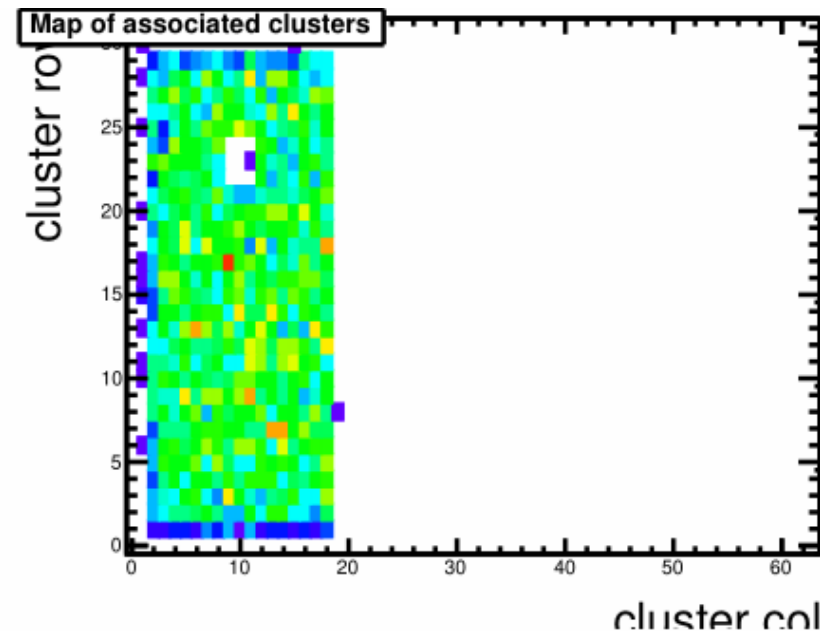
- outside ROI : -19077

- close to mask : -11828

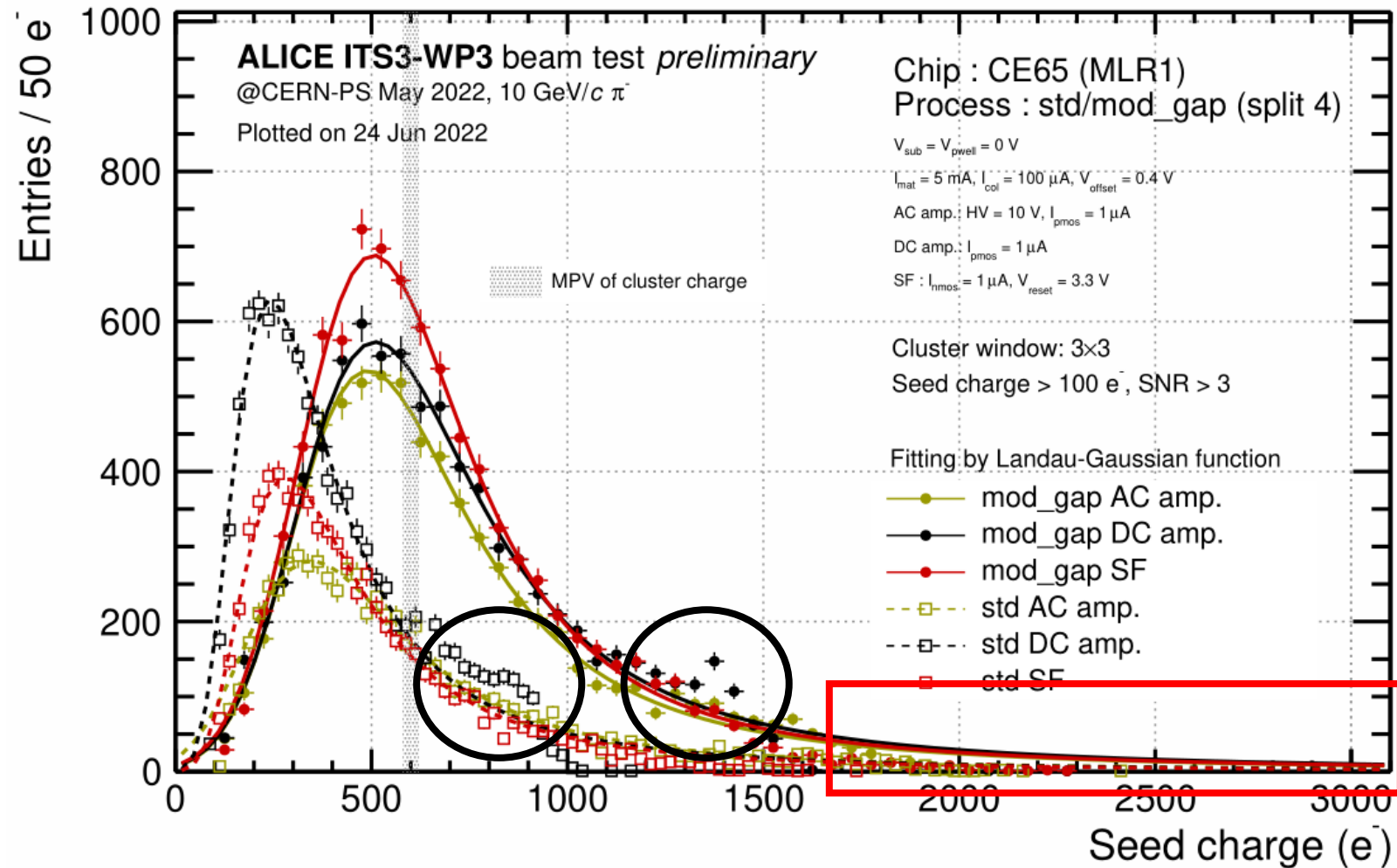
- close to edge of sub-matrix : -202

Track pass selectoin : 7820

Associated clusters $N_{\text{assoc. cls.}} : 7213$



- AC amp.
 - bump slightly
- DC amp.
 - Both A4 & B4
- SF
 - bad fitting in tail
- Fitting residuals?



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