

Introduction

- CDB code changes
 - ▷ Tile Quality
 - ▷ Pixel Quality
 - All in mu3eUtil/cdb (dev), many thanks to [Mark Grimes](#)
 - ▷ Pixel Time Calibration: pushed to branches "correlate-CDB"
- CDB payload additions
 - ▷ David's metrology-improved pixel sensor alignment
 - ▷ Mikio's cosmics-improved pixel sensor alignment
 - ▷ Elizaveta's tiles quality
 - ▷ Replaced all pixelqualityLM payloads
- RDB changes
 - ▷ fibres good runs list included
- CDB backends all uptodate and sync'ed
 - ▷ pc11740 (REST/mongo)
 - ▷ merlin7:/data/project/mu3e/cdb (JSON)
 - ▷ mu3ebe:/data/mu3e/cdb (JSON)

Tile Quality

- calTileQuality.cc

- ▶ current contents

- channel ID
 - quality
 - "Good"
 - "Dead"
 - "Noisy"

- CDB payloads

- ▶ based on tile's JSON files
 - ▶ iovs for changes only!

→ Many thanks to
Elizaveta

The screenshot shows the MU3E CDB Browser interface. The browser address bar shows 'pc11740.psi.ch/cdb/'. The page title is 'MU3E CDB Browser'. The interface is divided into several sections:

- Global Tags1**: A list of tags with a search filter. The selected tag is 'datav6.3=2025V0'.
- Tags datav6.3=2025V0**: A list of tags for the selected datav6.3. The selected tag is 'tilequality_datav6.3=2025V0'.
- Payloads tilequality_datav6.3=2025V0 (Total IOVs: 13) (13 payloads)**: A table showing payloads for the selected tag.
- Detconfigs Summary**: A table showing detconfigs for the selected tag.

IOV	Date	Comment	Schema
4597	11/25/2025, 8:39:27 AM	Elizaveta's tile quality as of 2025/11/18	ui_id,i_qual
4494	11/25/2025, 8:39:26 AM	Elizaveta's tile quality as of 2025/11/18	ui_id,i_qual
4493	11/25/2025, 8:39:25 AM	Elizaveta's tile quality as of 2025/11/18	ui_id,i_qual
4489	11/25/2025, 8:39:25 AM	Elizaveta's tile quality as of 2025/11/18	ui_id,i_qual
3361	11/25/2025, 8:39:24 AM	Elizaveta's tile quality as of 2025/11/18	ui_id,i_qual
3355	11/25/2025, 8:39:23 AM	Elizaveta's tile quality as of 2025/11/18	ui_id,i_qual
3347	11/25/2025, 8:39:23 AM	Elizaveta's tile quality as of 2025/11/18	ui_id,i_qual

Tag	Files	Actions
tdac_files_bu_06_06_tuning_first	109	Download Delete
tdac_files_bu_06_10	109	Download Delete
tdac_files_bu_2025_06_04	109	Download Delete

- Interface quite simple currently

- ▶ calTileQuality::getChannelQuality(uint id)

Pixel Quality

- calPixelQualityLM

- ▷ chip subMatrices without hits (but unmasked links) flagged as such (this was a bug)
- ▷ all payloads have been updated
- many thanks to **Haris**

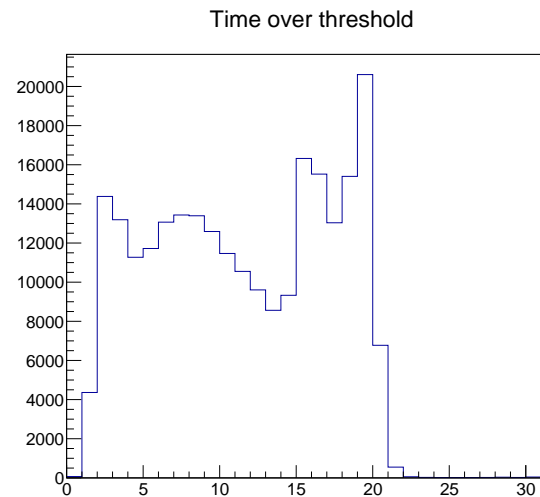
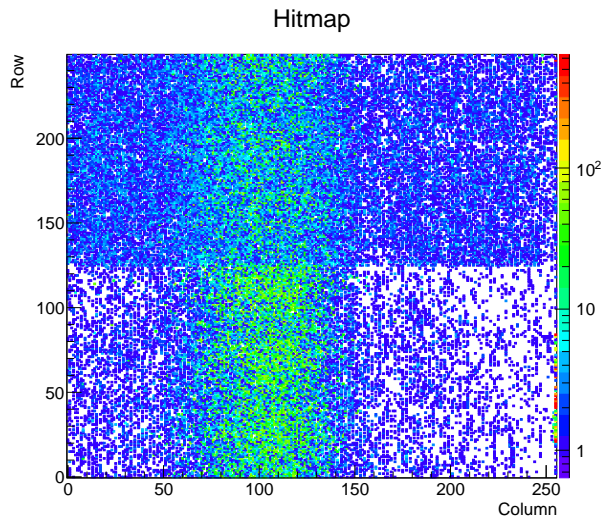
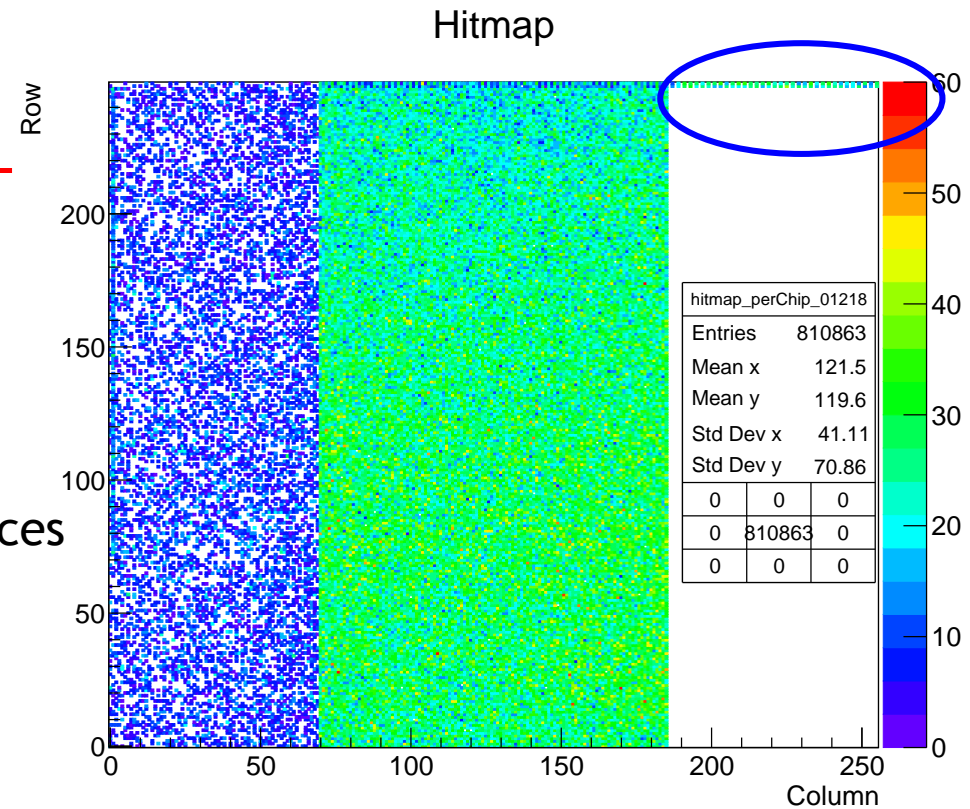
- Algorithm

- ▷ **links**: Use LVDS errors from midas meta data and hit counts
 - "3" if link data mean row position < 10 or > 245 (cf next slide)
 - "4" if link has LVDS error rate > 10 Hz or (unmasked) 'E'
 - "5" if other unmasked link has LVDS error rate > 10 Hz
 - "8" if no hits on link (**recovered code**)
 - "9" if link masked
- ▷ **columns**: determine average column hit count
 - "9" if column hit count $< 10\%$ of average (**not for cosmics!**)
 - "3" if more than 40 noisy pixels in column
- ▷ **pixels**: determine average chip hit count
 - "1" if pixel hit count $> 10\sigma$ above average

→ improvements possible!

Pixel pathologies

- Run 4756, chip 1218
 - ▷ immaculate MIDAS metadata
 - ▷ overflow would be useful (Mark?)
 - ▷ cannot be flagged currently
 - regions not aligned w/ chip submatrices
- Also: run 4756, chip 1089
 - ▷ ToT distribution inconsistent with other "good" chips
 - ▷ 1284 "noisy" pixels, 18 "suspicious" columns
 - ▷ unclear how to diagnose this reliably - hitmap(!) looks OK for other runs



Summary/Outlook

- pixelquality should provide better MC/data agreement now
(I guess Haris will show these plots)
- Two new alignment settings available:
 - ▷ `datav6.3=2025V0` ideal MC alignment
 - ▷ `datav6.3=2025V1test` David's metrology-improved alignment
 - ▷ `datav6.3=2025V2test` Mikio's cosmics-improved alignment
 - ▷ Test it with your physics code

```
login001>../_build/mu3eTrirec/mu3eTrirec --conf ./tri-rec_twolayer_beam.conf \  
--cdb.dbconn=/data/project/mu3e/cdb --cdb.globalTag=datav6.3=2025V0 \  
/data/project/mu3e/data/2025/tri-rec/250829/006/run06300-sorted.root --output ./test.root
```

```
login001>../_build/mu3eTrirec/mu3eTrirec --conf ./tri-rec_twolayer_beam.conf \  
--cdb.dbconn=/data/project/mu3e/cdb --cdb.globalTag=datav6.3=2025V1test \  
/data/project/mu3e/data/2025/tri-rec/250829/006/run06300-sorted.root --output ./test.root
```

```
login001>../_build/mu3eTrirec/mu3eTrirec --conf ./tri-rec_twolayer_beam.conf \  
--cdb.dbconn=/data/project/mu3e/cdb --cdb.globalTag=datav6.3=2025V2test \  
/data/project/mu3e/data/2025/tri-rec/250829/006/run06300-sorted.root --output ./test.root
```

- Outlook
 - ▷ fibre quality (indexed by ASIC number, not channel)
 - ▷ use good-runs list of tiles and fibres for insignificant run list