

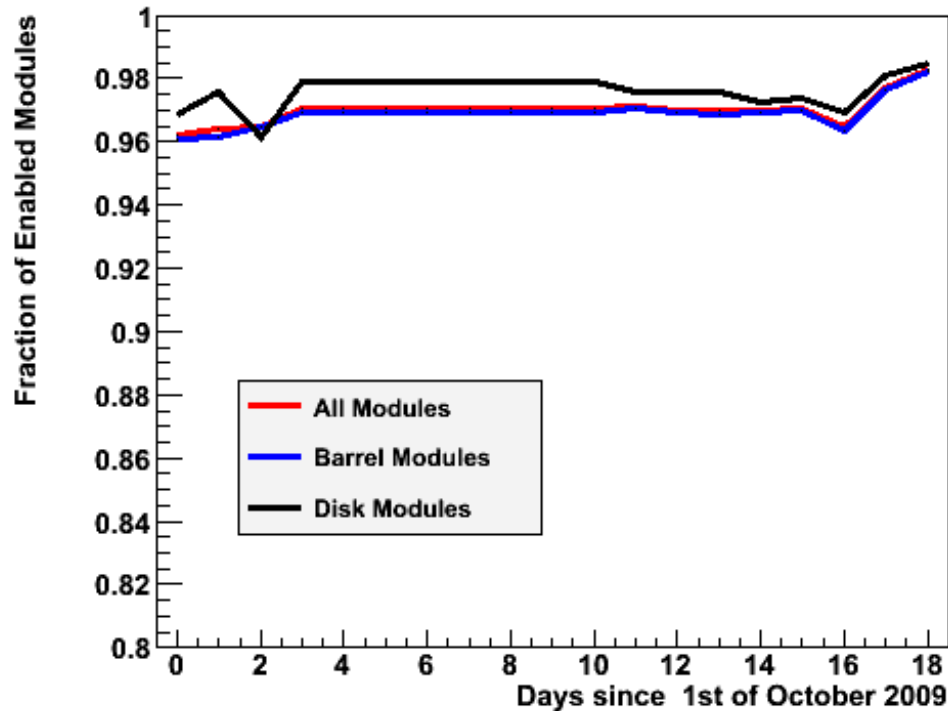
Stato delle operazioni del Rivelatore a pixel

Claudia – Genova weekly, 22 Ottobre

- 24/7 data-taking dai primi di Ottobre: DQ report (20 Ottobre)
 - Poco tempo per calibrazioni, ma prova generale di quello che sara' (calibrazioni nell'interfill)
- Soglia 3500e vs 4000e
- Interazione con LHC
- Calibrazioni ancora da fare
- Schedule

Live fraction

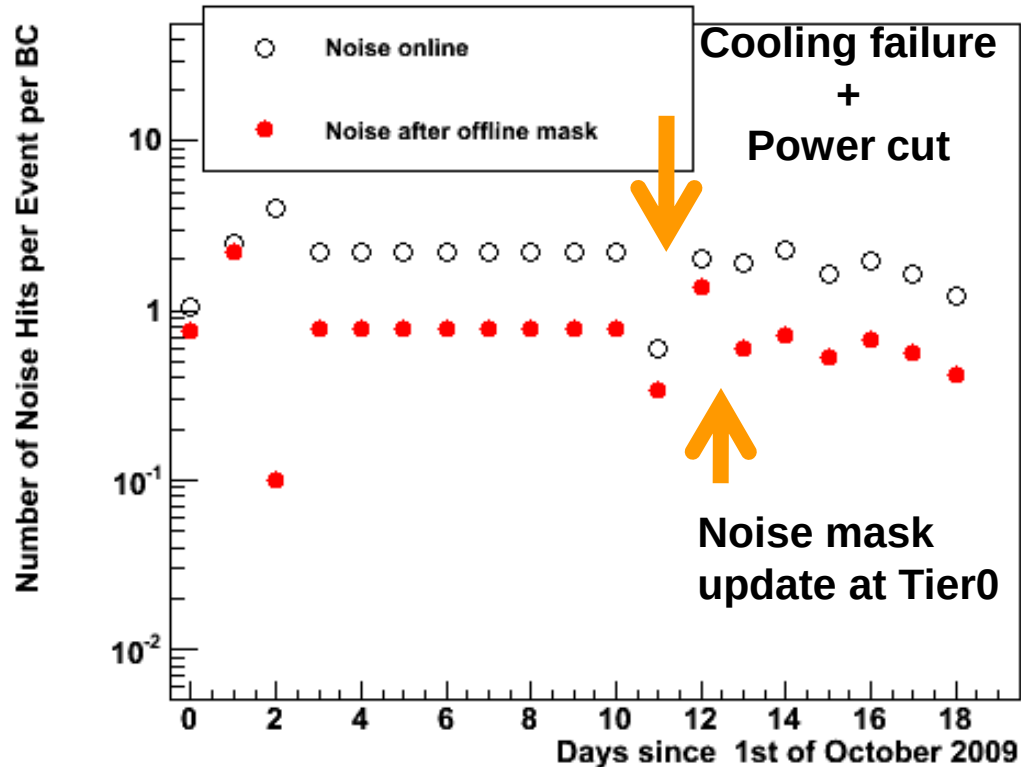
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- Stable running between 97% and 98% of detector active.
- Only on Friday evening a lot of desynchronization errors on some modules:
- It was to fully recovered the day after.

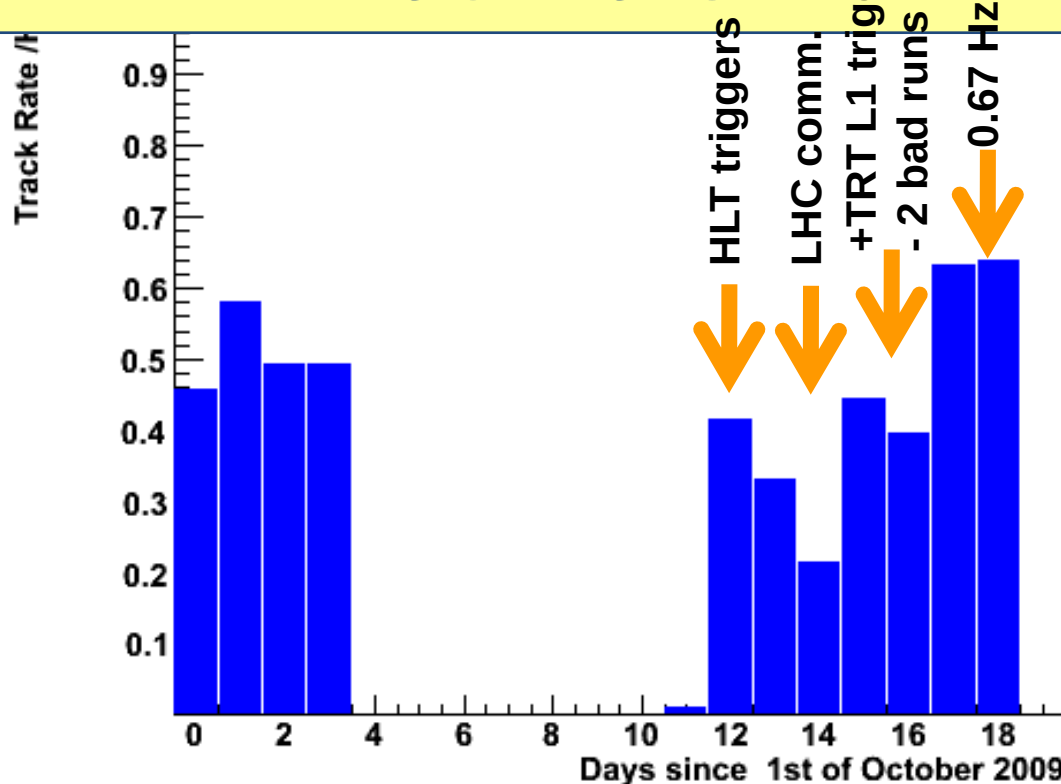
Noise rate

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- Low average noise on Monday...
 - then power cycle of the cooling, power cut at the pit
- Noise mask created per run, (or merging different runs to get a 6h integrated time)
- When change in conditions is detected, update mask at Tier0

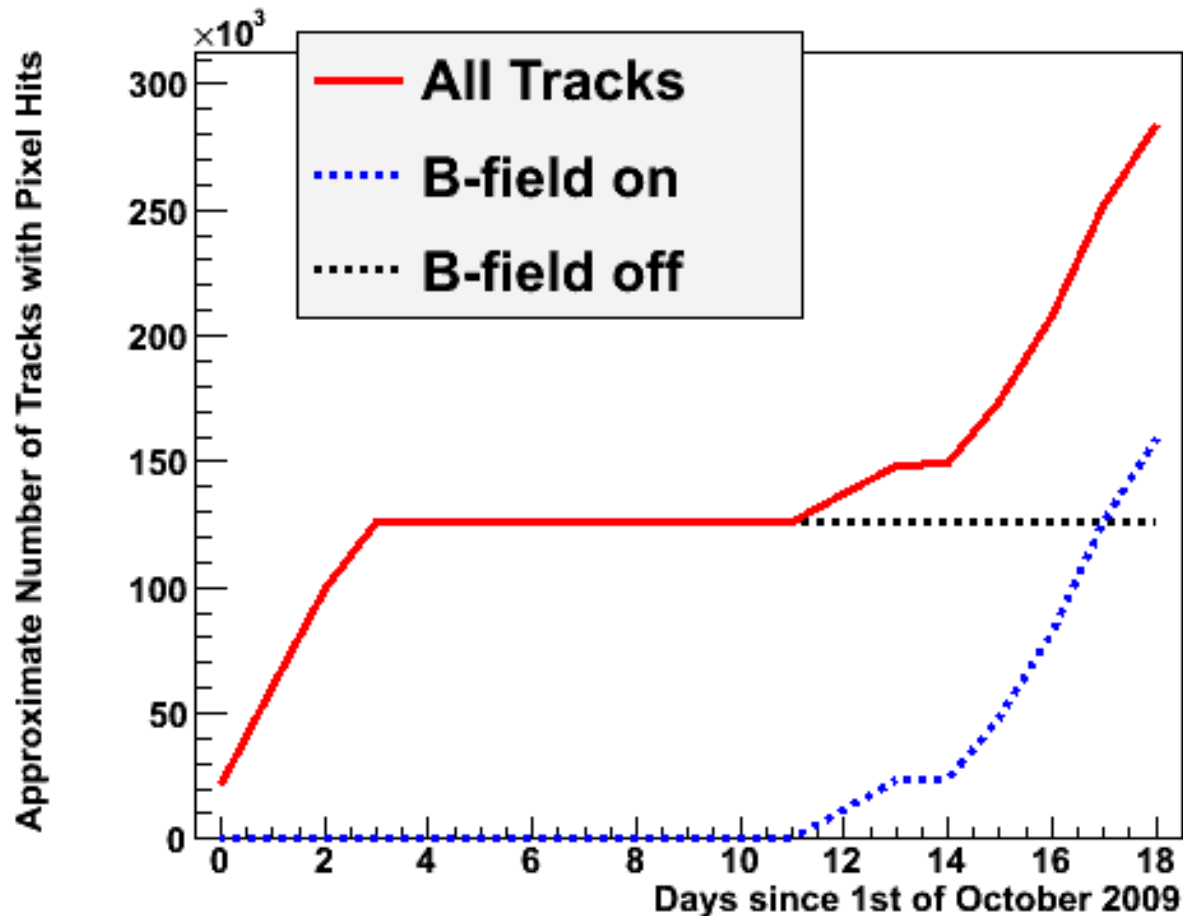
Track rate



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- With restarting of L2 triggers for IDCosmics + TRT at L1, track rate back to normal.
- Low track rate on Thursday: during LHC communication exercise, pixels were off for most of the time.
- On Friday-Saturday night 2 runs with low statistics due to desync.
 - probably correlated to trigger configuration

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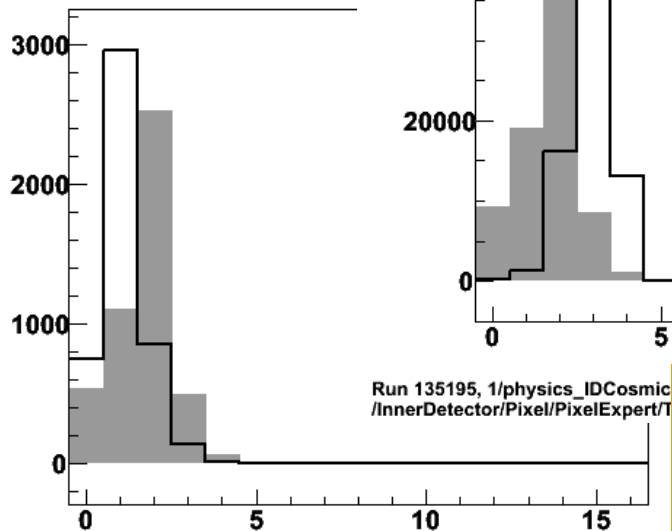


- Up to now collected:
 - 120000 pixel tracks with solenoid off
 - **150000 pixel tracks with solenoid on**

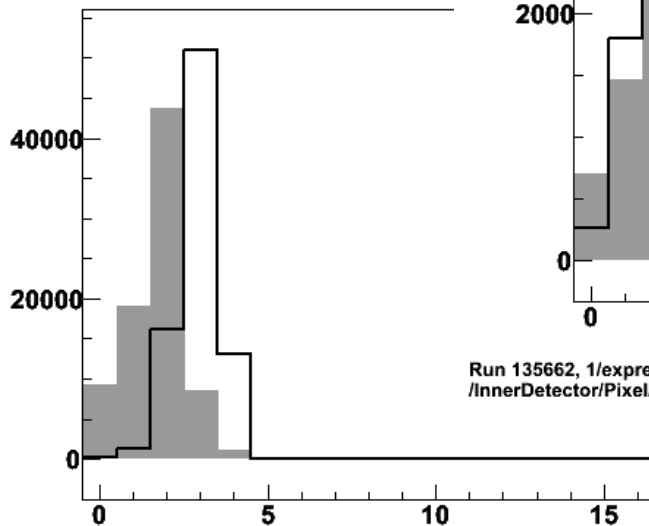
Tuning of timing

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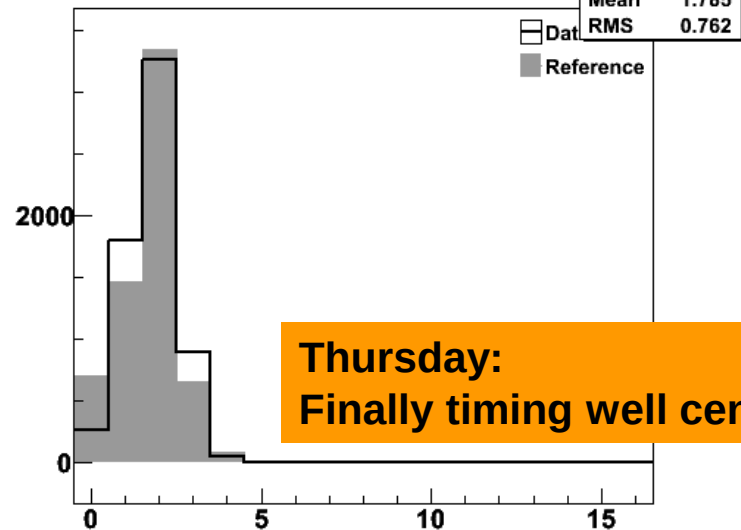
**Tuesday:
Timing at startup**



Level 1 Accept on track



Level 1 Accept on track



m_Pixel_track_Lvl1A	
Entries	6253
Mean	1.785
RMS	0.762

**Thursday:
Finally timing well centered**

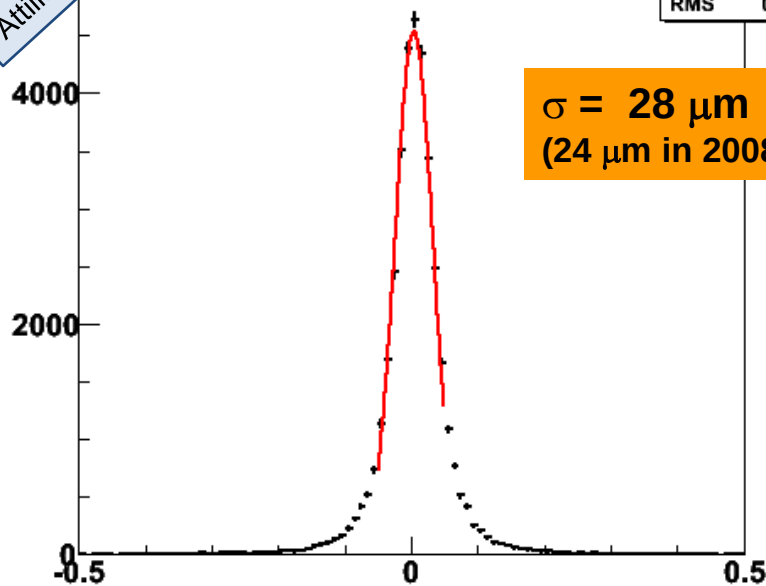
**Wednesday:
Moving by one bunch crossing
... but muon trigger also moves!**

Residuals' resolution (run 135388)

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UnBiased X Residual Pixel Barrel

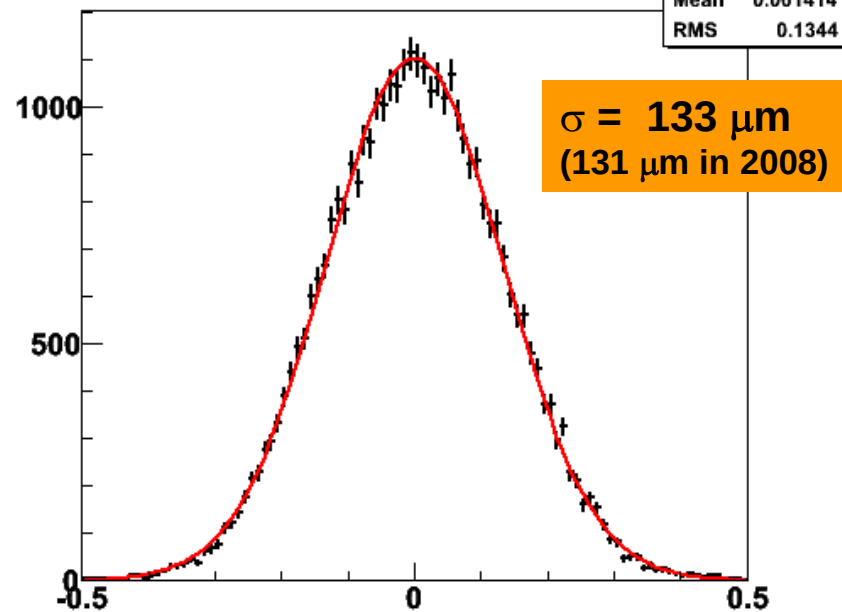
pix_b_residualx	
Entries	37107
Mean	0.004348
RMS	0.05343



Run 135388, 1/physics_IDCosmic
/InnerDetector/IDAlignment/Tracks_NoTriggerSelection/Residuals/pix_b_residualx

UnBiased Y Residual Pixel Barrel

pix_b_residuary	
Entries	37107
Mean	0.001414
RMS	0.1344



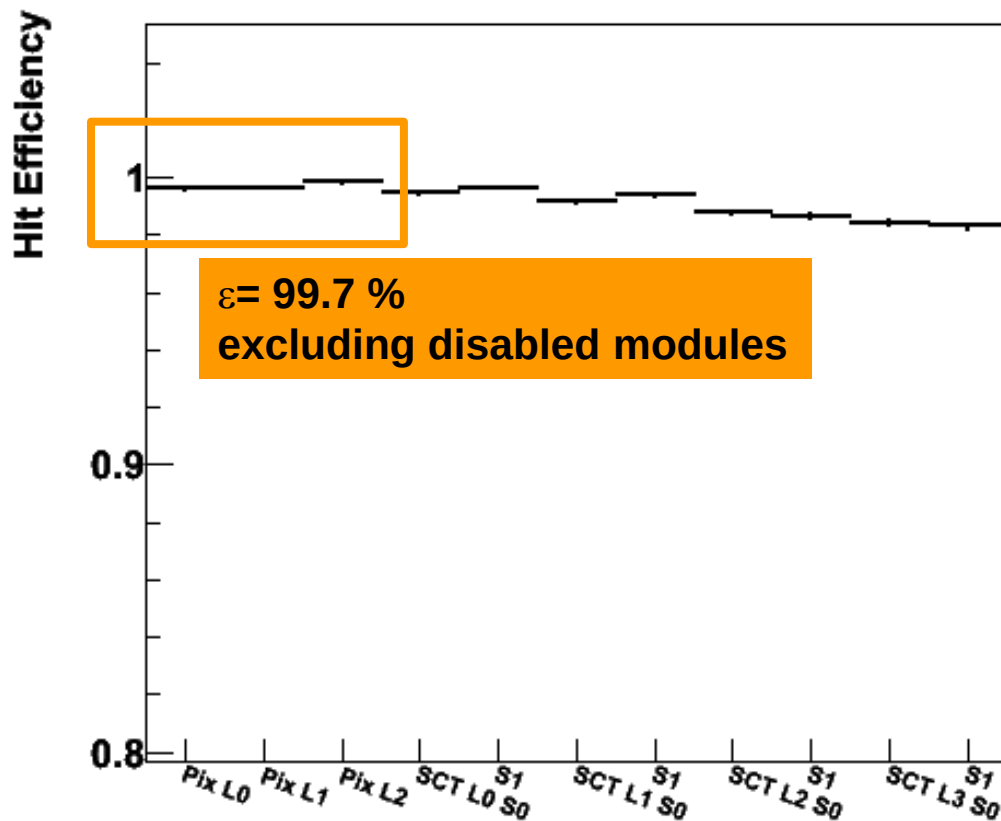
Run 135388, 1/physics_IDCosmic
/InnerDetector/IDAlignment/Tracks_NoTriggerSelection/Residuals/pix_b_residuary



Hit Efficiency (run 135388)

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measurements per possible hit vs. layer in the barrel



Run 135388, 1/physics_IDCosmic
/InnerDetector/IDAlignment/Tracks_NoTriggerSelection/HitEfficiencies/measurements_

DQ and calibration shifts

- We need shifters to monitor pixel data quality and calibrate detector
 - 2 per day
 - On-site DQ shifter (trying off-site option)
 - Off-site calibration shifter
- Qualification through the web page
- Several people showed interest but we need more

Se qualcuno fosse interessato:

<https://twiki.cern.ch/twiki/bin/view/Atlas/PixelOfflineShiftInstructions>

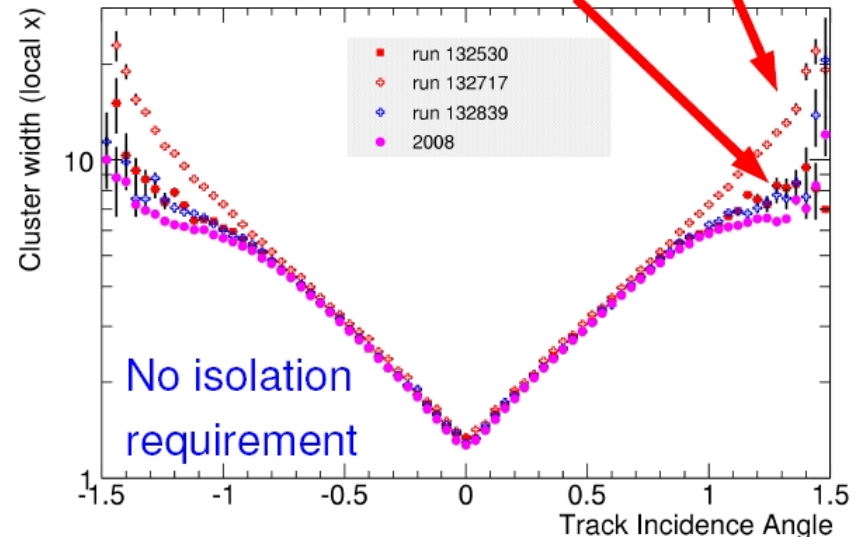
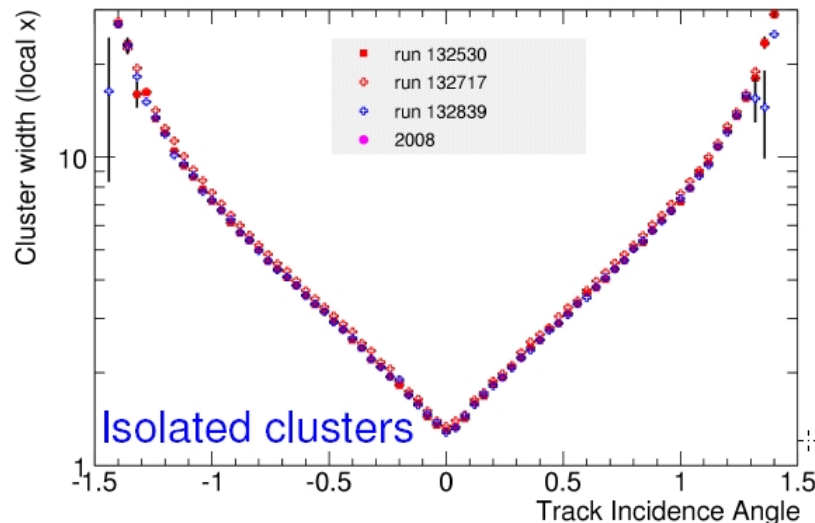
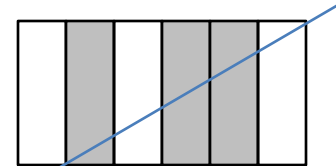
Soglia a 3500e, dati con B off



- ✓ Il minimo della distribuzione della larghezza dei cluster rispetto all'angolo di incidenza e' usato per calcolare l'angolo di Lorentz. A Larghi angoli di incidenza, la distribuzione e' affetta dalla mal ricostruzione dei clusters, tanto piu' quanto maggiore e' la soglia in lettura.

- Preliminary comparison of the cluster size (T. Lari):

Spitted clusters



- Small increase of cluster size at 3500e for all incidence angles
- Less cluster splitting at large angles

Soglia a 3500e (II)



Oct 10, preliminary... da ricalcolare quando I tuning delle soglie saranno ottimali.

Noise masks from last weeks cosmons run

- Noise masks for 3500e threshold larger by a factor ~3:

	3500e	4000e
Online	66227 + (part of) previous mask	28127
Offline	3061, 3464	920

- Noise occupancy with 3500e threshold after offline mask comparable to previous cosmons data taking periods, 0.5 clusters/event in run 132717
- Offline masks for different configurations not compatible
 - Tier0 mask should be updated when changing configurations
- Noise rate without matching offline mask 4-5 with 4000e, 12-18 with 3500e
- Rate of good pixel tracks slightly above 0.5 Hz, comparable to expectation

Calibrazioni da fare



- ✓ Per ogni configurazione (4000e, 3500e,...) una serie di condizioni deve essere misurata per l'offline:
 - Threshold, Tot calibrazioni, timing, noise mask, etc..

Nei prossimi giorni:

- ✓ Alcuni di questi scan mancano ancora (pochi, ~ 10 ore di scan)
- ✓ Configurazione a 3000e:
 - Completion of tuning at 3000e + noise mask + T0 tuning + ToT tuning + ToT calib, crosstalk and timewalk scans

Programma in Data taking



Varie combinazioni dei magneti per misure di allineamento (e accesso alla zona del toroide) : tracce dritte in un sistema, misura del momento nell'altro

October 12th – October 19th : TOROID OFF & SOLENOID ON

October 19th – October 30th : TOROID ON & SOLENOID ON

October 30th – November 3rd : TOROID ON & SOLENOID OFF

November 3rd – November 6th : TOROID OFF & SOLENOID OFF

November 6th – Christmas : TOROID ON & SOLENOID ON

Interaction with Beam



✓ Test in preparazione del fascio

<http://indico.cern.ch/getFile.py/access?subContId=0&contribId=2&resId=0&materialId=slides&confId=59559>

- Per sicurezza il rivelatore deve avere HV off quando il fascio non e' stabile. Pero' deve essere anche in gradi di iniziare la presa dati velocemente quando il fascio diventa stabile (warm start).
- Procedura messa a punto ma le condizioni devono essere propagate correttamente tra DCS, DAQ, online e offline

LHC Schedule

From the October 19th LMC

