



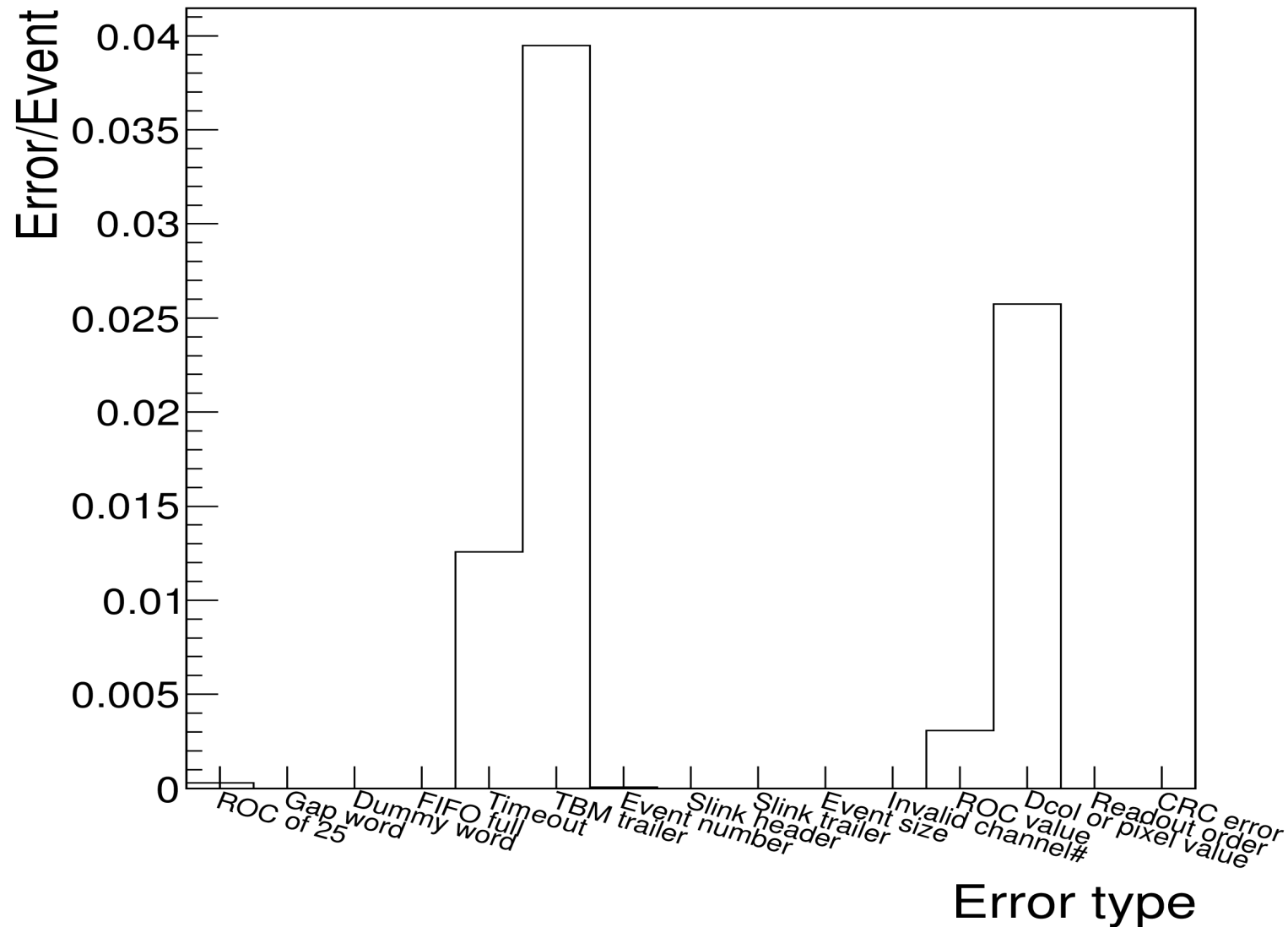
Highlights from offline: Fed Error propagation into tracking, early Bias scan plots

B. Radics (KFKI RMKI)
J. Karancsi (ATOMKI)
V. Veszpremi (ATOMKI)

FedError propagation into tracking

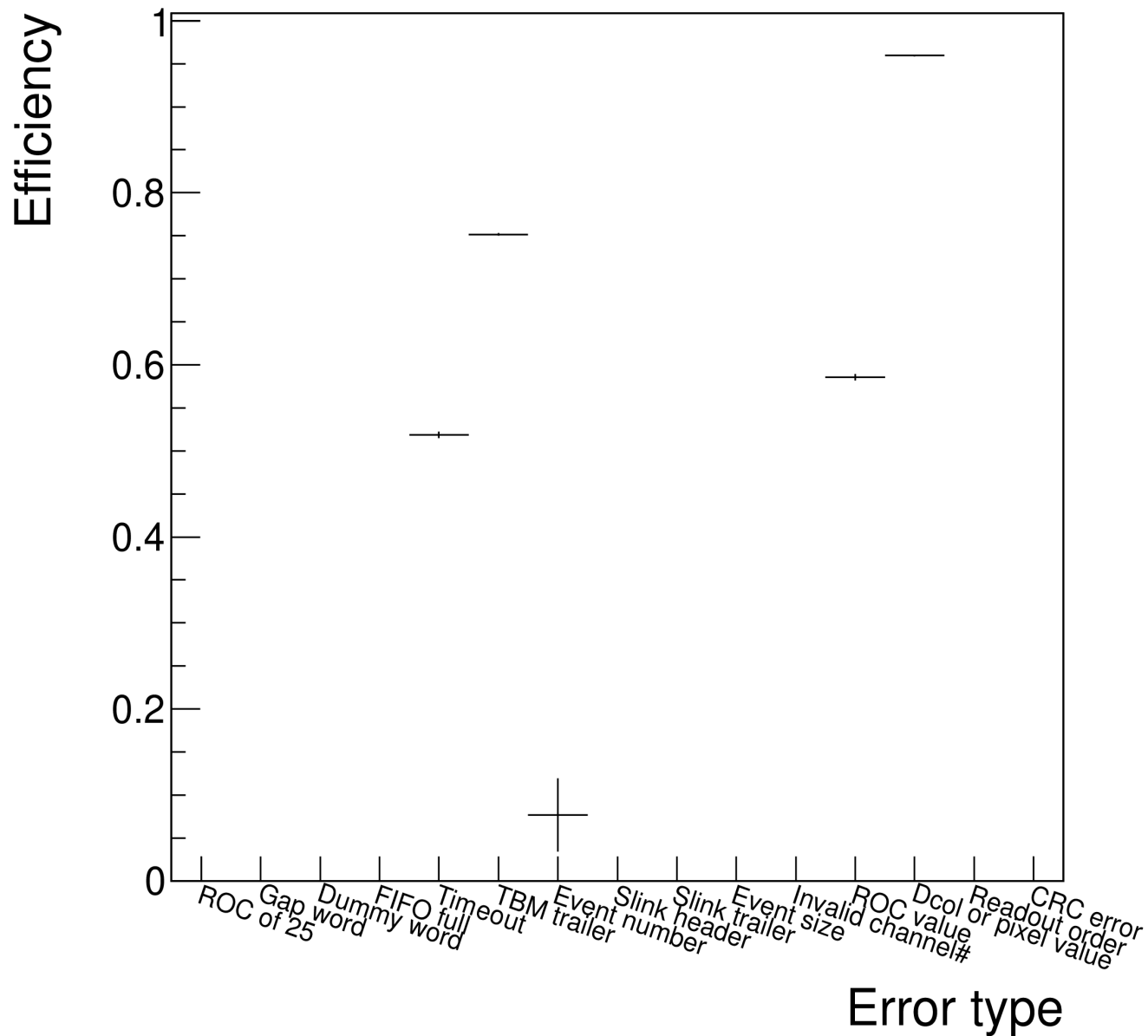
- Put FED error info, for Pixel modules with some error, from RAW data into RECO in form of DetIdCollection
- On an event-by-event basis
- Consequence: Tracking can use this information, add module with error to list of **inactive modules**
- Study: impact of a single inactive module on tracking
 - Is the impact negligible?
- Seeding and tracking:
 - Seeding uses the hits from inactive modules
 - Tracking won't pick hits from inactive modules but won't touch the hits from seeds
 - Expected a small impact

Error/event vs various error types



- Datasets:
 - /MinimumBias/Run2010B-v1/RAW
 - /MinimumBias/Run2011A-v1/RAW

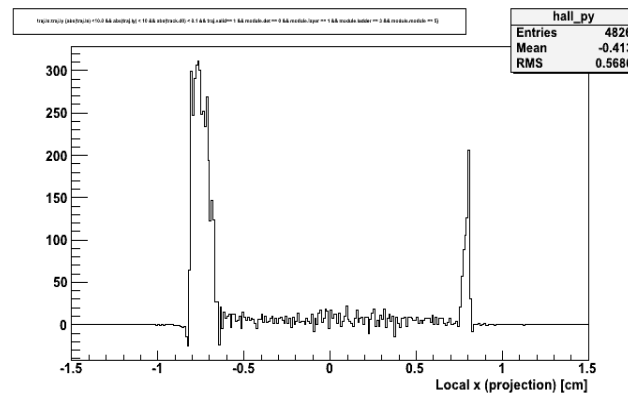
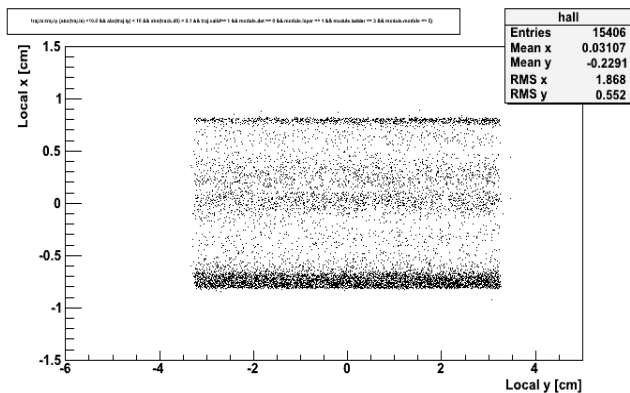
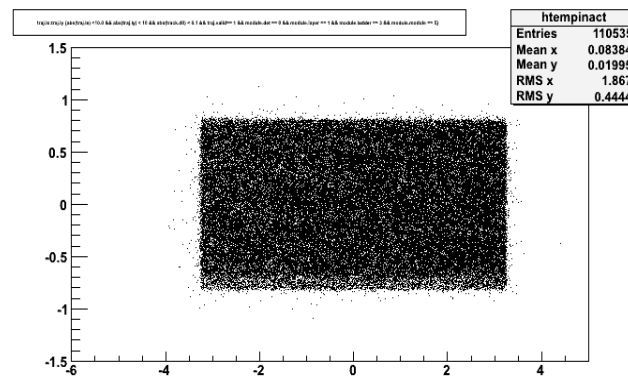
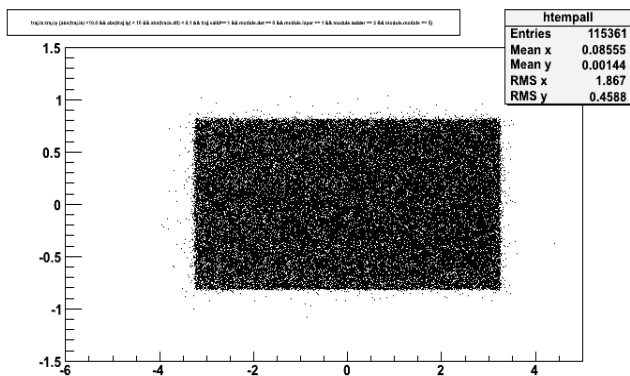
Error/event vs various error types



- Datasets:
 - /MinimumBias/Run2010B-v1/RAW
 - /MinimumBias/Run2011A-v1/RAW

Impact of inactive single module on tracking

- Investigated two scenarios:
 - All modules active in ALL events
 - All module active but Layer 1, Ladder 3, Module 5 (CMSSW numbering conv.) in ALL events
- Use ~10M RecHit, ~4M tracks, run 165121
- MinimumBiasTracks from collisions: $abs(d0) < 0.1$ cm



Impact of inactive single module on tracking

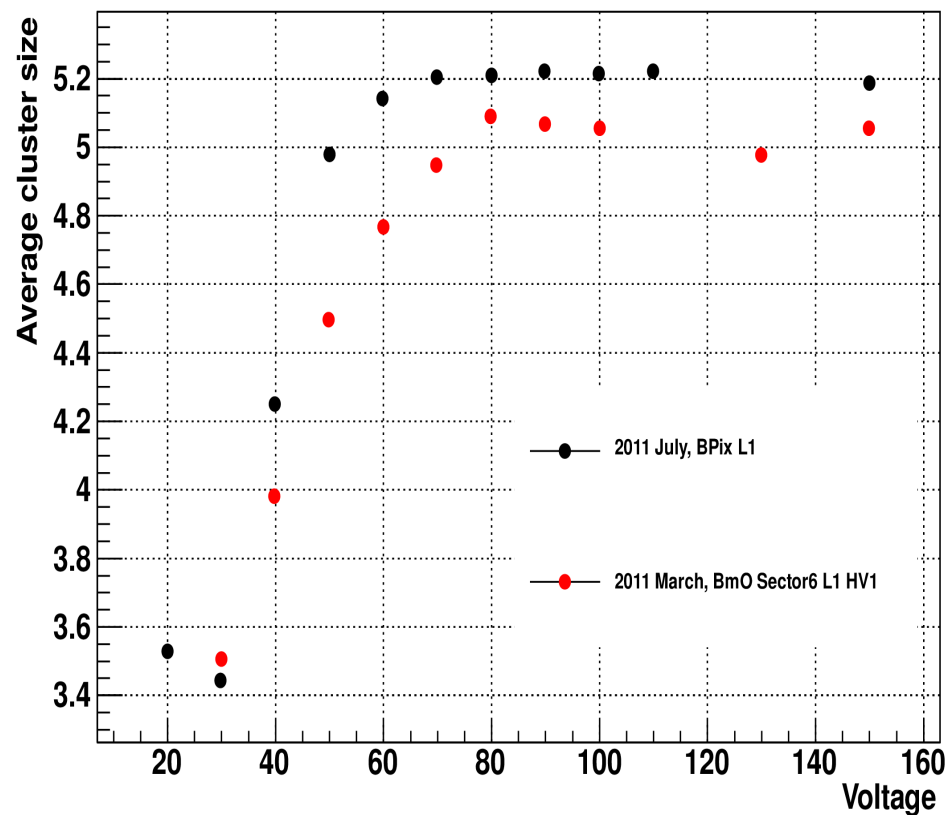
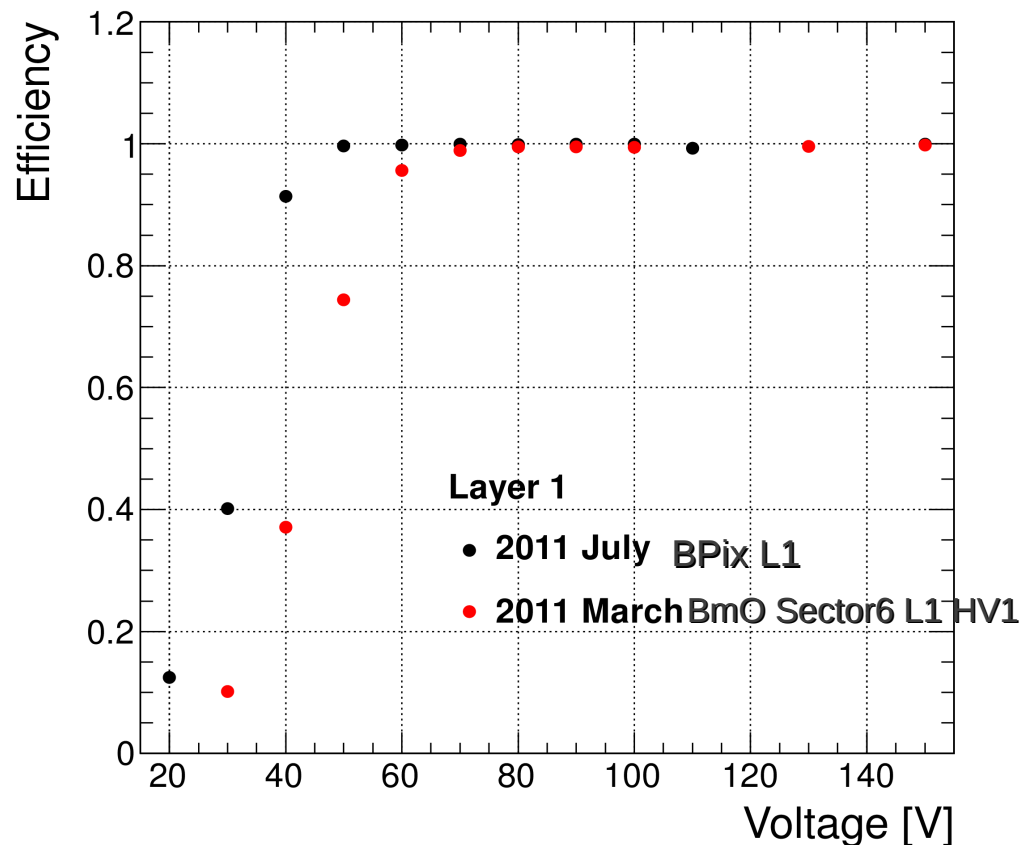
- Overlapping active/inactive module: active still produces valid hits
- Looking at the number of lost tracks per module in a **3x3 matrix of modules (including the inactive one): impact is negligible**

	Tracks in 3x3 module matrix
All	25540
Inactive L1L3M5	25537
Change	0.1 %



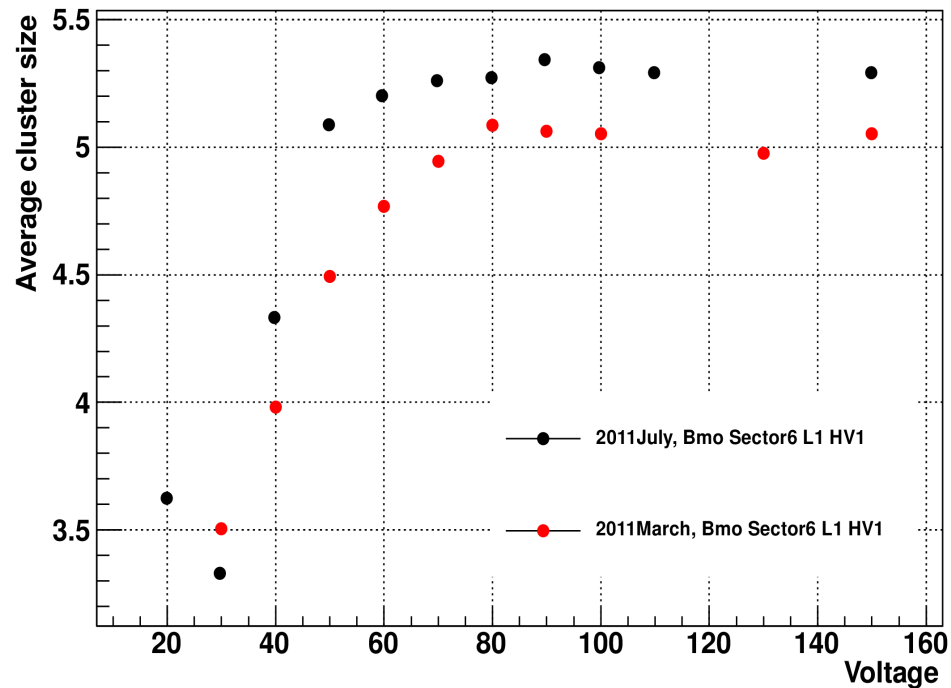
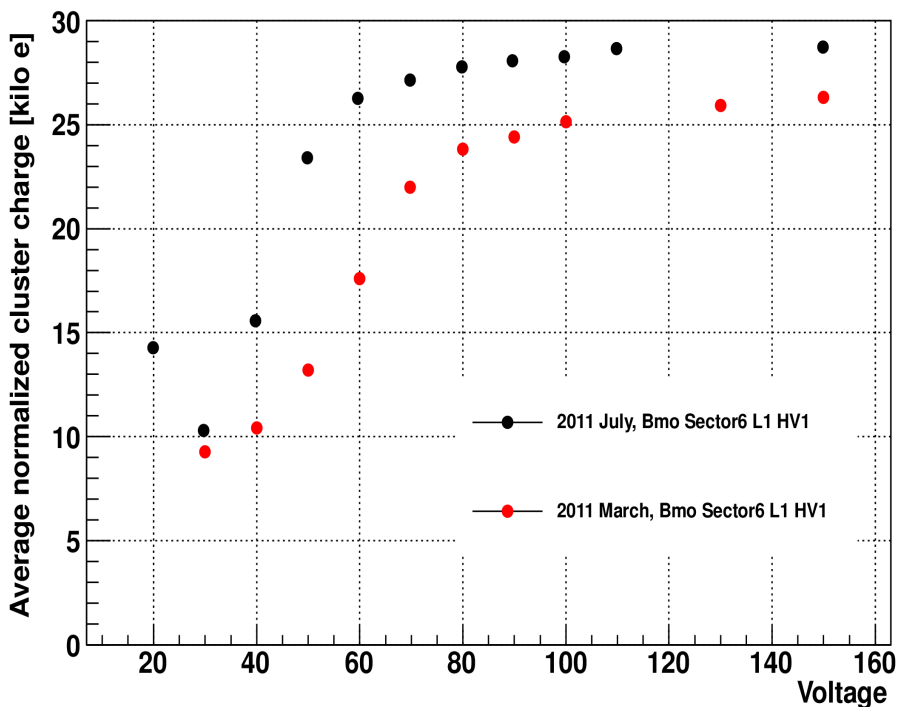
- In EventFilter/SiPixelRawToDigi:
 - No new class/interface, just extending the code
 - Trying to get changes into 4.4
 - Configurable list of errors to include, can be extended to include more errors, efficiency plot suggests to consider that

Quick look at recent HV Bias scan



- 2011 July: Run 170000, /ExpressPhysics/Run2011A-Express-v5/FEVT
- 2011 March: Runs 160431, 160578, 160579, 160819, 160827, 160835
/MinimumBias/Run2011A-PromptReco-v1/RECO

Quick look at recent HV Bias scan

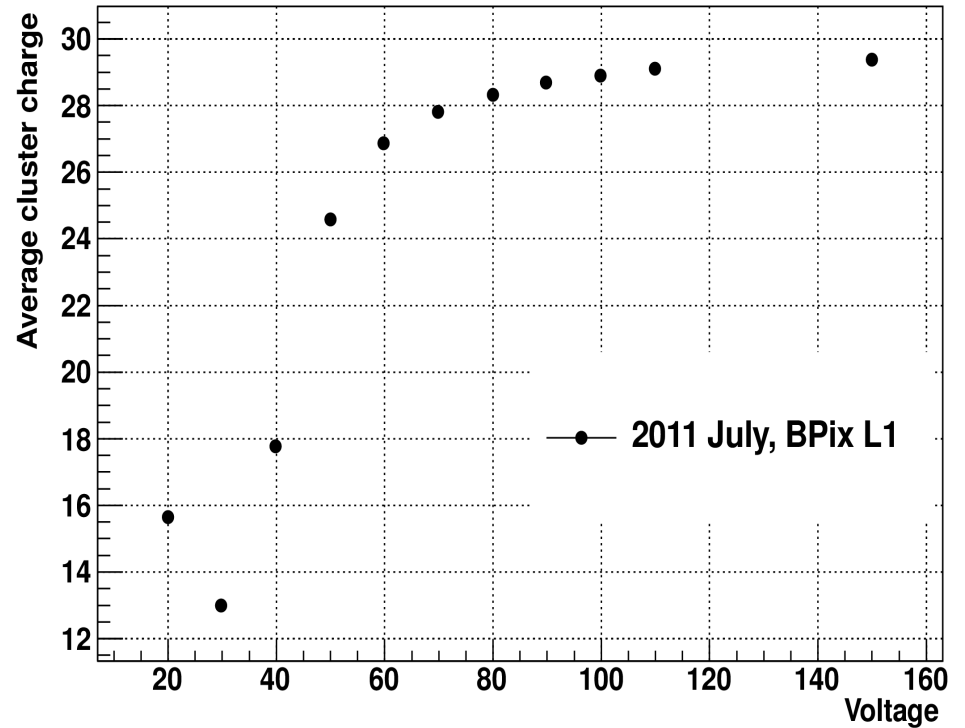
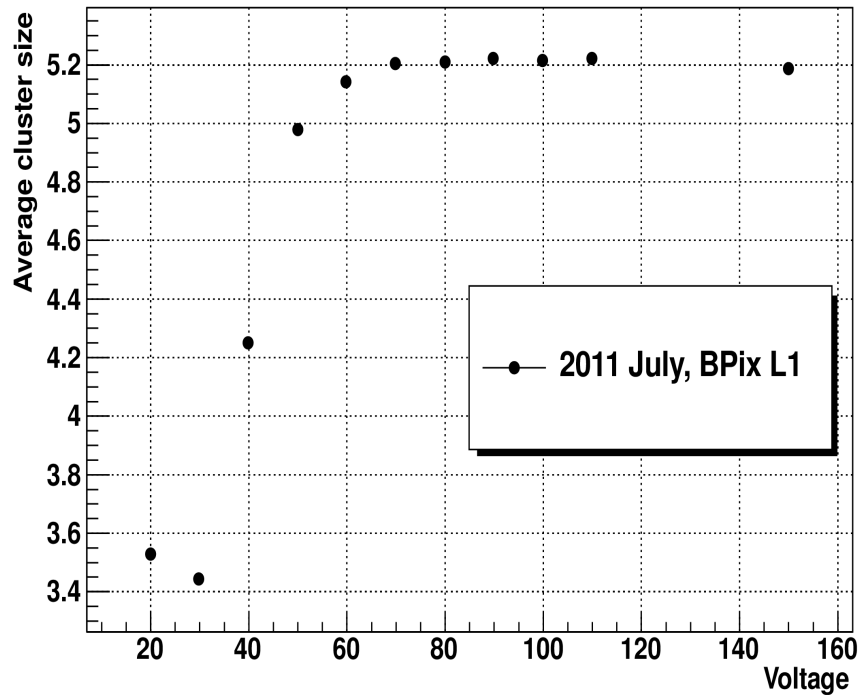


- 2011 July: Run 170000, /ExpressPhysics/Run2011A-Express-v5/FEVT
- 2011 March: Runs 160431, 160578, 160579, 160819, 160827, 160835
/MinimumBias/Run2011A-PromptReco-v1/RECO

Summary

- FedError propagation into tracking:
 - Investigated impact of inactivation: impact is negligible
 - Code implemented and trying to get into 4.4
 - Possibility of configurable list of errors to be included in the DetIdCollection added
- HV Bias scan:
 - Quick look at recent HV scan

Backup slides



- 2011 July: Run 170000, /ExpressPhysics/Run2011A-Express-v5/FEVT
 - 2011 March: Runs 160431, 160578, 160579, 160819, 160827, 160835
- MinimumBias/Run2011A-PromptReco-v1/RECO