

MarlinTPC Activities at DESY

MarlinTPC phone meeting

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- 1 Basic pad based reconstruction chain
- 2 Higher Level reconstruction
- 3 Conditions objects and database

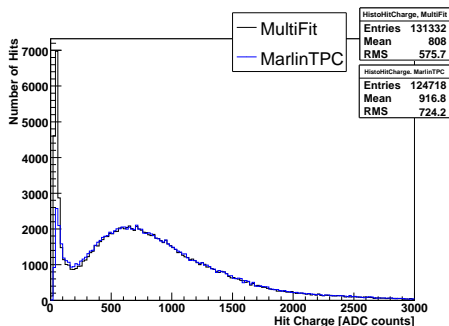
Goal: Understand & Develop MarlinTPC

- Start with known data and reconstruction chain:
 - Cosmics data from MediTPC
 - Compare to established dedicated reconstruction
- Quickly realised that basically nothing worked
- Started to develop and implement basic reconstruction
 - Pedestal calculation & storage
 - (Extensively) Pulse Finding
 - Recent addition: Hit Finding
- Now finally/already at higher level reconstruction (track finding)

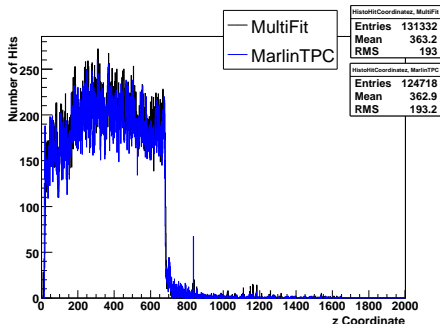
- PulseFinderProcessor
 - The recommended processor for pulse reconstruction
 - Rather complicated processor
 - Very similar structure to MultiFit
 - Heavily tested, further testing always
 - Several options implemented
 - Maybe break into several processors
 - Still uses many processor parameters that are deprecated (until the conditions objects become available)

- RowBasedHitFinderProcessor
 - Recent addition
 - Some testing already done
 - Further testing definitely needed
 - Not complete yet, some parts missing
 - Open issues:
 - Choice of coordinate calculation also influences the error determination

Comparison plots: RowBasedHitFinder



Total charge in a hit (adc units)



Reconstructed z coordinate

Started to look at Track finding algorithms

- Reasonable choice for test beam and cosmics:
Hough transformation
- Existing Processor too limited
- Currently development on making it more robust
- Track model so far: straight line in $r\phi$
- Next steps
 - 1 Extend track model
(circle segment in $r\phi$, straight line in sz)
 - 2 Iterate on stability

Maybe next: look at basic track fitting algorithms (χ^2 , straight line)

Conditions objects and database

- Database layout and computer hardware is currently under review
- Basic list of objects is loosely defined, needs usage (take a look at the forum)
- Takes longer than anticipated (due to lack of manpower)
- Next steps
 - 1 Implement and test the conditions objects
 - 2 Test them with processor code
 - 3 Set up a database system (plus testing)