

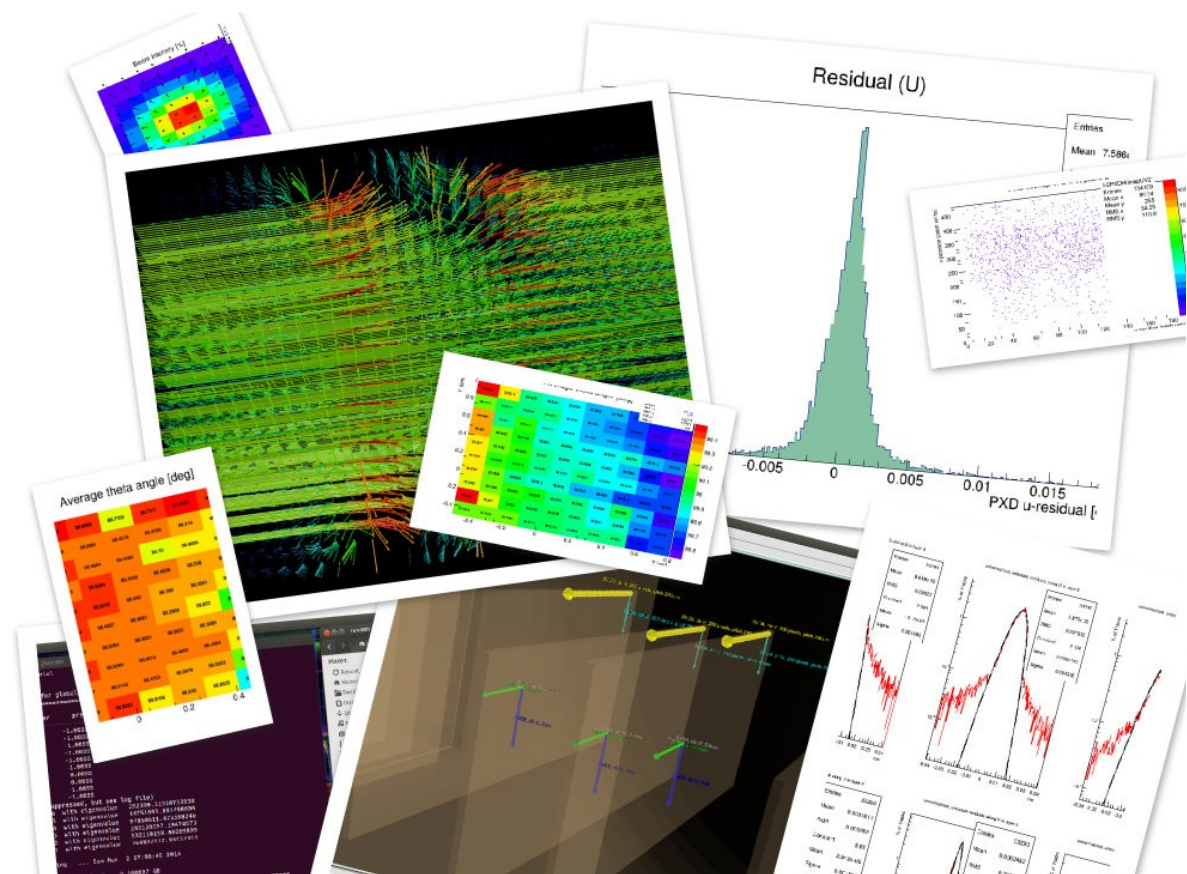
VXD TB Analysis Status

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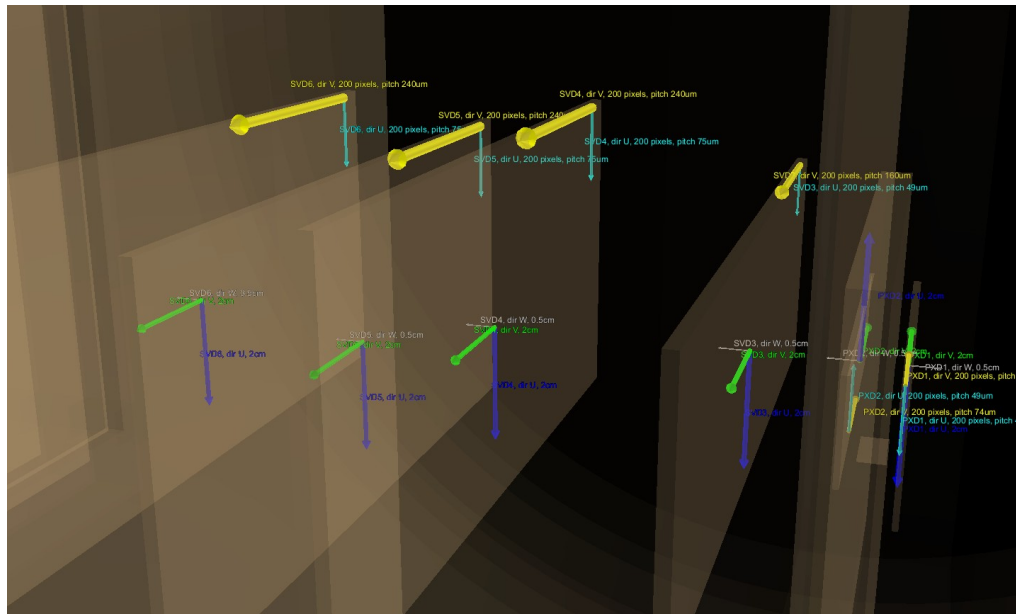


- Geometry
- Data Merging
- Tracking/Alignment



Geometry

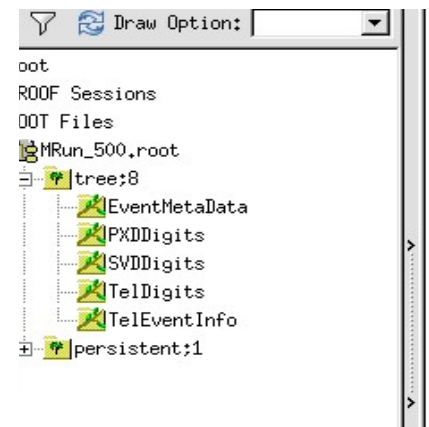
- Local coordinates now in Belle II convention (v in z, u in r-phi)
- Checked: sensor orientation, position, local coordinates, pitch, all global correlations in MC/data
- Nominal geometries in SVN:
 - ***FullTelescopeVXDTB_v1.xml*** for GeoID 0
 - ***FullTelescopeVXDTB_v2.xml*** for GeoID 1
- Check it yourself
 - ***displayTBLocalAxis.py***



Data Merging

- Why?
 - EvenMetaData incompatible with TB data + SeqRoot doesn't support schema evolution
 - Data files contain objects from HLT processing – bad SVD map, lot of tracking stuff
 - To have single files with unpacked data from all detectors (where available)
- How?
 - See ***eutel/examples***
- Result
 - Merged .root files with only:

PXDDigits
SVDDigits
TEL digits
EventMetaData
TelEventInfo



- Where?
 - Prague TB analysis server
ipnp30.troja.mff.cuni.cz

Data Merging

- Data Access
 - ipnp30.troja.mff.cuni.cz
 - /scratch/kodys/tbvxddesy14/merged/data/
 - Ask for Peter Kodys for read-only access
- Data Preview (SVD, PXD, TEL DQMs)
 - /scratch/kodys/tbvxddesy14/merged/dqm
- Correlations
 - All correlations in space-points visible and correct

Statistics

Raw data:

VXD 2.5 TByte

Eudet Tels: 93.4 GByte

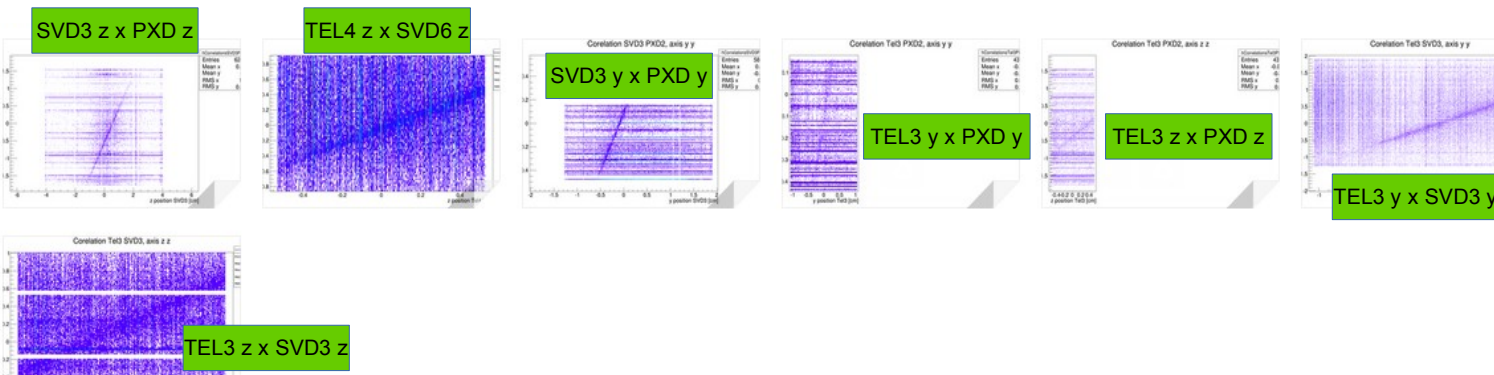
For further processing:

VXD selected: 1.99 TByte

Merged VXD+Tels: 48 GByte

kEvents: kEvents with Tels:

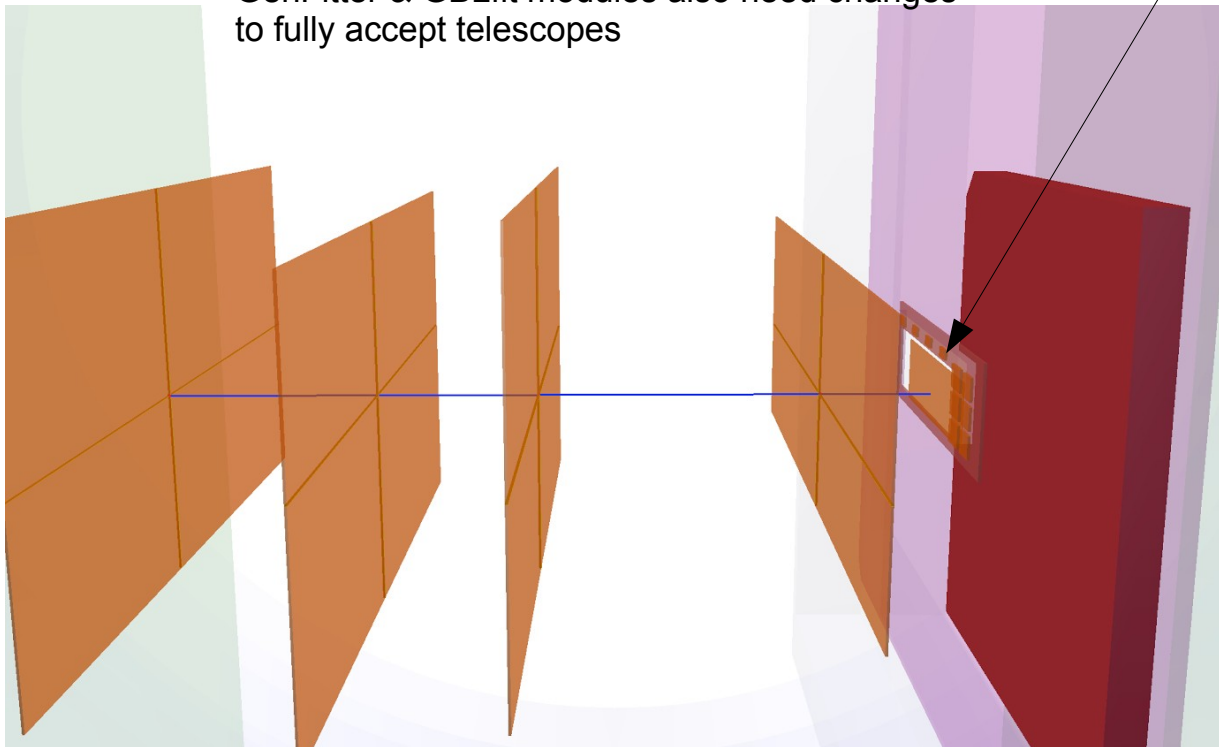
All	18,366	12,449
Magnet 1	2,399	1,482
Magnet 0.5	102	102
Magnet 0.2	313	0
Magnet off	15,553	10,865
Energy 5	1,397	1,376
Energy 4	9,311	5,804
Energy 3	6,455	4,695
Energy 2	605	0
Full track usability	9,434	
Sub-dets usability	7,957	



- Masking now available for PXD, SVD, TELs in respective digit sorters
- First computed masking files from Peter
 - /scratch/kodys/tbvxddesy14/merged/mask/

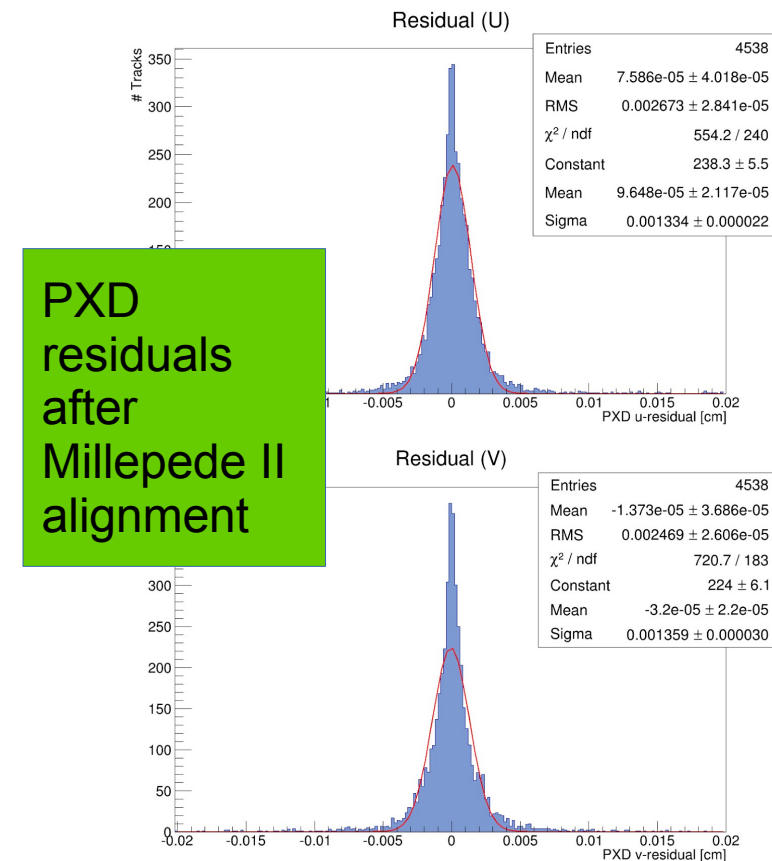
Tracking

- Tracking for VXD needs PXD masking, otherwise number of hits too high for VXDTF
- PXD in around 1% of tracks (in runs I have seen)
- Sectormaps for several configurations (energies + PCMAG ON/OFF) missing in svn
- ? Tracking for telescopes ?**
 - Merged telescope data available
 - VXDTF for telescopes ?
 - GenFitter & GBLfit modules also need changes to fully accept telescopes



Alignment

- Example 3-step alignment chain for quick single run alignment in svn, see testbeam/vxd/examples
 - Digits2Tracks.py & FitForAlignment.py
 - You will need masking, sectormaps, merged digits
 - Get data from ipnp30 or simulate your own using SimulateDigits.py
 - Maybe it won't be such easy because PXD is shifted a lot from nominal position



Prague Plans

- Measurement of Lorentz shift in PXD and SVD
- Measurement of SVD time resolution with 6 APV samples
- Improving data input to alignment
- Start with single run alignment and combine runs if compatible
- Provide such „long-term“ alignment on ipnp30 (like Peter did for masking)
- Once telescopes added, alignment can be significantly improved (alignment ready for telescopes)
- Evaluation of residuals of runs
- Comparison with simulation and validation of simulations
- Subpixel/substrip analysis
- Cluster shape correction validations