LArIAT DAQ Status Update

Observations and Issues:
- Successfully ran full DAQ 1.0 during late summer beam
- Integrated DAQ 1.0 into ArtDaq, ready to "go" (John, Brian) as standard ops for next run
- In general, each individual component (V1740s, V1751, V1495, WUT, W/C TDC) of readout works as expected
  - *Except*, During beam running, WUT's 16 µsec pipeline frequently overflowed at 128 (unphysical) hits
  - In-time wave forms of same TOF signals digitized on V1751 looked OK!
  - Cannot reproduce problem without beam
- Analysis of beam data ongoing (Johnny, Pawel)
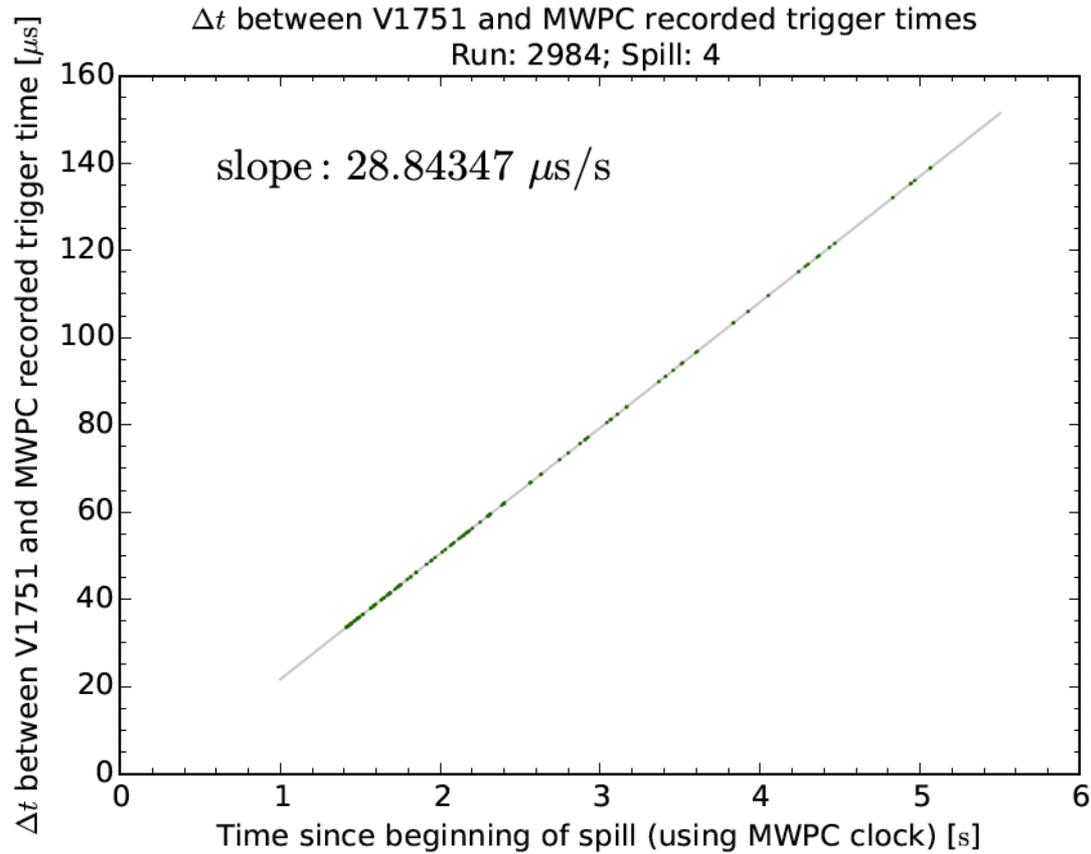- Would benefit from short beam running before holidays

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Correlating Data:
- Remember each readout system has their own clock, and we have fast and slow triggers
- For data to be useful, we must use all components
- Synchronize every spill via reset at $00
- Rely on knowledge of clock frequencies to correlate data
- Results (Johnny) :
  - WUT vs. V1751 identical TOF inputs ~ 1 µsec/sec drift (!)
  - W/C TDC vs. V1751 ~ 28.8 µsec/sec drift (!!)
  - V1740 in progress, more beam would help
- Good news: Correlation is possible
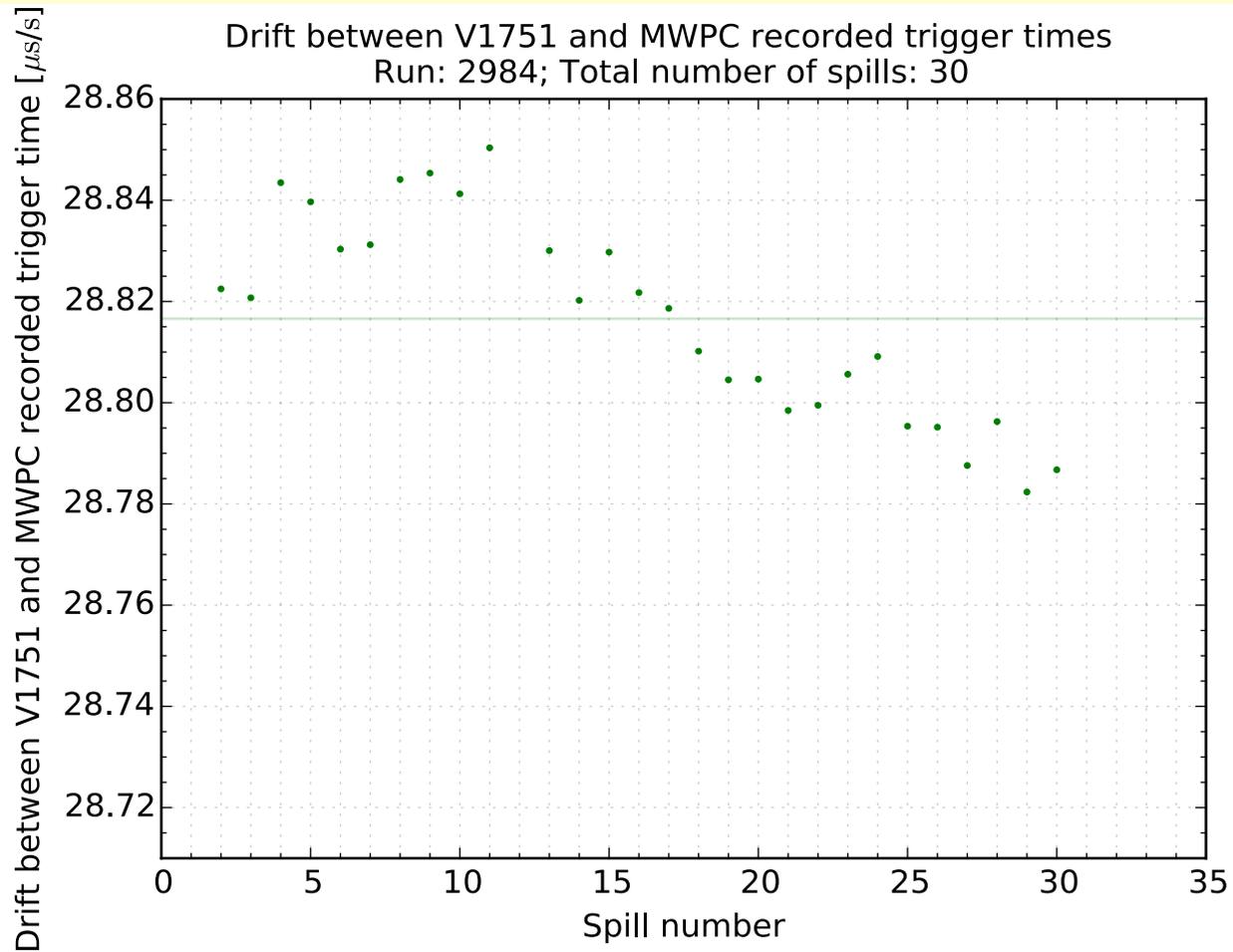- Not as good news: We will have to correct absolute times

Drift During One Spill (~ four seconds)

Run 2984, spill 4

Δt between V1751 and MWPC recorded trigger times
Run: 2984; Spill: 4

slope : 28.84347 μs/s

Spill Drift Over One run – ~30 minutes

Drift between V1751 and MWPC recorded trigger times
Run: 2984; Total number of spills: 30

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Future Plans:
- D2S cards will be housed in separate 6U crate
  - Have ERNI cables finally! (feed V1740s)
  - Need to reärrange DAQ racks to make room
- Randy and Herr Doktor Heilige Johann working on data file handling: SAM book-keeping, long term storage (see previous week talk)
  - Need to store meta-data like DAQ's XML config files
- Data acquisition software mostly complete
- Will incorporate front-end electronics configuration control soon (Jonathan, Andrew)
- Development of online monitoring is ongoing (Pawel, Johnny)
  - Input from experts always a help here