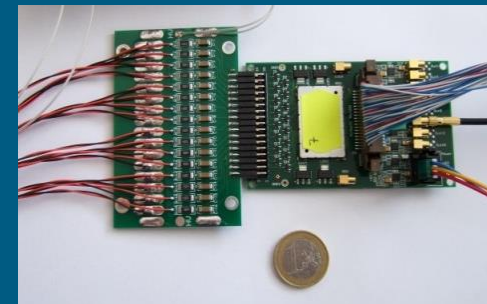
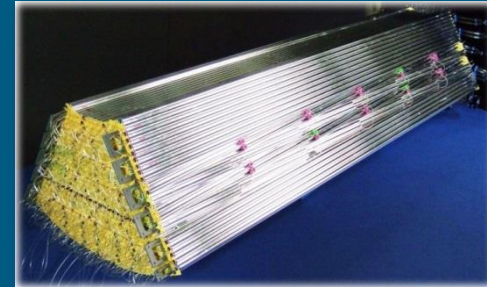


STT Status and News

Peter Wintz | for the STT Group

57. PANDA CM, TRK Session, June-7th 2016



STT Timelines

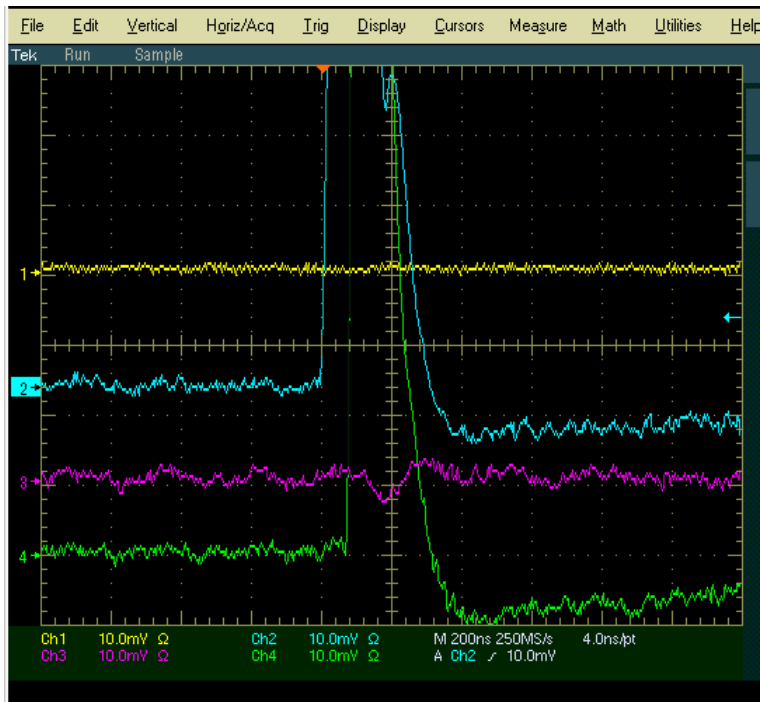
- Beam tests in 2016
 - 1 week proton beam in April 2016, successfully finished
 - 1 week deuteron beam in CW 47 (prelim. date)
 - proton/deuteron separation over large dE/dx range ~1-8× mips
- Readout workshop in Krakow, postpone to Sep/Oct 2016
 - Final results of April 2016 beam time (ASIC/TRB readout)
 - Clearer picture of ADC-based readout system (pre-series)
 - Discuss readout decision criteria
- Decision on final STT readout system by Q2-2017
- STT pre-series system test in Q2-2017

Beam Test in April 2016

- Proton beam (9 days)
 - 4x diff momenta 2.9, 1.0, 0.75, 0.55 GeV/c
 - covered dE/dx range ~ 1-3× mips
- 2x STT straw setups (for 2 readout systems)
 - New straw setup with final PANDA-STT straws and straw quad-layer modules
 - Test of the new mechanical straw-frame alignment scheme
- FT prototype modules
- Additional detectors for beam monitoring, trigger and timing

Readout Beam Tests in April 2016

- Electronic readout tests (2 systems)
- ASIC/TRB readout system (time-over-threshold for dE/dx)
 - (almost) final components (pre-series)
 - stable operation, low / high thresholds \rightarrow dE/dx resolution
 - ~ 30 hits per track on average (inclined setup, 24 straws per layer)
 - exploit dE/dx (or ToT/dx) truncation methods and resolution
 - 144 channels, more channels available now
 - next: add stereo straw module \rightarrow 3D tracking
- ADC-based readout system (pulse sampling for dE/dx)
 - unchanged setup (old readout + 2 testboards with final ADC)
 - decision on roadmap for pre-series system layout soon (in Juelich)



ASIC analog output signals (beam), <5mV noise level (stable)

Straw setup with ASIC front-end boards, straw module alignment at both ends and center

