

STT Agenda 2014

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PANDA Meeting, 11-Mar-2014

Agenda 2014

- Status STT construction, update
- Test systems
- Beam test weeks
 - Schedule
 - Measurements & goals

Straw Series Production

- ~1000 straws produced to date
- Assurance tests for each assembled straw
 - leakage & wire tension measurement
 - losses: ~ 1% rejection
- Safe in-box storage, dust-free
 - rigid protective tube for each straw
- Next steps in parallel: straw layer modules
- (Dot) gluing technique, glue gap size
- Freeze final straw layer-module geometry



Box with assembled and tested straws

Mechanical System

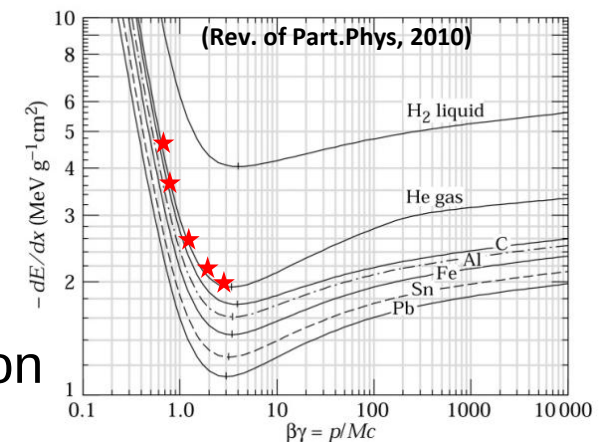
- Integration of detector parts into mech. frame system
 - Straw layer module geometries, mounting structures
 - Front-end electronics, high voltage supply
 - Front-end cabling
 - Front-end gas manifolds and gas supply lines
 - Detector control (sensors)

Readout System

- ToT-ASIC: “PASTTREC” (=PANDA-STT Readout Chip)
 - CMOS 0.35 μ m, 8 ch per chip
 - Chip design finished and order in progress
 - aim for production run in Apr/May
 - Front-end readout boards designed and ordered
 - Aim to be available in late summer (Sep) for beam test
- FADC:
 - setup 128ch version for beam test ongoing
 - direct cabling to straws, thin HV-coax cables
 - all electronics back-end

Beam Times 2014

- **Preliminary** schedule: allocated 3x1 week for STT tests
 - 1 week starting July-21 (cw 30), protons, 3x diff. momenta
 - 1 week starting Sep-22 (cw 39), deuterons, 3x diff. momenta
 - 1 week starting Oct-20 (cw 43), protons, 3x diff. momenta
 - momentum range: 0.6 – 3 GeV/c (p/d), dE/dx range: $\sim 10\times$ mips
- Goals
 - readout with high particle rates
 - cover full dynamical signal range
 - dE/dx reconstruction (non-linear fit curve)
 - pid: proton / deuteron separation power
 - comparable to proton / kaon separation at PANDA with $p < 0.8$ GeV/c



Beam Tests Schedule

- Tight schedule each beam week
- Beam setup times: Mon/Wed/Fri
- Our measurements: Tue/Thu/Weekend
 - Additional tests limited
- Preparation of setups ongoing
 - Two parallel straw setups & readouts
- Cosmic-ray tests ongoing
 - Setup tuning, threshold optimisations..
 - Define standard operation settings (straws, readout)
- Analysis software in progress (Krakov/Juelich/Pavia)



2 Straw setups, beam coming from the back (Big-Karl area @ COSY)