News on the Forward Tracker

- Status of the STS2 station for the Phase-0 at HADES
- Studies of aging with a strong ⁵⁵Fe source
- Tests of tracking with 8 modules at COSY (beam time in Febr. 2019) – next talk by Akshay Malige



JERZY SMYRSKI JAGIELLONIAN UNIVERSITY, KRAKOW, POLAND



PANDA MEETING

Status of the STS2 station for the Phase-O at HADES

- All 32 modules ready, tests of modules are going on
- The frames ready
- The entire STS2 will be assembled and tested in Krakow in July
- Installation at HADES foreseen for September

0°, 90° +45°, -45°



Accumulated charges in the FT straws



In 10 years of data taking in the high luminosity mode at 15 GeV/c, Q/l < 1 C/cm for x > 40 cm

Simulations with DPM:

- pbar momentum: 15 GeV/c
- interaction rate: 2x10⁷ 1/s

Straw operating conditions

- gas mixture: Ar:CO₂ (90:10)
- gas gain: 5x10⁴

Collimator of ⁵⁵Fe source

• 4 straws irradiated, each on a length of 5 cm





PANDA MEETING

Measurements

Operating conditions:

- Gas mixture: Ar+CO₂ (90:10) at 2 bar
- HV: 1850 V, gas gain: ~5×10⁴

Irradiation:

- Period: 44 days
- Accumulated charge: 0.36 C/cm

Measured:

- Rate: \sim 300 kHz/straw (\sim 60 kHz/cm) registered with the TRB
- Current: ~ 500 nA/straw monitored with precision of 0.1 nA
- Amplitude of pulses: monitored with a scope
- Amplitude of pulses as a function the position along the straw was measured for accumulated charges: 0.0, 0.085, 0.194 and 0.36 C/cm

Amplitude spectrum



Amplitude vs. coordinate along straw

New (Q/I = 0 C/cm)Irradiated (Q/I = 0.36 C/cm)V 4 0.33 Straw-1 Amplitude [V] + Straw-1 0.33 + Straw-2 Straw-2 + Straw-3 Irradiated region 0.32 - Straw-3 Straw-4 - Straw-4 5 cm 0.31 0.31 0.3 0.3 0.29 0.29 0.28 0.28 50 mV 0.27 0.27 ~20 % 0.26 0.26 0.25 0.25 0.24 0.24 10 20 10 12 14 16 18 20 12 16 18 14 Position [cm] Position [cm]

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Irradiated straw material (aluminized Mylar)



Anode wire (gold-plated tungsten)

New



Irradiated



PANDA MEETING

- Deposits on the irradiated wires and on the Mylar foil has been scanned using the TOF-SIMS (Time Of Flight Secondary Ion Mass Spectrometry).
- The mass spectra will be available soon.
- Identification of the deposits will be the basis for further aging measurements