

## Minutes of the Tracking Session on March 10<sup>th</sup>, 2020

Presentation slides can be downloaded from the tracking session indico page (<https://indico.gsi.de/event/10177/>)

Topics of the session were:

- News on the Forward Tracker by Jerzy Smyrski (JUK)
- Status of the STT by Peter Wintz (FZJ)
- Update on the testbeam data analysis by Gabriela Perez Andrade (FZJ)
- Tracking issues of the STT by Peter Wintz (FZJ)

Jerzy reported the status of the new STS2 straw tracker station for the Phase 0 experiment at HADES. The installation of the detector including the gas supply system and readout integration into the HADES data acquisition system was successfully completed last month. The gas system was built and set up by the IFJ PAN Krakow group. Then Jerzy presented results of straw aging tests performed with a <sup>55</sup>Fe radioactive source in Krakow, showing a gas gain drop of about 20% for the irradiated wire region. Found deposits on the wire and inner mylar film were investigated by a TOF-SIMS analysis (Time Of Flight – Secondary Ion Mass Spectrometry). Further dedicated tests to identify the source causing the aging effect (e.g. from organic compounds in the epoxy adhesive) have been started.

Peter gave an update of the status for the STT system. The in-kind contract for the combined STT and FT readout system is concluded and budget is available now (contact person Marek Idzik, AGH Krakow). Together with the HADES group further developments and improvements of components (front-end board, next generation TRB readout board) are investigated. Then, the status of the new straw station STS1 for the phase 0 experiment phase at HADES was shown. The set up and pre-tests of the complete system are currently going on in Julich. The installation of the system at HADES is foreseen in the beginning of May and a test beam time is scheduled for early June.

Gabriela presented the calibration scheme for the STT, which was developed using the data from the in-beam STT test campaign carried out in 2018 at COSY. The calibration steps include the straw tube positioning, correction of a wire displacement and parametrization of the space-drift time relation. A common, so-called “global” calibration procedure for all tubes was found to be sufficient, which is independent on the specific particle energy-loss and simplifies the procedure. The obtained spatial resolution is in the range 100-125  $\mu\text{m}$  ( $\sigma$ ), far better than the design goal of 150  $\mu\text{m}$ .

The last presentation was about STT related tracking issues in PANDA and given by Peter. Topics were the specific detector response information which should be included into the PANDA-Root simulation and analysis. The methods how to include and simulate the hit information for the STT were discussed and can be derived from the current testbeam data analysis and results. Then a method how to start tracking in the STT without knowledge of a reference time and the exact drift time information was shown and discussed.