Minutes of WP-meeting 376

Attendance:
Zoom: Paul Colas, Ralf Diener, Ulrich Einhaus, Jochen Kaminski, Claus Kleinwort, Paul Malek, Shinya Narita, Huirong Qi, Oliver Schäfer, Ron Settles, Jan Timmermans

General News:
Jochen mentioned that Huirong was accepted for an oral presentation at the IEEE-NSS/MIC this year. He has also submitted an abstract for the ECFA future Higgs/top factories-Workshop at DESY at the beginning of October. During the open session of the 110th plenary ECFA meeting last Friday, the implementation of the Detector R&D Road Map was discussed. But only a rough summary of the 'Physics, Experiment & Detectors Studies towards a Higgs/EW/top factory' was given. The WG3 Detector (R&D) was summarized by Giovanni Marchiori. From this a discussion on the further position of LCTPC in the general ECFA Detector Road Map process arose.
It was mentioned, that the ILC was rated as a high priority project during the Snowmass meeting at Seatle last week. There was also a presentation on the European Detector R&D process.

PCMAG/LP setup, test beam:
Ralf: Test beam schedule:

- Ralf mentioned, there is one group in the PCMAG now, but it is not a gaseous detector group.

News from the groups:
Jan gave a summary of the trigger time jitter issue, which is now largely understood. He showed the relevant part of the setup in pictures. Then he showed the steps how the reason for the trigger time jitter was identified. For this, Jan first compared the recorded trigger time differences between corresponding triggers in the Timepix3 readout (Spidr) and by the TLU. Initially (after shifting and rescaling) he observed a difference of up to 600 ns. The two trigger time distributions however were very similar, therefore he looked at the trigger time difference between two consecutive triggers in both systems and took their difference. After eliminating triggers from different bunch turns, the resulting distribution had an r.m.s. of 11.2 ns, which would correspond to a single trigger time of 7.9 ns (11.2/√(2)) if caused by TPX3/Spidr, thus larger than the 7ns jitter observed in the analysis by Peter Kluit of the detector drift coordinate, when compared to the beam telescope track. Jan also observed a small slope(/shift) in the mean time differences with longer trigger time differences (due to the order 10^{-6} 40 MHz clock time scale differences in TPX3/Spidr and TLU). Individual time slices show a somewhat smaller width of about 10.5 ns. Finally, after consultation with the TLU expert, it was confirmed that the trigger signal output from the TLU (which was used as input to the TPX3/Spidr system), was synchronized with the 40 MHz TLU clock, thus introducing a jitter on the recorded TPX3/Spidr trigger time of 7.2 ns (25ns/√(12)).

Paul said that the paperwork for Jurina Nakajima's stay in Saclay is proceeding. For the work on the paper Paul has contacted Tomohisa Ogawa to clarify some open questions, but since Tomohsia has changed the job and now working for a company, he had little time.

Huirong reported on three issues. At Beijing he studied the formation of ion discs by covering the cathode with an aluminum grid and shining with the UV-laser on it. He has demonstrated a very high and stable electron current extracted from a mesh with 1200 LPI, while lower number e.g. 800 LPI and

in particular 400 LPI showed no stable currents. Also polishing with different surface roughnesses seem to have an impact. Next week, the Chinese High Energy Physics group will be opened the annual Chinese High Energy Physics conference (named CHEP2022). In this meeting , the next strategy of the next e^+e^- collider project plan (CEPC and super tau/charm factory) will be discussed again. This discussion will be the basis for the funding agency to decide on the next 5-years funding plan.
In July, the INFN-Frascati drift chamber R&D group has done a two weeks test beam using muons and pions at CERN. The analysis has just started, but at first glance, the the dN/dx test seems better than at a previous beam text last year.

AOB:
The next workpackage meeting will take place on August 11th.