

Minutes of WP-meeting 391

Attendance:

Zoom: Paul Colas, Ralf Diener, Ulrich Einhaus, Serguei Ganjour, Jochen Kaminski, Shinya Narita, Huirong Qi, Oliver Schäfer, Ron Settles, Jan Timmermans, Maxim Titov, Mingrui Zhao

General News:

Jochen mentioned that the first documents for the DRD1 proposal are now being finished and will be discussed with the community. At the current stage working groups are asked to write a ~4 page document summarizing the survey and the community meeting discussion at the beginning of March. As an example Jochen as linked the document of working group 5 (electronics) to the agenda and people are asked to read and comment on it. One comment was to include also the Brazilian group, that developed the SAMPA chip and is now developing the successor SALSA ASIC. A prototype has been submitted to the foundry and is expected to be produced in a few months. It is not a pure TPC ASIC anymore, but is also interesting for planar detectors and is planned to be used at the EIC. Paul also added the contribution of DRD1 – WG1.

Maxim said that the abstracts were submitted to the LCWS and TIPP conference. Huirong will give the talk at TIPP, but we are still looking for someone to give the presentation at the LCWS.

PCMAG/LP setup, test beam:

Ralf : PCMAG/TRACI/test beam area:

- It has been started to replace the old EUDET telescopes with new ALPIDE telescopes

Test beam schedule:

- All Covid restrictions and recommendations have been canceled now and operation is as before the pandemia.

News from the groups:

Huirong showed slides on the MDI of the CEPC-Tera-Z running. He discussed the different sources of the background: primary beam, beamstrahlung photons, e^+e^- and $\mu^+\mu^-$ pairs and hadrons from beamstrahlung. At the CEPC currently 2 interaction points with a crossing angle of 33 mrad are foreseen. The effects of the beam related backgrounds were simulated by Daniel Jeans for an ILD-like TPC, by Andrea Ciarna for an FCCee-like TPC and by Haoyu and Mingrui for a CEPC-like TPC. In all cases a $B=2$ T ($B=3$ T for Mingrui's study) was assumed and no Anti-DID nor masks were included. It was found, that the largest energy loss stems from beamstrahlung and most of it goes into the machine, of which several parts could be damaged. But also many pairs are produced and sent into the TPC, which suffers from the large amount of ions and consequently from track distortions. In total a 50 times higher ion density is expected from the background than from physics events at the Z-peak. After the presentation a longer discussion followed, if the background is due to Bremsstrahlung at remaining air molecules in the beam pipe or beamstrahlung. Beamstrahlung depends on the beam size at the intraction point. The standard beam size at the CEPC is several 100 μm , but at the interaction point it is focussed down to 6 μm in the x-direction and 35 nm in y. This is small enough that a significant amount of energy is lost by beamstrahlung.

Paul said there will be a meeting soon to prepare the proposal for a follow up of the French-Japanese Lab. It will be mostly in Tokyo Tokyo, in Women's University Ochanomizu and also at KEK and Iwate

University (Morioka). The T2K preparations are in full sewing. A test of the first TPC will be done for 2-3 weeks at the cosmics test stand at CERN starting this week. The construction of the remaining 3 TPCs is ongoing. The transport to Japan is being organized now. They will be pressurized and then transported by an airplane. But the pressure will be regulated to a constant overpressure during the flight.

Ralf reported that Ole and Volker have finished the second field cage. There were some slight issues with the second last layer, which consisted of thin aluminized Mylar foil. They could not avoid some small air bubbles. The last layer is a kapton foil for protection. The second field cage has been take from the mandrel. Now the HV stability will be tested up to 30 kV and then a survey will be done, if the mechanical accuracy meets the specifications.

AOB:

The next workpackage meeting will take place on April 27th.