Minutes of WP-meeting 370

Attendance:
Zoom: Paul Colas, Serguei Ganjour, Jochen Kaminski, Claus Kleinwort, Shinya Narita, Huirong Qi, Ron Settles, Jan Timmermans

General News:
Jochen reported that he had given the TPC presentation in the ILD strategy discussion on 19.4. Paul then summarized the discussion of the ILD strategy meeting on 20.4., where the open issues for a TPC application at CEPC and FCCee were discussed. It was pointed out, that the dE/dx capability of the TPC is a very important strong point, in particular also for the Tera-Z running. On the other hand the large amount of primary ions would lead to field distortions, even if secondary ions could be suppressed completely. To estimate the effect of the ions a robust estimate of the background and track number is necessary Also the performance at B= 2T has to be simulated. Answering a question by Huironq Keisuke reminded that there was a study, which showed that an increased inner radius would not reduce the track distortions as the mirror charges induced at the inner field cage still exist.
Paul mentioned, that a background study for the FCCee exists. It was done by Emmanuel Perez and was published. The background files could be downloaded and used for a simulation similar to the one by Adrian Vogel. Serguei pointed out, that there will be not two different trackers, so we have to prove, that we can run at the Z-pole, otherwise a different tracker will be used.

News from the groups:
Jan showed three slides updating his presentation during WPmtg368. Back then several numbers were questionable, as they differed in several presentations or did not agree with other sources. Therefore, Jan investigated these numbers more carefully and came up with a more reliable estimation of primary ion density at the CEPC or FCCee Tera-Z running. He now estimates the average density to 1600 ions/cm³ resulting in track distortions up to 750 µm. Jochen asked about the ion density in ALICE. In a presentation from 2015 an ion densities of 20-130 fC/cm³ was assumed (also in Master thesis of Ernst Hellbär from University of Frankfurt: “Ion Movement and Space-Charge Distortions in the ALICE TPC”) . Ron uploaded a set of slides by Werner Wiedenmann who did the track correction throughout the complete running of ALEPH. In these slides Werner explains in detail the corrections procedure. The precision was 150µm and acchieved by using $Z \rightarrow \mu\mu$ events. In our case the SIT and SET must be used in addition.

AOB:
The next workpackage meeting will take place on May 5th. The discussion will be on the common module.