Minutes for the Taskforce Meeting on CERN Testbeam Data (Dec. 8, 2022, 14:00~15:40)

- Indico page: https://indico.ihep.ac.cn/event/18496/ (https://indico.ihep.ac.cn/event/18496/)

- Minutes: created by Yong; modified by ...

- Participants (12): Baohua, Dejing(?), Francois, Hengyu, Jiaxuan, Manqi, Siyuan, Tatsuki, Xin, Yong, Yukun, Yuzhi

- General news

  - Consensus on the strategies of TB data preparations
  - Two ways working in parallel
    - Short term: Binary -> ROOT for quick data checks and calibrations
      - Same treatment procedures for MC samples
    - Mid/long term: Binary (-> ROOT) -> LCIO for more decent data treatments in the CEPC software framework
      - Data after calibrations will be converted into LCIO (calibrations of pedestals, temperatures, MIP, HG/LG, etc.)

- Status/progress

  - Yuzhi&Hengyu: event display using Druid with a few positron (20GeV) events in ECAL
    - Color coding (rainbow scale) implemented for different hit energy depositions (MIP scale)
    - Noticeable contaminations of hadronic showers in ECAL
  - Yukun: prepared a draft list of the ROOT data format (TTree) after calibrations
  - Siyuan
    - Event display of selected events to check the event synchronisation of in ECAL and HCAL
    - Observed that triggerID is not the same for ECAL and HCAL events after synchronisation: with a triggerID offset of 1
    - Not conclusive on the issue whether this triggerID offset is constant for all events -> needs further investigations (2 aspects: electronics and TB data)
  - Further discussions on the triggerID offset issue
    - Muon data sets can be used to check whether the triggerID offset distributions
    - (1) Predefine a (relatively large) triggerID window

- (2) Events are synchronised if the triggerIDs for ECAL and HCAL are in the window.
- (3) Plot the difference of trigger ID for ECAL and HCAL at event level -> Check the distributions at the run level
- Francois: made some progress on the direct raw->LCIO conversion (parsing the binary data and store them accordingly in classes in LCIO)

- Action items

  - Yuzhi, Hengyu and Siyuan
    - Use the same data sets (small) to check the consistency of Druid and TB event display
  - Jiaxuan and Yukun
    - Prepare small data sets (mu,e+,pi+) for the above consistency check
  - Yukun
    - Will send around a list of the ROOT data format
  - TriggerID issue on ECAL/HCAL event synchronisation
    - Francois and Tatsuki will have offline discussions and check the muon data
    - Electronics experts will investigate and try to find possible reasons
  - Francois
    - Will continue to work on the direct binary->LCIO conversion