Contribution ID: **13** Type: **not specified**

Developments for Real Time Reconstruction of PbPb collisions in LHCb Run3 trigger

Wednesday 2 October 2024 15:25 (25 minutes)

The LHCb experiment has proved its huge potential in the field of heavy ion collisions. However, PbPb collisions produce a high occupancy regime which is not only challenging at hardware level, also at software level. In order to keep the high quality track and PID reconstructions shown in pp collisions, some modifications to LHCb HLT2 trigger reconstruction are needed, especially regarding the ghost track rejection. In addition, some limitations at long track reconstruction appear at high multiplicity events, so new tracking alternatives are required. In this context, two tasks are being performed:
- Training of Neuronal-Networks for ghost track rejection, with which the ghost track rate is expected to be reduced without significant efficiency loss
- Development of a new tracking algorithm al CPU of matching between Upstream Tracks and the muon system for dimuon decays reconstruction, which can be used for trigger lines regarding tracking efficiency tables for PbPb
Both tasks are being prepared for the next PbPb data-taken in November 2024 and are expected to improve significately the performance compared to the previous heavy ion runs.

Author: CAMBON BOUZAS, Ivan (Universidade de Santiago de Compostela (ES))

Presenter: CAMBON BOUZAS, Ivan (Universidade de Santiago de Compostela (ES))

Session Classification: Session B