



Contribution ID: 482

Type: Poster

First results with Muon Forward Tracker in pilot pp collisions at LHC-ALICE

Friday 8 April 2022 14:04 (4 minutes)

In the ALICE experiment at LHC (CERN), the experimental study of quark gluon plasma with the world's highest energy heavy ion collisions is being conducted for many years. From the LHC Run 3, a new silicon pixel detector, the Muon Forward Tracker (MFT), is installed in front of the muon spectrometer in order to improve the muon tracking in the forward rapidity region. The MFT is made of 5 double-sided disks, concentric with the beam pipe, on which almost 1000 CMOS pixel chips are installed. In addition, a new data computing system called O2 (Online-Offline) is introduced in ALICE to allow synchronous data acquisition and reconstruction from continuous readout, together with asynchronous treatment of the data. The control of the ALICE detector, including MFT, is based on the SCADA (Supervisory Control and Data Acquisition) system integrated into O2. The finite state machine, a hierarchical logical model, is employed for a comprehensive operation to control the MFT. In addition, the interlock system automatically responds to the abnormal state of the detector to ensure a safe operation.

In October 2021, pilot pp collisions were performed in the LHC after the Long Shutdown 2 period. It was the first data acquisition of pp collisions by MFT, and it lasted for five days with a total run time of 28 hours. The detector operation and data processing were tested through the pilot run. Raw data were read out continuously with the frequency of 200 kHz during pilot collisions, and data processing with O2 was commissioned. The data masking based on the noisy pixels and the time duration without physics signals was performed. Processed data were sampled to check the calibration and reconstruction behave as expected. From the hit information, charged-particle tracks were reconstructed, and it succeeded in showing the tracks on the event display. Some data analysis based on the acquired data is already ongoing.

This poster will report the result of the first data acquisition with MFT in pilot pp collisions.

Primary author: OYA, Motomi (Hiroshima University (JP))

Presenter: OYA, Motomi (Hiroshima University (JP))

Session Classification: Poster Session 3 T15_1

Track Classification: Future facilities and new instrumentation