



Contribution ID: 601

Type: **Plenary**

ALICE continuous readout and data reduction strategy for Run3

Tuesday 5 November 2019 09:30 (30 minutes)

The ALICE experiment has originally been designed as a relatively low-rate experiment, in particular given the limitations of the Time Projection Chamber (TPC) readout system using MWPCs. This will not be the case anymore for LHC Run 3 scheduled to start in 2021.

After the LS2 upgrades, including a new silicon tracker and a GEM-based readout for the TPC, ALICE will operate at a peak Pb-Pb collision rate of 50 kHz.

To cope with this rate at least the TPC will be operated in continuous mode and all collisions will be read out, compressed and written to permanent storage without any trigger selection.

The First Level Processing (FLP) site will receive continuous raw data at the rate of 3.4 TB/s and send to Event Processing Nodes (EPN) 10-20 ms packets at a rate of about 640 GB/s.

EPNs will perform the data reconstruction and compression in a quasi-streaming and will send them for archival at the rate of 100 GB/s.

Here we present the details of this synchronous stage of ALICE data processing.

Consider for promotion

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Session Classification: Plenary