

Initial development of a control system for the FDD detector in the ALICE experiment for operation on LHC Run-3

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Content

The selection of diffraction events in ALICE is limited by the range over which speed gaps could be detected. Thus, it is possible to achieve better measurements by extending the range of directions in which the production of particles (or their absence) can be detected. The study of diffractive events with ALICE experiment of the Large Hadron Collider (LHC) in proton-proton (pp), lead-lead (Pb-Pb), and proton-lead (p-Pb) collisions could improve its efficiency with the installation of the FDD (Fast Interaction Trigger Diffractive) detector for Run-3, since such detector will increase the time resolution compared to AD (ALICE diffractive) detector used in Run-2. The proposal of this work is the initial development of a control system (DCS, Detector Control System) for the new FDD detector and its integration in the ALICE experiment, according to the rules of the new Online-Offline (O2) infrastructure for Run-3 of the LHC, by using the SCADA system (Supervisory Control and Data Acquisition) called WinCC-OA. This proposal will allow the DCS of FDD detector to have an optimal performance in the physical data acquisition runs, mainly. This performance can be quantitatively assessed by estimating and comparing the parameters such as: number and duration of runs, Data Taking Efficiency (DTE), End Of Runs (EOR) and Pause And Reconfiguration (PAR); with respect to the other detectors and systems of the experiment.

Primary author(s) : Mr. MEJIA CAMACHO, Juan Manuel (National Technological of Mexico); Mr. CABANILLAS NORIS, Juan Carlos (TecNM-IT Culiacán); Dr. LEÓN MONZÓN, Ildefonso (Universidad Autónoma de Sinaloa); Dr. MARTÍNEZ HERNÁNDEZ, Mario Iván (Facultad de Ciencias Físico Matemáticas - BUAP)

Presenter(s) : Mr. MEJIA CAMACHO, Juan Manuel (National Technological of Mexico)

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