

ALICE Muon Tracking Chambers low-voltage system upgrade

Friday 1 February 2019 09:20 (20 minutes)

The low-voltage power supply system upgrade project primarily focuses on the requirements of the new Front-end Electronics (FEE) along with vital power distribution considerations to achieve a robust and effective low-voltage power supply system for the new FEE. The new FEE (DualSAMPa and SOLAR) are designed to have a much higher power consumption compared to the present FEE. For this purpose, the present low-voltage power system needed to be re-evaluated and thereby undergo an upgrade to meet the power needs for the smooth operation of the ALICE MCH electronics. The DualSAMPa itself requires close to double the power at a much lower voltage of 1.25V while the SOLAR will require additional low-voltage power supplies (LVPS) to meet the new capacity. Various solutions for the low-voltage system upgrade were investigated – DCDC converters that would sustain in the high magnetic field and radiation environment, modification of the current LVPS from Wiener, splitting of low-voltage lines to the FEE into smaller factions and a combination of these solutions. In order to meet the time-frames for the Long Shutdown 2 (LS2), the most efficient and effective solution was to have the present LVPS modified along with notable power distribution considerations and this will be presented in detail.

Author: Mr KURIAKOSE, Rony (iThemba LABS, National Research Foundation)

Presenter: Mr KURIAKOSE, Rony (iThemba LABS, National Research Foundation)

Session Classification: Session V