Contribution ID: **10** Type: **not specified**

Quality Assurance/Quality Control of the LGAD sensors for CMS ETL

Tuesday, 20 February 2024 11:35 (20 minutes)

The CMS experiment will be upgraded with a MIP Timing Detector (MTD) for the High-Luminosity phase of the LHC (HL-LHC). The precise timing provided by MTD will help mitigate the effects of the challenging pile-up conditions expected at the High-Luminosity LHC and extend the physics reach of the experiment. The Endcap Timing Layer (ETL) will instrument the forward region of the MTD detector, covering the pseudorapidity range 1.6 < |eta| < 3.

ETL will be made of Low-Gain Avalanche Diodes (LGADs) coupled to the Endcap Timing Read Out Chip (ETROC). The first batch of production LGADs is expected in 2025. This talk will present the plans for the Quality Assurance & Control (QAQC) of the LGADs at the vendor sites. I will discuss in detail the LGAD testing plans, describing measurement methods and the needed instrumentation, then I will report on the results obtained from the prototype LGADs (with an almost final design) used to validate the procedure.

Primary author: SIVIERO, Federico (Istituto Nazionale di Fisica Nucleare)

Presenter: SIVIERO, Federico (Istituto Nazionale di Fisica Nucleare)

Session Classification: System 2