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LUCID: ATLAS Luminosity Detector

The LUCID detector is the main luminosity provider of the ATLAS experiment and the only one able to provide a reliable luminosity determination in all beam configurations, luminosity ranges and at bunch-crossing level. LUCID was entirely redesigned in preparation for Run 2: both the detector and the electronics were upgraded in order to cope with the challenging conditions expected at the LHC center of mass energy of 13 TeV and with 25 ns bunch-spacing. An innovative calibration system based on radioactive ^{207}Bi sources deposited on the quartz window of the readout photomultipliers was implemented, resulting in the ability to control the detectors long time stability at few percent level.

A description of the detector and its readout electronics will be given as well as preliminary results on the ATLAS luminosity measurement and related systematic uncertainties.

Experimental Collaboration

ATLAS

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