



ID contributo: 24

Tipo: **invited talk**

The ALICE Pixel Detector Upgrade

The ALICE experiment at the CERN LHC is designed to study the physics of strongly interacting matter, and in particular the properties of the Quark-Gluon Plasma, using proton-proton, proton-nucleus and nucleus-nucleus collisions. The ALICE Collaboration is preparing a major upgrade of the experimental apparatus to be installed during the second long LHC shutdown in 2019-2020. A key element of the ALICE upgrade is the new, ultra-light, high-resolution Inner Tracking System. With respect to the current detector, the new ITS will significantly enhance the pointing resolution, the tracking efficiency at low transverse momenta, and the read-out rate capabilities. This will be obtained by seven concentric detector layers based on a Monolithic Active Pixel Sensors with a pixel pitch of about $30\mu\text{m}\times 30\mu\text{m}$. A key feature of the new ITS, which is optimised for high tracking accuracy at low transverse momenta, is the very low material budget of 0.3% X_0 per layer for the innermost three layers. This contribution presents the design goals and layout of the upgraded ALICE ITS, summarises the R&D activities focussing on the technical implementation of the main detector components, and the projected detector and physics performance.

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