

Upgraded Inner Tracking System for ALICE at the LHC: Status and Plans

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ALICE has demonstrated its excellent capabilities in measurements of pp, p-Pb and Pb-Pb collisions at various energies during all years of the LHC operation. In view of new long-term physics goals that could be reached following upgrades in 2019-2020 shutdown, one of the most challenging tasks is to improve the ALICE performance for heavy-flavour detection. High precision measurements of secondary vertices of short-lived particles will be done in ALICE with the upgraded silicon Inner Tracking System (ITS). The studies of rare processes with charmed and beauty baryons production, accessible for the first time in heavy-ion collisions at the LHC, will bring new and unique information on the properties of the Quark-Gluon Plasma (QGP) and, in particular, on the process of QGP thermalization.

The ITS upgrade requirements and performance achieved by its proposed design in terms of accuracy of secondary vertices determination, high standalone tracking efficiency at low pT and with increased readout rate capabilities were estimated previously by the ALICE collaboration at the time of Technical Design Report preparation. The goal of the present report is to present ITS finalized design, currently under construction, and to provide some highlights of the current activities now entering into the production phase. The near future plans will be also touched briefly.

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