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Future perspectives of the ALICE experiment and detector upgrade

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The goal of the ALICE experiment at CERN-LHC is to study the structure of QCD phase diagram at extremely high temperature and very small baryon chemical potential. In particular, ALICE focuses on the properties of the hot and dense matter possibly created in ultra-relativistic heavy ion collisions. The strength of the ALICE experiment is excellent tracking down to low p_T (~ 150 MeV/ c), as well as the a variety of particle identification techniques, compared to other LHC experiments. After the LS2 (2018 Long Shutdown), ALICE will focus on rare probes, such as heavy-flavors, quarkonium, photons and jets with improved performance, thanks to the detector upgrade which will further strengthen the physics potential of the experiment. The long term strategy of the ALICE upgrade is to fully utilize high luminosity provided by the LHC after the LS2, and to collect minimum 10 nb^{-1} with the collision rates 50 kHz (luminosities $L = 6 \times 10^{27} \text{ cm}^{-2} \text{ s}^{-1}$) in order to carry out the precision measurements of rare probes.

In this talk, we present the current status of ALICE detector upgrades in both near and long terms, and discuss the proposed measurements with expected precisions in future.

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