ALICE future upgrades and perspectives

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The third run of the Large Hadron Collider will start in 2021 after a shutdown of two years needed to upgrade both the accelerator complex and the experiments. As far as the heavy-ion programme is concerned, Pb-Pb collisions at $\sqrt{s_{\rm NN}} = 5.5$ TeV, with a peak luminosity $L_{\rm int} = 6 \times 10^{27}$ cm^{-2}s^{-1} and an interaction rate of 50 kHz, are expected.

The high interaction rate, that will be more than a factor of six higher than the present one, will represent for ALICE both a challenge and an opportunity: exploiting its specific potentials in terms of particle identification and tracking, the experiment will have the opportunity to focus on high precision measurements of rare signals at low transverse momentum, collecting a minimum bias Pb-Pb integrated luminosity of more than 10 nb^{-1}.

The challenge is to be able to sustain a readout rate of 50 kHz for Pb-Pb collisions and to improve the reconstruction capabilities of heavy flavour (c and b quarks) mesons and baryons, by increasing tracking and vertexing resolutions. In addition, the new tracking detectors will allow us to study low-mass dileptons and low $p_{\rm T}$ charmonia both at mid (e^+e^-) and forward ($\mu^+\mu^-$) rapidities.

In the first part of this talk the apparatus upgrades will be presented, focusing on the new Inner Tracking System, the new Muon Forward Tracker, the new data acquisition and reconstruction system, and the new readout of the Time Projection Chamber. In the second part, an overview of the expected physics performance will be shown.