

XVth Quark Confinement and the Hadron Spectrum



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Future for Heavy Ions & ALICE 3

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The LHC Runs 5 and 6 will provide high luminosity pp and Pb-Pb collisions and options for pA and lighter AA systems are under study. ATLAS and CMS will upgrade their detectors during LS3, LHCb is planning a major upgrade for LS4. The ALICE Collaboration is proposing a completely new apparatus, ALICE 3, for the LHC Runs 5 and 6. The ALICE 3 detector consists of a large pixel-based tracking system covering eight units of pseudorapidity, complemented by multiple systems for particle identification, including silicon time-of-flight layers, a ring-imaging Cherenkov detector, a muon identification system, and an electromagnetic calorimeter. ALICE 3 will enable novel studies of the quark-gluon plasma and open up important physics opportunities in other areas of QCD and beyond. New studies in the QGP sector will focus on low- p_T heavy-flavour production, including beauty hadrons, multi-charm baryons and charm-charm correlations, as well as on precise multi-differential measurements of dielectron emission to probe the mechanism of chiral-symmetry restoration and the time-evolution of the QGP temperature. Besides QGP studies, ALICE 3 can uniquely contribute to hadronic physics, with femtoscopic studies of the interaction potentials between charm mesons and searches for nuclei with charm. The presentation will cover the detector concept, the physics performance, and the status of novel sensor R&D.

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