

ALICE 3 - heavy-ion physics with LHC Runs 5 and 6

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ALICE 3 constitutes the next-generation heavy-ion programme for LHC Runs 5 and 6. It addresses questions about the quark-gluon plasma which remain inaccessible to other existing or planned experiments, e.g. on the transport properties and thermalisation in the QGP, the formation of hadrons, and the early stages of the plasma evolution. To this end, precise measurements of heavy-flavour probes as well as of electromagnetic radiation are key. The required pointing and tracking performance are achieved with a high-resolution vertex tracker, installed within the beam pipe, and a large-acceptance tracker, both based on monolithic silicon-pixel sensors. Also the particle identification system, using silicon-based time-of-flight and Ring-Imaging Cherenkov detectors, covers the large acceptance. An electromagnetic calorimeter, a muon identifier, and a dedicated forward detector for ultra-soft photons are foreseen to extend the physics reach. This presentation will discuss the physics programme, the detector concept and its performance, as well as novel R&D activities in areas of general interest for particle detectors.