

First measurements with the ALICE detector at LHC

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The ALICE experiment is designed to measure the properties of strongly interacting matter created in heavy-ion collisions at LHC. The apparatus has several features, such as low p_T acceptance and powerful tracking over a broad momentum range, that make ALICE also an important contributor to the first proton-proton physics. In this respect the ALICE physics program aims both at setting the baseline for the understanding of the heavy-ion data and exploring the new energy domain.

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The charged-particle multiplicity and pseudorapidity density distributions will be the first measurements that ALICE will perform, both in p-p and in Pb-Pb collisions.

As those observables correspond to basic properties of the collisions in the new energy domain at LHC, their knowledge will allow to constrain the hadroproduction models and correctly configure the Monte Carlo generators.

Moreover, the measurement of the charged-particle pseudorapidity density in the central rapidity region will extend the existing energy dependence pattern and provide an estimate of the energy density attained in the early phase of the collision. Besides these very first measurements, p_T spectra of both all charged and identified particles, baryon number transport and strangeness production analyses will also be carried out within the p-p first physics programme.

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Since it will follow the first p-p run, the early heavy-ion data taking is expected to be carried out with a fully commissioned detector: in particular alignment and calibrations will be available from the previously collected cosmics and p-p samples. Data quality and statistics should allow, already with this pilot run, to explore quite a rich physics spectrum. The first few 10^4 events (both minimum bias and central collisions) will provide information about global event properties such as multiplicity, pseudorapidity density and elliptical flow. With a statistics of 10^5 to 10^6 events particle spectra, resonances, differential flow and interferometry analyses will be accessible.

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After an introductory description of the status of the experiment, this contribution deals with the ALICE physics potential in particular discussing the early p-p and Pb-Pb running scenarios and the corresponding physics programmes. Details on the very first measurements of the charged-particle pseudorapidity distributions will be also presented.

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