

Production of baryons, bound baryon systems and exotica with ALICE at the LHC

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The high energy pp, p-Pb, and Pb-Pb collisions at the LHC offer a unique opportunity to study with ALICE the production of baryons, baryon bound systems, exotica and the corresponding anti-particle states. Their production yields can be well described within a statistical-thermal model approach, in which the yields depend only the mass and quantum numbers of the state and a single temperature describing the system formed in the collision. This can then be used to make robust predictions for exotic states production at LHC, allowing their existence to be probed.

The technique of femtoscopy studies the source size and dynamics through the correlations of commonly produced hadron pairs, with low relative momenta. It provides a complementary tool to determine the nature of the short-range interactions involving baryon pairs such as Λ , Σ , Ξ , and Ω which are not accessible with ordinary scattering experiments.

Plans for the future LHC Run 3, scheduled to start in 2021, taking into account the expected improvements in terms of statistics and precision will also be presented.

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