

Recent results with ALICE at the LHC

Thursday, 23 September 2021 10:45 (35 minutes)

A Large Ion Collider experiment (ALICE) at the LHC allows to study different aspects of strong interaction physics. This talk gives an overview of its experimental programme based on selected recent results.

Measurements based on jets and hadrons containing charm and beauty quarks at the LHC allow to constrain the interaction between the quark-gluon plasma and partons, to learn about radiation in quantum chromodynamics and about hadronisation in different environments. We discuss new results on these topics in proton-proton, proton-nucleus and nucleus-nucleus collisions.

The highly relativistic collisions involving charged ions at the LHC allow to identify photon-induced interactions. Recent ALICE measurements as a probe of hadron structure and the initial state of heavy-ion collisions are presented.

Collisions at ultra-relativistic energies at the LHC produce large numbers of hadrons and nuclei of variable light-flavour quark content. They can be used to perform production and correlation measurements sensitive to the production mechanisms and the inter-particle interactions. Furthermore, the detector material can be used to study particle absorption cross sections. The talk will show unique measurements provided by ALICE and mention their connection to other fields as the equation of state of neutron stars and dark matter searches in space.

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