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Charmed meson and baryon production with ALICE at the LHC

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Charmed hadrons are powerful probes to investigate the properties of the state of strongly-interacting matter with very high temperature and energy density formed in ultra-relativistic heavy-ion collisions, known as the Quark-Gluon Plasma (QGP). Because of their large masses, charm quarks are produced in the early stages of the collisions and propagate through the high-density medium interacting with its constituents, thus probing the medium properties over the whole evolution of the system. For the interpretation of the results in nucleus-nucleus collisions, measurements in smaller systems are also crucial to disentangle cold nuclear matter effects from modifications induced by the presence of the QGP. Moreover, the study of charm production in pp and p-Pb collisions at the LHC is an important tool to test predictions obtained from perturbative Quantum Chromodynamics (pQCD) calculations and to test possible collective effects. The measurement of different charm meson and baryon species provides information on the charm fragmentation and hadronisation in pp collisions and their possible modifications in Pb-Pb collisions
The ALICE detector has excellent performance in terms of particle identification capabilities and vertexing that allows the study of charm production down to very low transverse momentum. Charmed hadrons and electrons from heavy-flavour hadron decays are reconstructed at central rapidity by the ALICE central-barrel. In this talk, recent measurements of charmed meson and baryon production are presented and compared with theoretical calculations. The results include the pT-differential cross section of strange and non-strange D mesons in pp collisions at several collision energies, and their nuclear modification factor in p-Pb collisions. Recent measurements including the pT-differential cross section of Λ+c and Ξ0c baryons and the related baryon-over-meson ratios are also presented.

Primary author: ALICI, Andrea (Universita e INFN, Bologna (IT))

Presenter: ALICI, Andrea (Universita e INFN, Bologna (IT))

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