

Strangeness in Quark Matter 2019



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Quarkonium measurements at forward rapidity with ALICE at the LHC

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Heavy quarks are produced at the first instant of a nucleus-nucleus collision and therefore are an important tool to study the subsequent high energy-density medium formed in ultra-relativistic heavy-ion collisions. A series of experimental efforts for understanding the properties of the Quark-Gluon Plasma (QGP), a medium consisting of a deconfined state of quarks and gluons, are based on measuring the bound states of heavy quark-antiquark pairs known as quarkonia. However, the medium modification of heavy-flavour hadron production includes also the contribution of cold nuclear matter effects such as shadowing or nuclear breakup in addition to the QGP effects. Proton-nucleus collisions, where no QGP is expected, are used to measure cold nuclear matter effects on quarkonium production. Finally, quarkonium measurements in proton-proton collisions are used as reference for both heavy-ion and proton-ion collisions. ALICE measurements of quarkonia at forward rapidity for various energies and colliding systems (pp, pPb, Pb-Pb and Xe-Xe) during the LHC Run 1 and Run 2 periods will be discussed. Recent ALICE results of quarkonium nuclear modification factor, elliptic flow and polarization using the 2018 Pb-Pb data sample will be specially highlighted. A comparison of the results among the LHC experiments and theoretical models will be also presented.

Collaboration name

ALICE

Track

Heavy Flavour

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