

Strangeness in Quark Matter 2019



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Low-mass dielectron measurements in pp, p-Pb and Pb-Pb collisions with ALICE at the LHC

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The production of low-mass dielectrons is the most promising tool for the understanding of the chiral symmetry restoration and of the properties of the Quark-Gluon Plasma (QGP) created in heavy-ion collisions. At low invariant mass, the dielectron production is sensitive to the properties of vector mesons in the medium related to the chiral symmetry restoration. In the intermediate-mass region, the main component of the dielectron continuum is coming from correlated electron pairs from heavy-flavour hadron decays, which carry information about heavy-quark energy loss and collectivity. In this mass region, thermal radiation from the QGP gives insight into the early temperature of the medium. Finally, at very low momenta initial photon annihilation processes, triggered by the coherent electromagnetic fields of the incoming nuclei, are expected to play a role in more peripheral collisions.

To study the dielectron production in heavy-ion collisions, it is crucial to first understand the primordial e^+e^- pair production in vacuum with minimum-bias proton-proton collisions and to disentangle hot from cold-nuclear matter effects with p-Pb collisions. Moreover, observation of collective effects in high-multiplicity pp and p-Pb collisions shows surprising similarities with those in heavy-ion collisions, which can be further investigated.

In this talk, we will give an overview of the latest measurements of e^+e^- pair production in pp, p-Pb and Pb-Pb collisions recorded by ALICE at different energies. Its implications for the production of heavy quarks and particle multiplicity in the event, or the centrality of the collision. The comparison of the measured dielectron yield with the

Collaboration name

ALICE

Track

Heavy Flavour

Primary author: CAPON, Aaron (Stefan Meyer Institute for Subatomic Physics (SMI), Austrian Academy of Sciences (AT))

Presenter: CAPON, Aaron (Stefan Meyer Institute for Subatomic Physics (SMI), Austrian Academy of Sciences (AT))

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