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New results on ϕ -pair production in proton-proton collisions at $\sqrt{s}=7\text{TeV}$ with the ALICE detector

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Recent measurements in high multiplicity proton-proton collisions have shown the emergence of several features that are reminiscent of QGP phenomenology, one of which is the enhanced production of strange and multi-strange hadrons. Strange hadron production represents a key probe to study QGP formation in hadronic collisions as well as to understand the mechanisms behind hadronisation.

In this context the ϕ meson is a very interesting candidate because of its structure, being a strangeness-neutral hadron that shows the characteristic features of strangeness enhancement, contrary to the expectations from of the strangeness-canonical implementation of thermal models.

A new analysis has been developed to measure the production of ϕ -meson pairs in proton-proton collisions with the ALICE experiment at the LHC. This novel approach allows one to measure the second moment (variance) of the ϕ -meson number distribution and therefore to gain insight into deeper details of the ϕ -meson production statistics in minimum bias pp collisions and as a function of the final-state charged-particle multiplicity. The results are compared to the most commonly used Monte Carlo event generators and to theoretical predictions.

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