

Strangeness in Quark Matter 2019



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$f_0(980)$ resonance production in pp collisions at $\sqrt{s} = 5.02$ TeV with ALICE

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We report on the inclusive production of the $f_0(980)$ particle measured at midrapidity in inelastic pp collisions at $\sqrt{s} = 5.02$ TeV with ALICE.

The nature of the $f_0(980)$ remains elusive: different interpretations of this resonance including $q\bar{q}$ states, loosely-bound molecular states such as $K\bar{K}$, and as a tetra quark candidate are available. Studies in different collision systems are particularly interesting because they can provide information about the nature of this particle. In addition, being a short-lived hadronic resonance, measurements of $f_0(980)$ production in different systems contribute to the study of the lifetime of the hadronic phase.

The signal extraction using the dominant decay channel $f_0(980) \rightarrow \pi^+\pi^-$ is challenging due to the large background from correlated $\pi^+\pi^-$ pairs from other resonance decays in the invariant mass window under study, as well as due to the combinatorics from uncorrelated pairs. We present in detail the strategy followed for the signal extraction and the results in terms of p_T -dependent production yields.

Results are discussed and compared with production yields of stable hadrons and other resonances.

Collaboration name

ALICE

Track

Hadron Resonances

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