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Hadronic resonance production in pp and Pb-Pb collisions at LHC with the ALICE experiment

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Hadronic resonance production in pp and Pb-Pb collisions at LHC with the ALICE experiment

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Abstract

Resonances, with their lifetime comparable to the lifetime of the partonic plasma phase, are a valuable tool to study the dynamics of the high energy density medium formed in heavy-ion collisions. Resonance measurements can be potentially used to estimate the time span between the chemical and kinetic freeze-out and interaction cross sections in the hadronic phase. Measurements of resonances in proton-proton collisions provide an important baseline for heavy-ion data as well for tuning QCD-inspired particle production models. The ALICE collaboration has measured K*(892)0 and ϕ(1020) production in Pb-Pb collisions at √sNN=2.76 TeV and in pp collisions at 0.9, 2.76 and 7 TeV . The production of the ϕ meson has been studied in pp collisions at 0.9, 2.76 and 7 TeV, while K*(892)0 and baryonic resonance production (Σ*(1385)± and Ξ*(1530)0) have been measured in 7 TeV pp collisions. Characteristics of resonance production in these collisions systems will be discussed, in particular transverse momentum spectra and ratios such as ϕ/π, ϕ/K, K/*K , (Ω+anti-Ω)/ϕ, Σ/Ξ, Σ/π and Σ*/K. A comparison between central and peripheral production as well as one with QCD inspired models (for pp collision data) and thermal models will be shown.

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