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$K^*(892)^0$ resonance production with the ALICE experiment at the LHC

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Short lived resonances are good probes to study the properties of strongly interacting matter produced in high energy heavy ion collisions. In particular, the resonance K^{*0} is important because of its very short lifetime which is comparable to that of the fireball. The decay daughters are expected to undergo re-scattering and re-generation processes, which could modify the characteristic properties of K^{*0} such as its mass, width and yield at low transverse momentum (p_T). In addition, the yield of K^{*0} at high (p_T) may be suppressed in Pb-Pb relative to pp collisions due to the effect of the hot and dense medium formation. We report the measurement of the K^{*0} resonance in Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV and pp collisions at $\sqrt{s_{NN}} = 2.76$ TeV via its hadronic decay channel ($K^{*0}(\bar{K}^{*0}) \rightarrow K^\pm(K^\mp\pi^+)$) with the ALICE detector. The centrality dependence of the mass, width, and yield of K^{*0} in Pb-Pb collisions is compared to pp results to investigate the role of re-scattering and re-generation. The nuclear modification factor (R_{CP} and R_{AA}) will be presented to study the effect of parton energy loss on K^{*0} production and compared with other hadrons to understand the effect of baryon-meson separation.

On behalf of collaboration:

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