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Measurements of the R-dependence of inclusive jet suppression and groomed jet splittings in heavy-ion collisions with ALICE

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Jets in relativistic heavy-ion collisions interact with the quark-gluon plasma (QGP), leading to effects such as a suppression of jet yields and modification of internal jet structure that are used to measure the properties of the QGP. This talk will show the inclusive jet nuclear modification factors in Pb–Pb collisions in various centrality classes at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV recorded with the ALICE detector for resolution parameters up to R = 0.6 for momenta down to 40 GeV/c. This achieved by utilizing machine learning techniques to correct the large background in heavy-ion collisions allowing to extend the measurement of inclusive jets to lower jet p_{T} and R than previously achieved in heavy-ion collisions at the LHC. We also present a new suite of measurements characterizing groomed jet splittings using both the Soft Drop and Dynamical Grooming algorithms in central and semi-central Pb–Pb collisions. We report the groomed jet radius, $\theta_g \equiv R_g/R$, the groomed jet momentum fraction, z_g, and the transverse momentum of the groomed splitting, $k_{\mathrm{T,g}}$. These measurements are enabled by the high-precision tracking system of ALICE, and reveal the full kinematics of the hardest jet splitting. All measurements are fully corrected through unfolding and compared to a plethora of theoretical calculations.

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