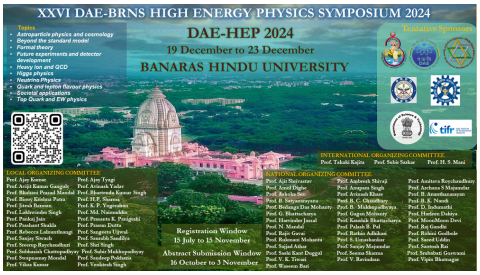

Contribution ID: **542** Type: **Oral**

A modular perspective to the jet suppression from a small to large radius in very high transverse momentum jets.

In this work, we extend the scope of the JETSCAPE framework to cover the jet radius parameter (R) dependence of the jet nuclear modification factor, R_{AA}, for broader area jet cones, going all the way up to R = 1.0 . The primary focus of this work has been the in-depth analysis of the high-p_T inclusive jets up to 1 TeV (to probe the quark-gluon plasma medium at much shorter distance scales) and the quenching effects observed in the quark-gluon plasma formed in the Pb-Pb collisions at $\sqrt{s_{NN}}$ = 5.02 TeV for the most-central (0-10%) collisions. The nuclear modification factor is calculated for inclusive jets via coupling of the MATTER module (which simulates the high virtuality phase of the parton evolution) with the LBT module (which simulates the low virtuality phase of the parton evolution). These calculations are then compared with the experimental results collected from the ATLAS and the CMS detectors in the jet transverse momentum (p_T) ranging up to 1 TeV . The predictions made by the JETSCAPE are consistent in the high p_T range as well as for extreme jet cone sizes, with the deviations staying within 10-20%. Our major focus is on calculating the double ratio ($R_{\rm AA}^{\rm R}/R_{\rm AA}^{\rm R=small}$) as a function of jet radius and jet-p_T, where the observations are well described by the JETSCAPE framework which is based on the hydrodynamic multi-stage evolution of the parton shower.

Field of contribution

Experiment

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