

Exploring the phase space of jet splittings at ALICE in pp and Pb-Pb collisions using jet shapes and grooming techniques

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Recent results in jet substructure measurements in pp and Pb-Pb collisions are presented at $\sqrt{s} = 7$ TeV and $\sqrt{s_{NN}} = 2.76$ TeV respectively. The jet shapes discussed focus on the splitting process of jets either by quantifying the 2-prongness of the jet (τ_2/τ_1) or by parameterising the splitting process itself (z_g and R_g). The Nsubjettiness of a jet could be sensitive to a semi-hard medium induced splitting occurring in-cone that takes a jet from being characteristically n-pronged to (n+1)-pronged. In a similar way such a process is expected to modify the momentum fraction (z_g) and angular separation (R_g) of splittings identified using Soft Drop jet grooming. In addition to the kinematics of the splittings, the total number identified in the jet evolution (nSD) could indicate the amount of additional semi-hard in cone radiation occurring due to the presence of the medium. Jets are studied differentially across these observables using inclusive and semi-inclusive samples and results are compared to a variety of predictions from models and Monte Carlo generators modelling a range of different medium induced processes.

Summary

Authors: ALICE COLLABORATION; ZARDOSHTI, Nima (University of Birmingham (GB))

Presenter: ZARDOSHTI, Nima (University of Birmingham (GB))

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