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System and event activity dependences of inclusive jet production with ALICE

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Jets are produced by a high momentum transfer of initial partons at high energies. Comparing jet production in pp and nucleus-nucleus collisions will allow us to study the jet-quenching effect caused by the hot and dense QCD medium produced in nucleus-nucleus collisions when energetic partons traverse the medium. In particular, systematic studies of jet production in different multiplicity environments will provide in-depth understanding of the medium properties and its evolution from small to large systems. In small systems and high multiplicity events, the particle bulk behaves as if a hot QCD medium was created, but such behavior is not observed with hard probes. Therefore, a detailed study of the jet production in different collision systems and different event activity with various jet resolution parameters will help us to investigate further the existence of medium effects on jets in small systems with high multiplicity. In this presentation, the jet cross section measurements in different collision systems using the data taken by ALICE during the LHC RUN 2 will be presented. The jet nuclear modification factor, which characterizes the jet-quenching effect, will be presented using different jet resolution parameters. In order to study the jet collimation properties, the jet cross section ratio for different jet resolution parameters will be also measured and compared to different theoretical models.

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