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Jet production and structure in pp, p-Pb and Pb-Pb collisions measured by ALICE

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One of the major goals of jet and high p_T measurements in heavy-ion collisions is the quantification of the medium-modified fragmentation of hard scattered partons. Here, the aim in the reconstruction of jets, as compared to single particle measurements, is to gain a larger sensitivity to the possibly modified structure of the parton shower. It aims at the understanding of the detailed mechanisms of in medium energy loss and their relation to transport properties of the medium itself.

The measurement of the jet production cross section in three different colliding systems pp (QCD vacuum), pPb (cold nuclear matter), and PbPb (hot partonic system) allows to extract the modification of jets in the hot and dense medium with respect to two references. Different angular resolutions (jet radii) allows for the a first estimate of the degree of angular modification in the medium.

In the context jets spectra and the measurement of a modified fragmentation compared to the vacuum reference it is important that the underlying event background and its fluctuations is treated consistently for all colliding systems.

We will present recent ALICE results on the jet production in pp, p-Pb and Pb-Pb collisions and discuss their sensitivity on a modified jet fragmentation process beyond a leading parton energy loss.

Primary author: ALICE, Collaboration (CERN)

Presenter: VERWEIJ, Marta (Wayne State University (US))

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