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Decomposing energy balance contributions for quenched jets with CMS

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Jet quenching is one of the established signatures of the Quark Gluon Plasma, and this phenomenon has been studied extensively in high energy heavy ion experiments over the last decade. Despite significant progress made in those studies, the specifics of the energy loss mechanisms and the details of jet-medium interactions require further quantitative understanding. Studies of two-dimensional angular correlations of charged hadrons with respect to reconstructed jets make it possible to experimentally assess the energy radiation patterns of an energetic parton traversing the medium as well as its fragmentation function. In this talk, we will present new differential measurements of charged particle densities and energy flow about the jet direction as a function of relative azimuth and relative pseudorapidity from 2.76 TeV PbPb and pp collisions recorded by the CMS Collaboration. With a sample of back-to-back dijets, previously used to reconstruct the event-wise momentum imbalance (missing p_T), we explore modifications to correlated charged hadron distributions for both the leading and the subleading sides of the dijet. With this technique, we can individually assess the contribution of the medium-induced modifications to each side of the dijet and explore the extent of potential medium response to the jet propagation, while also extending these measurements to large angular and radial distances.

On behalf of collaboration:

CMS

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