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Dead-cone effect in b-jet shapes and the flavor dependence of in-medium shower modifications with the CMS detector

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The jet quenching phenomenon, one of the signatures of the quark-gluon plasma, is well established through experimental measurements at RHIC and LHC. However, the details of the expected dependence of jet-medium interactions on the flavor of the parton initiating the shower are not yet settled. This talk presents the first b jet shapes measurements from 5 TeV PbPb and pp collisions collected by the CMS. Comparisons made with jet shapes of inclusive jets, produced predominantly by light quarks and gluons, allow experimental observations of a “dead cone” effect in suppressing in-jet transverse momenta of constituents at small radial distance R from the jet axis. A similar comparison for large distances provides insights on the role of parton mass in the energy loss and possible mass-dependence of medium response.

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