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Overall momentum balance and redistribution of lost energy in asymmetric dijet events from a multi-phase transport model

Dijet momentum balance in both p+p and Pb+Pb collisions at 2.76 TeV is studied within a multi-phase transport (AMPT) model. We analyze projection \ptslash{} of transverse momentum p_T of all particles onto leading jet axis, and obtain overall momentum balance in dijet events, which qualitatively fits CMS data for p+p and Pb+Pb collisions. Against the contribution to \ptslash{} in leading jet direction by large p_T particles, the contribution in the opposite direction in most central Pb+Pb collisions is dominated by soft particles while the soft particle contribution is less than 50\% in p+p and peripheral Pb+Pb collisions. Further insights into radial dependence of momentum balance in central Pb+Pb collisions show that the soft particles carrying the balance are scattered at large angles to jet axes in the direction of subleading jet. Since only elastic collisions are included within the model, the description of CMS data implies an important role played by elastic collisions between jet partons with medium partons in explaining redistribution of lost energy from the jet cone.

Preferred Track

Jets and High pT Hadrons

Collaboration

Not applicable

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