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Azimuthal anisotropies of reconstructed jets in Pb + Pb collisions at √ sNN = 2.76 TeV in a multiphase transport model

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Azimuthal anisotropies of reconstructed jets [$v_{jet}^{n}(n=2,3)$] have been investigated in Pb + Pb collisions at the center of mass energy $\sqrt{s_{NN}} = 2.76TeV$ within a framework of a multiphase transport (AMPT) model. The v_{jet}^{2} is in good agreement with the recent ATLAS data. However, the v_{jet}^{3} shows a smaller magnitude than v_{jet}^{2} , and approaches zero at a larger transverse momentum. It is attributed to the path-length dependence in which the jet energy loss fraction depends on the azimuthal angles with respect to different orders of event planes. The ratio v_{jet}^{n} /$_{n}$ increases from peripheral to noncentral collisions, and v_{jet}^{n} increases with the initial spatial asymmetry ($_{n}$) for a given centrality bin. These behaviors indicate that the v_{jet}^{n} is produced by the strong interactions between jet and the partonic medium with different initial geometry shapes. Therefore, azimuthal anisotropies of reconstructed jet are proposed as a good probe to study the initial spatial fluctuations, which are expected to provide constraints on the path-length dependence of jet quenching models.

On behalf of collaboration:

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