

2D jet tomography and asymmetric jet shape

Medium-modified jet shape is studied with a linear Boltzmann transport model for event-by-event simulations of γ -jet productions in heavy-ion collisions. The asymmetry ($A_N^{\vec{n}}$) is shown to increase with the initial transverse positions when the gradient of jet transport coefficient (\hat{q}) increases until at the edge of the nonuniform medium. On one hand, compared to γ -jets selected by the large $A_N^{\vec{n}}$, the jet shape of γ -jets selected by the small $A_N^{\vec{n}}$ is fat for the transverse momentum transported toward the outer layer of the jet cone due to strong medium effect of volume emissions. On the other hand, the jet shape with relatively large jet transverse momentum (p_T^{jet}) is thin due to surface emissions of the initial jets whose moving directions are perpendicular to the medium surface. Our numerical results give the 2-Dimension jet tomography and the asymmetric jet shape in heavy-ion collisions.

Primary author(s) : ZHANG, Hanzhong

Co-author(s) : HE, Yayun; PANG, Long-Gang; XIAO, Yu-Xin; WANG, Xin-Nian

Presenter(s) : ZHANG, Hanzhong