

Event-by-event jet suppression, anisotropy and hard-soft tomography

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A consistent description of high p_T particle suppression (R_{AA}) and azimuthal anisotropy v_2 has been a puzzle in the study of jet quenching, pointing to some non-perturbative nature of jet transport. Event-by-event single inclusive jet suppression and azimuthal anisotropy are studied within the Linear Boltzmann Transport (LBT) model for jet propagation in QGP medium from 3+1D hydrodynamic evolution with fluctuating initial conditions. We demonstrate that LBT can describe both the single inclusive jet suppression and azimuthal anisotropy with a single adjustable parameter- effective strong coupling constant α_s . This indicates observed jet quenching puzzle might be caused by non-perturbative phenomenon in hadronization at intermediate p_T . We also studied the energy and centrality dependence and the effect of fluctuation as compared to a smooth hydro evolution. A linear relationship is found between high p_T jet anisotropy due to jet quenching and soft hadron anisotropy from hydrodynamic expansion

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Summary

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