

System size dependence of high p_T hadron production at RHIC-PHENIX

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The measurements of high p_T hadron production is an excellent tool to study the parton energy loss in the Quark Gluon Plasma (QGP). The experimental observables of R_{AA} focus on the inclusive suppression, while the high p_T v_n measurements are sensitive to the path-length dependence of the energy loss.

The large suppression ($R_{AA} < 1$) and the positive v_2 were first observed in Au+Au collisions and they largely contribute to the evidence of forming a hot and dense medium in heavy ion collisions. The more precise measurements could provide us more constraints on the understanding of energy loss mechanism in these collision systems.

The measurements of the flow-like behavior in the small systems could result in the creation of a small QGP-like medium in highly asymmetric collision systems. However, there is no strong evidence of the jet suppression presented from these systems.

In this talk, we present the systematic study of the high p_T hadron v_n and R_{AA} in small and large collision systems measured by the PHENIX, and discuss the tendency with centrality classes.

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