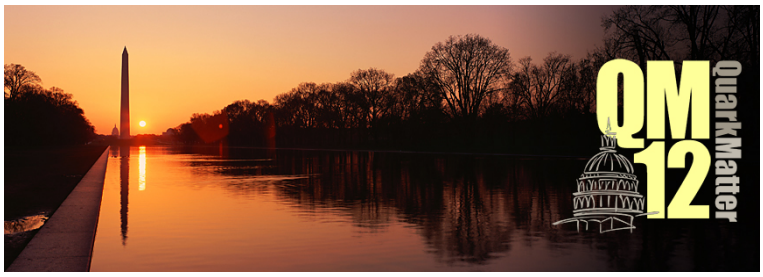

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Assessment of heavy-ion background fluctuations via Independent Particle Emission in full jet reconstruction measurements

Thursday, August 16, 2012 4:00 PM (2 hours)

The main difficulty in precise and systematically controlled jet measurements in heavy-ion collisions is the correction for the soft underlying background fluctuation as well as for additional hard scatterings occurring in the nucleus-nucleus collision. To minimize non-trivial biases in jet-quenching measurements by imposing kinematical constraints on the jet fragmentation and to suppress background fluctuations requires a precise description of background fluctuations down to very low momentum. In order to avoid ambiguities in the background fluctuation estimate, caused by additional hard scatterings, especially in the inclusive jet cross-section measurement at lower jet energies, we propose a statistical correction scheme: The Independent Particle Emission Model. In this approach we characterize the soft underlying heavy-ion background fluctuations in a typical jet area via a statistical convolution of multiplicity and (mean) transverse momentum pT fluctuations. In addition higher order flow harmonics (vn) will be taken properly into account. We will present simulation studies in order to estimate the precision of the Independent Particle Emission Model. Furthermore we will discuss conceptually how this approach can be applied in data analysis and how one can assess the validity of the assumed functional form in a data driven way.

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