Abstract Submitted
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Exploring Hadron Production from Jets and Quark Gluon Plasma at LHC[1] KATHERINE JINKINS, Cyclotron Institute, Texas A&M — QCD jets are sprays of hadrons created from a quark or gluon at high energy. Hadrons from jets dominate the hadron spectrum above transverse momenta $P_T \approx$ 5-8 GeV/c in ultra-relativistic heavy ion collisions at RHIC and LHC. At smaller momenta, below $P_T \approx 2$ GeV/c, hadron production is well described by hydrodynamics or blast-wave models assuming thermalization, while between 2 and 5 GeV/c hadron production proceeds through quark recombination of an off-equilibrium quark gluon plasma. We improved the jet quenching code PPM to describe the high-momentum hadron data recently published by the ALICE experiment at the LHC. PPM Glauber calculations of the transverse densities of nucleons participating in collisions, and the overall number of participants and collisions (*Npart* and *Ncoll*, respectively) were updated by changing the previous hard sphere approximation of a nucleus to Woods-Saxon profiles. Impact parameters were matched to centrality bins published by the ALICE experiment. Using the sLPM (Landau-Pomeranchuk-Migdal effect) energy loss model for partons in PPM, the energy loss parameter c_{sLPM} = qhat/s was adjusted to achieve a consistent description of high momentum ALICE data. A blast wave model calculation at low momentum was also added to achieve a comprehensive fit to ALICE data.

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