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Multiple parton interactions and collectivity in the context of a two-component model of hadron production

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A two-component (soft + hard) model (TCM) of hadron production in high-energy nuclear collisions has been applied to p_t spectra, particle densities on η, 2D angular correlations and total yields from p-p, p-A and A-A collisions and provides a self-consistent description of charge-multiplicity and collision-energy dependence for a broad array of data. The TCM provides alternative explanations for some observed data trends such as mean-p_t vs n_{ch} and underlying event (UE) vs jet trigger condition. The TCM appears to be in conflict with hadron production models that assume a single component such as PYTHIA (based on multiple parton interactions or MPIs) or freezeout from a flowing bulk medium characterized as a QGP. TCM results also conflict with recent claims of "collectivity" (flows) in smaller collision systems. In this talk I compare results from the PYTHIA Monte Carlo and the TCM with a view to better understanding some emerging conflicts.

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