

# Jet Modification and the Question of Quark Gluon Plasma in Small Collision Systems

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A recent development in the study of Relativistic Heavy Ion Collisions has been the observation of hydrodynamic flow in the collisions of “small” species, where at least one of the projectiles has only one, or just a few, nucleons. This flow shows many of the same properties and QGP signals previously found in A+A collisions, where the number of nucleons,  $A$ , is large for both projectiles in the collision. Now the signal seems to be present in p+Pb, d+Au, and He+Au at RHIC and LHC energies, and even in rare p+p collisions at the LHC. Such signals appear in events where the produced particle multiplicity is large. However, the question arises whether such small volumes should also quench jets in the same way as previously observed in A+A. So far no experimental evidence has been seen for this, but it is unclear how strong the quenching could be and thus whether it may be hidden in the current uncertainties. I present a summary of this situation include a recent PHENIX analysis which has been able to observe what appears to be a very small jet modification with high precision, which also does not seem to fit with any traditional “cold” nuclear matter explanations.

Refreshments served prior to the seminar in Rm 124.