

Hadro chemistry in jets as a quark gluon plasma probe

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R. J. Fries and W. Liu have suggested to use the relative abundances of hadrons measured at high transverse momentum p_T in high energy nuclear collisions as a novel and complementary probe for the quark gluon plasma. This is based on the observation that the concept of a jet of fixed flavor is ill-defined in heavy ion collisions and that the leading parton can easily change identity (or flavor) in collisions with thermal partons from the surrounding medium. Moreover, the conversion rate is directly connected to the mean free path of the parton in the medium. This idea was first worked out in Ref. [1], significantly extending several concepts that had been discussed in the literature before (e.g. induced photon radiation from jets and quark-gluon conversions).

Promising new observables have been introduced, including double ratios of hadron yields in nucleus-nucleus and proton-proton collisions. Particularly exciting is the prediction of an enhanced production of Kaons at large transverse momentum at the Relativistic Heavy Ion Collider RHIC. In the future these concepts will be applied to heavy quarks and elliptic flow at high p_T .

[1] R. J. Fries, Phys. Rev. C **77**, 054902 (2008).