Abstract for an Invited Paper for the HAW09 Meeting of The American Physical Society

Latest results from jet measurements ELENA BRUNA, Yale University

A first stage in understanding the phenomenon of jet quenching in the hot and dense nuclear matter has been successfully reached at RHIC through measurements of inclusive hadron suppression and di-hadron azimuthal correlations. A significant step forward in this field is being obtained by full jet reconstruction in heavy-ion collisions, that in principle should give access to the energy of the hard scattering independent of the presence of the medium and should enable the study of jet quenching at the partonic level. Due to the intrinsic difficulties of such a measurement in the high multiplicity environment, this is an innovative analysis and the first results of full jet reconstruction were obtained only over the last year thanks to the recently developed jet-finding techniques. We discuss the current methods to treat the large background, which is the main critical aspect that makes full jet reconstruction a challenge at RHIC. New measurements directed to address the mechanisms of partonic energy loss in hot QCD matter are presented. These measurements include the ratio of inclusive jet cross sections in Au+Au and p+p and the comparison of jet fragmentation functions in Au+Au and p+p.