Contribution ID : **29** Type : **not specified**

Recent PHENIX results on hard probes and direct photon production

Wednesday, 7 October 2015 15:15 (15)

A hot and dense matter called strongly interacting quark-gluon plasma (sQGP) is created in heavy ion collisions at RHIC energies. Detailed study of the properties of this new state of matter is a driving force of recent research at RHIC. Hard scattered partons loose energy via rescattering and radiation traversing the medium produced in heavy ion collisions resulting in suppressed production of high pT hadrons or jet quenching. Thus measurement of high pT hadron production is a way to probe opacity and density of the produced medium. At intermediate pT hadron production is defined by competing particle production mechanisms which are sensitive as to jet fragmentation and quenching as to collective effects in the produced medium. The electromagnetic probes such as direct photons are not affected by strong nuclear forces. They are extremely valuable in study of the jet quenching phenomena and in constraining the time evolution of the medium. In this talk we present recent PHENIX results for system size and energy dependence of intermediate and high pT hadron production in heavy ion collisions at RHIC. We also report latest results for direct photon production including soft direct photon yields and anisotropic flow.

Presentation type

Plenary (25+5 min)

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Session Classification : Nuclear physics and particle physics - parallel VII

Track Classification : Nuclear physics and particle physics