

Abstract Submitted
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High p_T hadron production and its quantitative constraint to model parameters TAKAO SAKAGUCHI, Brookhaven National Laboratory, PHENIX COLLABORATION — Hot and dense matter created in relativistic heavy ion collisions is found to be opaque according to the degree of suppression of high p_T hadrons, which are considered to carry the major fraction of the momentum of hard scattered partons. The nuclear modification factors (R_{AA}) of π^0 from the latest PHENIX publication¹ are found to be constant, meaning that the energy loss of partons is constant fractional. The phenomena have stimulated theoretical field, and deduced many models, but the quantitative discussion had not been realized until recently because of large uncertainty on both experimental and theoretical work. The PHENIX experiment has recently succeeded to constrain parameters of models by quantitatively comparing models and data. Such comparison became possible by properly taking systematic and statistical errors into account. In this presentation, an attempt to constrain model parameters using the latest high p_T hadron spectra with most statistics available from PHENIX Run7 data will be shown, and the characteristics of the matter produced obtained in the study will be discussed.

¹Phys.Rev.Lett. **101**, 232301(2008)

Takao Sakaguchi
Brookhaven National Laboratory

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