



Contribution ID: 127

Type: **Parallel Talk**

Survival of heavy flavored hadrons in a hot medium

Wednesday, 25 October 2017 14:20 (25 minutes)

Attenuation of hadrons with open or hidden heavy flavor, produced in relativistic heavy ion collisions, is described within the color-dipole approach. A charmonium propagating through a dense matter can be broken-up by either Debye screening of the binding potential (melting), or due to color-exchange interactions with the surrounding medium (absorption). These two effects are found to have similar magnitudes and both vanish at high transverse momenta of the charmonium.

Although hadrons with open heavy flavor, charm and beauty, have been predicted to have a high survival probability, they were found to be strongly suppressed by final state interactions with the created dense medium. While vacuum radiation of high- p_T heavy quarks ceases at a short time scale, production of a heavy flavored hadrons in a dense medium is considerably delayed due to prompt breakup in the medium. This causes a strong suppression of the heavy quark yield in a good accord with available data.

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Session Classification: Parallel Sessions - HEP

Track Classification: High Energy Physics, Astrophysics and Cosmology (covering Hadron Structure, Phases of Nuclear Matter, QCD, Precision Measurements with Nuclei, Fundamental Interactions and Neutrinos)