

Department of Theoretical Physics

Special Free Meson Seminar

<i>Speaker</i>	:	Rishi Sharma (TRIUMF, Canada)
<i>Topic</i>	:	High transverse momentum quarkonium production and dissociation in heavy ion collisions
<i>Day, Date & Time</i>	:	Wednesday, February 29, 2012 at 2:30 p.m.
<i>Place</i>	:	School of Maths Seminar Room (A369)

Abstract

Melting of heavy quarkonium states like the J/ψ and the Upsilon mesons due to color screening in a deconfined quark-gluon plasma (QGP) has been proposed as one of the principal signatures for its formation. An expected experimental consequence of this melting in the thermal medium created in heavy-ion collisions (HIC) is a suppression of the yield of heavy mesons, when compared to their yield in nucleon-nucleon (NN) collisions scaled with the number of binary interactions. I will describe a calculation of the yields of quarkonia in heavy ion collisions at RHIC and the LHC as a function of the transverse momentum based upon heavy quark effective theory. Included is a consistent implementation of dynamically calculated nuclear matter effects, such as coherent power corrections, cold nuclear matter energy loss, and the Cronin effect in the initial state and collisional dissociation of quarkonia in the final state as they traverse through the QGP. I will compare the results with data where applicable. The large suppression of prompt J/ψ in nucleus-nucleus collisions at the LHC might indicate for the first time a possible thermal modification of the quarkonium wavefunction at large transverse momentum.

(Nilmani Mathur)