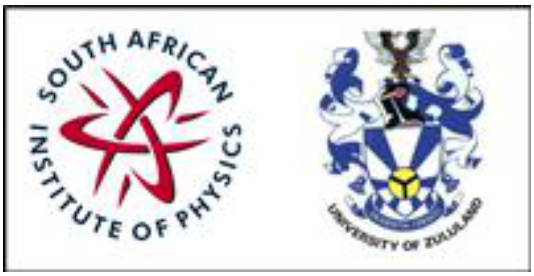

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Phenomenological interpolation of quarkonia cross sections

Wednesday, 10 July 2013 09:00 (20 minutes)

Abstract content
   (Max 300 words)

Nuclear matter under extreme conditions of temperature and energy density undergoes a phase transition. In this new state, lattice Quantum Chromodynamics (lQCD) calculations predict that partons (quarks and gluons) are no longer confined. Such a state is called Quark-Gluon Plasma (QGP). Quarkonia resonances (J/psi; and Upsilon; families) are considered to be one of the most promising probes of the deconfined phase since the heavy quark pairs are produced in the early stages of the collision and their bound states are very sensitive to the QGP temperature.

One of the experimental methods to quantify the nuclear medium effects in the production of quarkonia is the measurement of the nuclear modification factor (R_AA), defined as the ratio between the yields in A-A and binary rescaled pp collisions.

In the first years of operation, the LHC delivered Pb-Pb and p-Pb collisions at the centre of mass energy per nucleon pair of 2.76 TeV and 5.02 TeV, respectively. The knowledge of quarkonia cross sections in pp collisions at the same energy is therefore crucial for a correct interpretation of the data.

Available experimental data for quarkonia production at mid-rapidity are interpolated and then the rapidity and the transverse momentum dependence of the production cross sections are studied in order to provide reference in the kinematical region of interest for the LHC experiments.

This presentation will focus on the description of such a method which is developed to provide a pp reference for the LHC experiments at energies which are partially or not at all explored.

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