Contribution ID: **462** Type: **Poster**

Quarkonia propagation and collectivity in the QGP: Towards the suppression of quarkonia suppression

For 20 years, the suppression of quarkonia has been studied as a probe of the quark gluon plasma (QGP) properties, either by Debye screening of the interaction between the q-qbar pair (Matsui and Satz) or via gluo-dissociation of quarkonia states, which remain strongly bound (Kharzeev). However, the comparison between experimental data and scenarios including suppression mechanisms is not very conclusive.
Rather than focusing only on these "suppressed"quarkonia, an alternative track is to focus not only on the suppressed but also on the physical properties of quarkonia survivors in the QGP. In fact, recent results from NA50 and NA60 experiments at SPS showed that these quarkonia indeed carry a non-zero elliptic flow. This could lead to a reconsideration of the propagation and collectivity of these quarkonia in the QGP, especially the elastic scattering process of quarkonia states with the partons in the QGP.
We study the quarkonia propagation and collectivity by using a hydrodynamic transport code. This code requires the evaluation of two ingredients: The elastic cross section and the Fokker-Planck (FP) coefficients for stochastic processes (drag and diffusion coefficients).

In my contribution, I will first present some theoretical calculations and results obtained for the elastic cross section, following perturbative calculations in quantum mechanics and in QCD. I will then present our model for the estimation of FP coefficients and discuss the collisional energy loss of quarkonia in the QGP. Finally, results deduced from our transport code MC@SHQ to study the quarkonia propagation and collectivity are shown. The general tendency of our results shows that quarkonia elastic processes have non-negligible influence on the quarkonia study in the QGP.

Author: Mr BERREHRAH, Hamza (Subatech)

Co-authors: Prof. AICHELIN, Joerg (Subatech); Prof. GOSSIAUX, Pol Bernard (Subatech)

Presenter: Mr BERREHRAH, Hamza (Subatech)

Track Classification: Heavy flavor and quarkonia production