



Contribution ID: 481

Type: Oral presentation

The statistical hadronization model and beauty hadrons: a case for partial equilibration of b-quarks?

Wednesday, 6 April 2022 12:50 (20 minutes)

We make predictions for rapidity densities of beauty hadrons produced in Pb-Pb collisions at LHC energy. The approach follows that outlined for charm in JHEP 07 (2021) 035, with the canonical suppression as an important ingredient. The hadronic mass spectrum is taken from PDG 2020, with 48 b mesons and 46 b baryons in total. As further input we use the measured cross section for bb production in pp collisions at 5.02 TeV $d\sigma_{bb}/dy = 34.5 \pm 2.4^{+4.7}_{-2.9} \mu\text{b}$, taken from ALICE coll. (arxiv:2102.13601) and shadowing based on reweighted nPDFs (Kusina et al, PRD, 104 (2021) 014010).

Assuming full thermalization of b-quarks at the chemical freeze-out temperature $T_{ch} = 156.5$ MeV we overpredict the measured rapidity densities of $\Upsilon(1S)$ for central Pb-Pb collisions by a factor of 2-3. This result could indicate that a sizeable fraction of b-quarks is not thermalized.

We will discuss these results in the context of the current understanding of Debye screening scenarios for the Υ family and also provide new results for the production of B_c hadrons.

Primary authors: ANDRONIC, Anton (Westfaelische Wilhelms-Universitaet Muenster (DE)); STACHEL, Johanna (Ruprecht Karls Universitaet Heidelberg (DE)); REDLICH, Krzysztof (National Centre for Nuclear Research (PL)); BRAUN-MUNZINGER, Peter (GSI - Helmholtzzentrum fuer Schwerionenforschung GmbH (DE))

Presenter: ANDRONIC, Anton (Westfaelische Wilhelms-Universitaet Muenster (DE))

Session Classification: Parallel Session T11: Heavy flavors, quarkonia, and strangeness production

Track Classification: Heavy flavors, quarkonia, and strangeness production