



Contribution ID: 186

Type: Poster

Heavy flavor electron R_{AA} and v_2 in event-by-event relativistic hydrodynamics

Tuesday, 29 September 2015 16:30 (2 hours)

In this work we investigate how event-by-event hydrodynamic fluctuations affect the nuclear suppression factor and elliptic flow of heavy flavor mesons and non-photonics electrons. Local temperature and flow profiles are computed using a 2D+1 Lagrangian ideal hydrodynamic code [1] on an event-by-event basis. We use a strong coupling inspired energy loss parametrization [2] on top of the evolving space-time energy density distributions to propagate the heavy quarks inside the medium until the freeze-out temperature is reached and hadronization (modeled using PYTHIA) takes place. The resulting D^0 and non-photonics electron yield, computed event by event [6], is compared with recent experimental data for R_{AA} and v_2 from the STAR and PHENIX collaborations [3-5]. We also present predictions for the higher order Fourier harmonic coefficients $v_3(p_T)$ and $v_4(p_T)$ of non-photonics electrons at RHIC's $\sqrt{s} = 200$ GeV/n collisions.

REFERENCES:

- [1] R. P. G. Andrade and J. Noronha, Phys. Rev. C **88**, no. 3, 034909 (2013); R. P. G. Andrade, J. Noronha and G. S. Denicol, Phys. Rev. C **90**, no. 2, 024914 (2014).
- [2] S. S. Gubser, Phys. Rev. D **74**, 126005 (2006).
- [3] A. Adare *et al.* [PHENIX Collaboration], Phys. Rev. Lett. **98**, 172301 (2007).
- [4] B. I. Abelev *et al.* [STAR Collaboration], Phys. Rev. Lett. **98**, 192301 (2007).
- [5] L. Adamczyk *et al.* [STAR Collaboration], arXiv:1405.6348 [hep-ex].
- [6] Caio A. G. Prado, Mauro R. Cosentino, Marcelo G. Munhoz, Alexandre A. P. Suaide, and Jorge Noronha, "Heavy flavor electron R_{AA} and v_2 in event-by-event relativistic hydrodynamics", to appear.

On behalf of collaboration:

NONE

Primary author: ALVES GARCIA PRADO, Caio (Universidade de Sao Paulo (BR))

Co-authors: ALARCON DO PASSO SUAIDE, Alexandre (Universidade de Sao Paulo (BR)); NORONHA, Jorge (University of Sao Paulo); GAMEIRO MUNHOZ, Marcelo (Universidade de Sao Paulo (BR)); COSENTINO, Mauro Rogerio (Universidade de Sao Paulo (BR))

Presenter: ALVES GARCIA PRADO, Caio (Universidade de Sao Paulo (BR))

Session Classification: Poster Session

Track Classification: Open Heavy Flavors and Strangeness