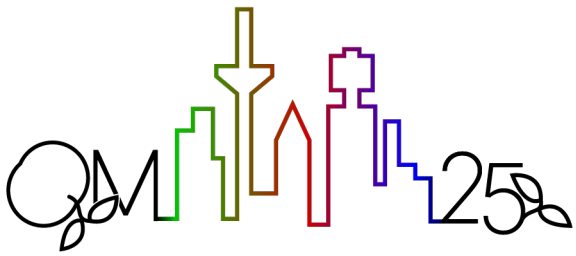

Contribution ID: **72** Type: **Poster**

Bottomonium Suppression in $p + \mathrm{Pb}$ Collisions at the LHC}

We calculate the suppression of the Υ(nS) states in $p + \mathrm{Pb}$
collisions relative to $p + p$ collisions, including both cold matter effects (nuclear parton distribution function (nPDF) modifications, coherent energy loss, momentum broadening) and hot matter effects.

The suppression of bottomonium states in the hot medium is treated two ways: a next-to-leading-order open quantum system framework formulated within potential nonrelativistic quantum chromodynamics [1] and solving kinetic rate equations using perturbative and nonperturbative rates [2]. The results for the Υ(nS) R_{pA} in these two approaches is obtained as a function of transverse momentum and rapidity and compared to data.

[1] M. Strickland, S. Thapa, and R. Vogt, Bottomonium suppression in 5.02 and 8.16 TeV p—Pb collisions, Phys. Rev. D **109**, 096016 (2024).

[2] J. Boyd, M. Strickland, R. Rapp, S. Thapa, R. Vogt and B. Wu, Semi-classical treatment of bottomonium suppression in $p + \mathrm{Pb}$ collisions, in preparation.

This work was performed under the auspices of the U.S.\ DoE by LLNL under Contract DE-AC52-07NA27344 and the HEFTY Collaboration.

Category

Theory

Collaboration (if applicable)

HEFTY

Authors: VOGT, Ramona (LLNL and UC Davis); THAPA, Sabin

Co-authors: STRICKLAND, Michael (Kent State University); RAPP, Ralf; BOYD, Jacob (Kent State University); WU, Biaogang (Texas A&M University)

Presenters: VOGT, Ramona (LLNL and UC Davis); THAPA, Sabin

Session Classification: Poster session 2

Track Classification: Heavy flavor & quarkonia