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Typ: Talk

D and B meson Suppression and Azimuthal Anisotropy in a Strongly Coupled Plasma at $\sqrt{s_{NN}} = 5.5 \text{ TeV}$

Mittwoch, 29. März 2023 15:00 (20 Minuten)

We present predictions for the suppression of D and B-mesons at $\sqrt{s} = 5.5 \text{ TeV}$ at the LHC in Pb+Pb collisions. We assume that the QGP is strongly coupled, and show the centrality and momentum dependence of the nuclear modification factor at midrapidity. We quantify the systematic theoretical uncertainties associated with the mapping of parameters in $N = 4$ SYM theory to QCD, as well as the momentum dependence of the diffusion coefficient in AdS/CFT. We also present results of the corresponding $v_2(p_T)$ for D and B-mesons describing this azimuthal anisotropy for central, semi-central and peripheral collisions. We show that the suppression and azimuthal anisotropy predictions are qualitatively consistent with LHC measurements. In addition, we show that coupling energy loss to flow increases v_2 substantially out to surprisingly large momenta, on the order of $\sim 25 \text{ GeV/c}$, thus pointing to a possible resolution of the R_{AA} and v_2 puzzle at intermediate p_T for light hadrons.

Experiment/Theory

Theory/Phenomenology

Affiliation

University of Cape Town

Hauptautor: NGWENYA, Blessed (University of Cape Town)

Co-Autor: Prof. HOROWITZ, Will (University of Cape Town)

Vortragende(r): NGWENYA, Blessed (University of Cape Town)

Sitzung Einordnung: Parallel: Heavy Flavours & Quarkonia

Track Klassifizierung: Heavy flavor and quarkonia