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Typ: Talk

Higher orders in opacity in QGP tomography

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We consider the problem of including a finite number of scattering centers in dynamical energy loss and classical DGLV formalism. Previously, either one or an infinite number of scattering centers were considered in energy loss calculations, while attempts to relax such approximations were largely inconclusive or incomplete. In reality, however, the number of scattering centers is 4-5 at RHIC and the LHC, making the above approximations inadequate and this theoretical problem important for QGP tomography.

We derived explicit analytical expressions for dynamical energy loss and DGLV up to the 4th order in opacity, resulting in complex mathematical expressions that were, to our knowledge, obtained for the first time. These expressions were then implemented into an appropriately generalized DREENA framework to calculate the effects of higher orders in opacity on a wide range of high-pt light and heavy flavor predictions. Results of extensive numerical analysis, including their intuitive interpretations, will be presented.

Experiment/Theory

Theory/Phenomenology

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Track Klassifizierung: Heavy flavor and quarkonia