

5th International workshop on heavy quark production in heavy-ion collisions



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Radiative Contributions to Heavy Quark Energy Loss in a Langevin Approach

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Over the past year our group has studied heavy quark energy loss in the context of a Langevin approach. Main emphasis of our study was the question of heavy quark thermalization in a QGP medium as well as the dependence of the most common observables associated with heavy quark energy loss (R_{AA} and v_2) on various parameters of the medium evolution, to which our Langevin approach is coupled.

Here, in addition to reviewing the results of the aforementioned studies, we will introduce an algorithm that incorporates the radiative energy loss of heavy quarks in a QGP medium into the current Langevin framework by treating gluon radiation as an additional force to the heavy quarks traversing the medium. We examine the corresponding effects on observables such as the elliptic flow and the nuclear modification factor, and compare our simulations to the experimental results at the LHC. Our study constitutes an essential contribution to a more quantitative understanding of the energy loss of heavy quarks propagating through hot and dense nuclear medium.

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