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The collisional energy loss of a heavy fermion in the Quark-Gluon Plasma

We study the collisional energy loss of a heavy fermion in the Quark-Gluon Plasma by separately considering the following two effects that could be significant near the critical temperature. One is the collisions among the medium partons modelled by the Bhatnagar-Gross-Krook collisional kernel, the other is a nontrivial value of the Polyakov loop which is induced by a constant background field for the gauge fields. Our results show that in a temperature region not far above the critical temperature, the collisional energy loss of a heavy fermion has a moderate enhancement in a collisional plasma, on the other hand, it may be strongly suppressed in the presence of a background field.

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