

# Heavy flavor suppression: an interplay of electric and magnetic mass effects

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Reliable predictions for jet quenching in ultra-relativistic heavy ion collisions require accurate computation of radiative energy loss. While all available energy loss calculations assume zero magnetic mass –in accordance with the one-loop perturbative calculations –different non-perturbative approaches report a non-zero magnetic mass at RHIC and LHC. We generalized the dynamical energy loss formalism [1], to consistently include a possibility for existence of non-zero magnetic screening [2]. We show that this generalization indicates a fundamental constraint on electric to magnetic mass ratio, which appears to be supported by lattice QCD simulations. Jet suppression patterns, obtained from this newly developed generalization, will be compared with RHIC and LHC measurements. Interestingly, comparison with RHIC data indicates that the generalized dynamical energy loss formalism may provide a reasonable explanation of the “Heavy flavor puzzle at RHIC” [3].

[1] M. Djordjevic, Phys. Rev. C 80, 064909 (2009) (highlighted in: M Gyulassy, Physics 2, 107 (2009)).

[2] M. Djordjevic and M. Djordjevic, Physics Letters B 709 (2012) 229

[3] M. Djordjevic, Phys. Rev. C (in press, 2012, arXiv:1105.6082)

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