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Evolution equations for medium-induced QCD cascades and their solutions

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"I am going present solutions of evolution equations for inclusive distribution of gluons as produced by jet traversing quark-gluon plasma. The the original equation is reformulated in such a form that the virtual and unresolved-real emissions as well as unresolved collisions with medium are resummed in a Sudakov-type form factor. The resulting integral equations are then solved most efficiently with use of newly developed Markov Chain Monte Carlo algorithms implemented in a dedicated program called MINCAS. Their results for a gluon energy density are compared with an analytical solution and a differential numerical method. Some results for gluon transverse-momentum distributions are also presented. They exhibit interesting patterns not discussed so far in the literature, in particular a departure from the Gaussian behavior - which does not happen in approximate analytical solutions.

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