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Medium-induced two gluon radiation

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Multiple gluon emissions of a high energetic parton passing through a hot and dense QCD medium are usually assumed to be independent and given by iterating the well-studied single inclusive gluon emission. However, it is known that interferences among different emitters in the parton cascades are known to lead to angular ordering of gluon emissions in the vacuum. Motivated by this, we consider the two gluon emission spectrum at leading order in a dense medium using semi-classical eikonal formalism. We compute the leading order probability to emit two gluons by such a highly energetic parton in a dense QCD medium. An analytical expression for the two gluon spectrum is obtained in terms of the in-medium n-point correlation functions, that we evaluate more explicity in the large N_C limit. Our results can also reproduce the well known picture of the vacuum case

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