

## Medium induced collinear radiation from soft collinear effective theory (SCET)

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The propagation of hard partons through the strongly interacting matter created in high energy heavy-ion collisions involves widely separated scales. The methods of Effective Field Theories (EFT) can provide a factorized description at lowest nontrivial order, and a formalism where the correction to this factorization are calculable systematically order by order in the small ratios between the different scales. In this talk I will present our recent results on the calculation of the spectrum of the gluons emitted by the hard parton, where the radiated gluons are collinear with the incoming hard parton and with arbitrary energy (not necessarily much softer than the energy of the hard parton). I will also briefly discuss how to extend the analysis to include the emission of gluons collinear in arbitrary directions and gluons with all the components of their momentum scaling as the medium characteristic energy scale (soft gluons). In particular I will show how powerful concepts like collinear gauge invariance and reparameterization invariance simplify the derivation of the effective Lagrangian.

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