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Coherence effects and broadening in medium-induced QCD radiation off a massive $q\bar{q}$ antenna

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Studies of medium-induced QCD radiation usually rely on the calculation of single-gluon radiation spectrum off an energetic parton traversing an extended colored medium. Recently, the importance of interference effects between emitters in the medium has been explored. In this work we extend previous studies by calculating the single-gluon coherent spectrum off an antenna consisting of a massive quark-antiquark pair. Interferences dominate the spectrum of soft gluons, which are mainly emitted outside of the cone made by the antenna opening angle, while the antenna results in a superposition of independent emitters above a critical gluon energy scale. We study the interplay between the dead-cone effect and medium-induced jet broadening in both cases of soft and hard gluons and present results on energy loss distributions.

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