

Are Parton Showers Inside a Quark-Gluon Plasma Strongly Coupled? A Theorist's Test

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We study whether in-medium showers of high-energy quarks and gluons can be treated as a sequence of individual splitting processes or whether there is significant quantum overlap between where one splitting ends and the next begins. Accounting for the Landau-Pomeranchuk-Migdal (LPM) effect, we calculate such overlap effects to leading order in high-energy $s(\mu)$ for the simplest theoretical situation. We investigate a measure of overlap effects that is independent of physics that can be absorbed into an effective value \hat{q}_{eff} of the jet-quenching parameter \hat{q} .

Alternate track

1. Heavy Ions

I read the instructions above

Yes

Primary authors: Dr ELGEDDAWY, Omar; ARNOLD, Peter (University of Virginia); Dr IQBAL, Shahin (National Centre for Physics)

Presenter: Dr IQBAL, Shahin (National Centre for Physics)

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