

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

Friday, 19 July 2024 09:55 (15 minutes)

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

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