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First steps towards the quantum simulation of jet quenching

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The leading order α_s effect in jet quenching corresponds to the broadening of the jet's transverse momentum, due to the multiple interactions with the underlying medium. A complete understanding of momentum broadening is critical for the success of jet quenching phenomenology.

In this talk, we introduce a strategy to quantum simulate single particle momentum broadening in a QCD background medium. We argue that it is, in principle, possible to extract the jet quenching parameter \hat{q} from such an algorithm. More importantly, this corresponds to the first step towards simulating full medium induced parton showers, which is far beyond the capabilities of classical computers.

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Collaboration / Activity

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