

QCD coherence and how it fails

Wednesday, 18 December 2019 16:30 (30 minutes)

QCD coherence is a non-Abelian generalisation of the statement that short wavelength physics is largely independent of long wavelength physics. The evolution of hadronic parton densities is accounted for using the equations of Dokshitzer, Gribov, Lipatov, Altarelli, and Parisi (DGLAP). It is often assumed that, as a result of QCD coherence, this hadron evolution can be factorised from any wide-angle, soft-gluon emissions. However, the build up of quantum interference can destroy coherence and break factorisation. My talk will discuss coherence quite generally; when and why it breaks. I will stress why this result is counter-intuitive and fundamentally non-Abelian.

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Session Classification: Parallel Session 2