

Coherence phenomena in high-energy nuclear collisions: from initial to final state

Thursday, 18 May 2017 10:00 (1h 30m)

In this talk I will review how coherence phenomena affect most aspects of the description of high-energy hadronic collisions. Concerning their initial stage, I will consider correlations in the wave function of the colliding hadrons, nucleons or nuclei, that are reflected in the final state. I will argue that such correlations offer an explanation for the description of observed phenomena in proton-proton and proton-nucleus collisions at the LHC such as the ridge, i.e. two-particle correlations along several rapidity units collimated in azimuthal angle, so they are enhanced at zero and 180 degrees. Then, turning to the final stage of the collisions, I will address how coherence in the QCD branching process is involved in the phenomena of energy loss of fast partons traversing the partonic medium produced in heavy-ion collisions, used as hard probes of the medium.

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