Contribution ID: **387** Type: **Poster**

Forward quark jet-nucleus scattering in a light-front Hamiltonian approach

Friday 8 April 2022 14:20 (4 minutes)

We develop a numerical method to nonperturbatively study scattering and gluon emission of a quark from a colored target using a light-front Hamiltonian approach. The target is described as a classical color field, as in the color glass condensate effective theory. The Fock space of the scattering system is restricted to the |⊠⟩+|⊠⊠⟩ sectors, but the time evolution of this truncated system is solved exactly. This method allows us to study the interplay between coherence and multiple scattering in gluon emission. It could be applied both to studying subeikonal effects in high-energy scattering and to understanding jet quenching in a hot plasma.

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Session Classification: Poster Session 3 T12_1

Track Classification: New theoretical developments