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Energy loss of heavy flavor quarks in color string medium of p+p

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The talk presents our preliminary estimates of heavy flavor (HF) quark energy loss during its propagation through the non-equilibrated medium formed in minimum bias proton-proton (p+p) collisions at LHC energies. The study is inspired by the ongoing hot debates on whether tiny droplets of Quark-Gluon Plasma can be created in collisions of small systems. In this work, we assume that the fireball produced in a p+p event can be described by a fluctuating number of quark-gluon strings originated from multi-pomeron exchanges. Considered longitudinal oscillations of strings dynamically initialize medium at each time step. Their varying overlaps create fluctuations in the color field energy density that governs the elastic scattering rate of HF quarks with the gluons populating event string volume. We calculate the transverse momentum dependence of the momentum loss for charm and bottom (anti-)quarks that are produced in initial hard scatterings and traverse the described environment. The simulation is performed using a developed hybrid approach on an event-by-event basis. Our results show significantly lower HF quarks energy loss compared to that obtained in the expanding hydrodynamic scenario of the new EPOS4HQ module.

Primary authors: PROKHOROVA, Daria (Tsinghua University); SHI, Shuzhe (Tsinghua University)

Co-author: Prof. ANDRONOV, Evgeny (St.Petersburg State University)

Presenter: PROKHOROVA, Daria (Tsinghua University)

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