

# Hard Probes 2018: International Conference on Hard & Electromagnetic Probes of High-Energy Nuclear Collisions

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## Parton energy loss by the effect of the background field with scattering

In Pb-Pb collisions at the LHC, a hot and dense medium of deconfined quarks and gluons is formed (Quark-Gluon Plasma, QGP).

The QGP is conjectured to be the state of matter of the early Universe up to few microseconds after the Big Bang and may still exist in the core of neutron stars. One of the most striking signatures of the QGP formation in heavy-ion collisions is the suppression of jet production. This phenomenon, called jet quenching, is ascribed to the energy lost by the initial parton while traveling through the QGP medium.

In the last two decades, many theoretical developments of the theory of jet quenching have been formulated within pQCD.

The main energy loss mechanisms proposed in the literature are due to radiative and collisional processes. There is also another kind of energy loss that can be investigated which is a background field induced radiative energy loss which will also include the effect of scattering, hence a fast parton propagating through the medium will feel the effect of the color magnetic and the color electric fields while undergoing multiple scatterings with the particles in the medium.

In this contribution I will talk about a new model for the medium which is considered as a collection of static colored scattering centers in the presence of a chromomagnetic field and I will talk about the energy loss mechanism in this model.

### Summary

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