

High energy probes of nuclear media: selected topics from quark gluon plasma studies

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The production of very energetic quarks and gluons (i.e., partons) and their showering in the Quantum Chromodynamical (QCD) vacuum has been well studied inside relativistic electron-proton and proton-(anti)proton collisions. Our good understanding of high energy partons in those collisions allow us to consider them as calibrated probes inside relativistic heavy-ion collisions, where they are used to study the finite temperature nuclear medium known as the quark gluon plasma (QGP). I will present a modern understanding of parton interaction with the nuclear medium, along with simulations used to describe them. Finally, I will present recent constraints on an important transport coefficient describing how partons behave inside the QGP, as well as some prospects for future improvement.

Author: Prof. VUJANOVIC, Gojko (University of Regina)

Presenter: Prof. VUJANOVIC, Gojko (University of Regina)

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