

QPT 2019

Enshi, China

Contribution ID: 85

Type: **not specified**

Machine learning for high energy heavy ion collisions

Summary

Sometimes it is difficult to design physical observables that are exclusively sensitive to one physical property from high dimensional data. In high energy heavy ion collisions, such difficulty is caused by two reasons. (1) Various dynamical processes are involved in heavy ion collisions, such as pre-equilibrium dynamics, hydrodynamic expansion of quark gluon plasma, hadronic afterburner and the jet-medium interaction. The evolution is sensitive to many entangled control parameters. (2) Multiple physical properties need to be constrained at the same time by the model-data comparison. The difficulty hinders the extraction of nuclear structure, the QCD phase transition type and properties of quark gluon plasma from data. Machine learning has shown immense potential in extracting patterns and features in the classification and regression tasks. I will review the applications of machine learning in high energy heavy ion physics.

Primary author: Dr PANG, LongGang (UC Berkeley & LBNL)

Presenter: Dr PANG, LongGang (UC Berkeley & LBNL)