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Poster: The reaction to medium induced radiation of various jet groomers

Jet quenching in heavy ion collisions serves as a way to understand the properties of the hot and dense quark-gluon plasma (QGP). Jets interact with the color charges of the QGP leading to a modification of the jet substructure by measuring which we can know the mechanism of jet quenching.

Due to the presence of a QGP, gluon radiation pattern in the parton shower as compared to the vacuum will be modified. To gain insight into this mechanism the internal jet substructure can be studied with the help of the Lund radiation diagram.

Recently a study on the implementation of a reinforcement learning algorithm to optimize jet grooming strategy shows how soft and wide angle radiations are rejected. Meanwhile, it uses Lund diagram as a way to visualize what regions are preferred by the groomer.

In this poster I present how the Lund radiation diagram is modified in jet quenching event generators such as QPYTHIA and JEWEL by using recursive soft drop and reinforcement machine learning techniques.

I study how these novel methods that separate hard and soft QCD processes can be used to extract the QGP transport coefficients. Statistical comparison between final state observables of quenched jet with and without grooming will also be presented.

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