



Contribution ID: 15

Type: **not specified**

Boosted tops and the time-structure of the hot dense-medium of heavy-ion collisions

Saturday, 24 September 2016 12:00 (20 minutes)

Boosted top quarks have the potential to open up a new dimension in jet quenching studies. Because a top-quark's decay time is correlated with its p_t , by examining properties of jets from top-quark and W decays, as a function of the top-quark p_t , one may obtain unique insight into the time dimension of the production and evolution of the quark-gluon plasma. Significant high- p_t statistics are needed so this is of particular interest at future hadronic colliders being studied in China and Europe, where the top reconstruction will require the use of jet substructure techniques. However, the effects are not limited to these future machines, but accessible, to some extent, also at the LHC.

With a good control over the time evolution of the medium properties measured by jets, the ideas presented here may also open the door to using heavy-ion collisions one day to determine the properties of hadronically decaying new particles, providing a novel way to place constraints on their lifetime.

Summary

Boosted top quarks have the potential to open up a new dimension in jet quenching studies. Because a top-quark's decay time is correlated with its p_t , by examining properties of jets from top-quark and W decays, as a function of the top-quark p_t , one may obtain unique insight into the time dimension of the production and evolution of the quark-gluon plasma. Significant high- p_t statistics are needed so this is of particular interest at future hadronic colliders being studied in China and Europe, where the top reconstruction will require the use of jet substructure techniques. However, the effects are not limited to these future machines, but accessible, to some extent, also at the LHC.

With a good control over the time evolution of the medium properties measured by jets, the ideas presented here may also open the door to using heavy-ion collisions one day to determine the properties of hadronically decaying new particles, providing a novel way to place constraints on their lifetime.

Presentation type

Oral

Presenter: SALGADO LOPEZ, Carlos Albert (Universidade de Santiago de Compostela (ES))

Session Classification: Parallel Session II: Heavy Flavor (II)