



Contribution ID: 172

Type: **not specified**

## A study of quark energy loss at the Fermilab E906/SeaQuest experiment

*Tuesday, 4 April 2017 17:20 (15 minutes)*

Jet quenching has been considered an important probe of the properties of the quark-gluon plasma (QGP) formed in the heavy ion collisions at RHIC and LHC. However, since d+Au collisions also show significant suppression of jet production, a thorough understanding cannot be achieved without the determination of other non-QGP nuclear medium effects. One of the competing factors involved, parton energy loss, demands measurements with cold nuclear matter in order to determine a baseline for comparison to the energy loss within the QGP. Using the Drell-Yan process, with its negligible final-state interaction, the energy loss of incoming quarks in cold nuclear medium can be cleanly studied. Using the 120 GeV proton beam from the Main Injector at Fermilab, E906/SeaQuest experiment consists of an instrumented magnetic spectrometer observing dimuons from fixed targets of H<sub>2</sub>, D<sub>2</sub>, C, Fe, and W. The SeaQuest collaboration has been collecting a high statistics event sample, starting in 2014 and continuing until the summer of 2017. The analysis of these data will provide a good opportunity for a clean measurement of energy loss effects in cold nuclear matter, since other nuclear effects (e.g., nuclear parton distributions) are expected to be minimal at the kinematics of the experiment, as compared to the previous E866 measurements. In this talk, the latest analysis will be described and the current results of the quark energy loss study will be presented.

**Primary author:** Mr LIN, Po-Ju (University of Colorado at Boulder)

**Presenter:** Mr LIN, Po-Ju (University of Colorado at Boulder)

**Session Classification:** WG4 Hadronic and Electroweak Observables

**Track Classification:** WG4) Hadronic and Electroweak Observables