

UCLA Nuclear Physics Seminar

“From the QCD phase diagram to jet quenching in heavy ion collisions”

Presented by Jasmine Brewer

MIT

In this talk, I will discuss a new observable for mapping the QCD phase diagram at RHIC, and a model for understanding the effects of dynamics in the quark gluon plasma on jet energy loss. In the first part of this talk, I will demonstrate that at RHIC energies around 20 GeV the non-trivial dependence of baryon density on rapidity can give rise to fluctuation measures which are non-monotonic in rapidity. I will propose an observable that exaggerates the signature of criticality in the rapidity dependence, and show that this kind of “rapidity scan” provides complementary signatures of criticality to those from the beam energy scan. In the second part of this talk, I will demonstrate that velocities and velocity gradients in the medium have a large effect on energy loss in a holographic model of jets. I will show that including the effects of velocities and velocity gradients in a reasonable model of the medium increases the stopping distance of high energy jets by as much as a factor of two.

Location: Knudsen 4-134

Date: Thursday, February 8, 2018

Time: 1:30pm