

## Physics Division Seminar

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**Probing High Temperature QCD via Jet  
Measurements in Heavy Ion Collisions:  
Results from ATLAS and Prospects for  
sPHENIX**

Host: José Repond

Monday, February 4, 2019 – 203, R150, 3:30 PM

Collisions between two large nuclei at collider energies produce extremely high temperature QCD matter which is best described as consisting of deconfined quarks and gluons. A powerful tool to understand this matter is to use the high momentum quarks and gluons generated in hard scattering processes in the earliest stages of the nuclear collision as probes of the matter at later times. These measurements use modifications to the jet rates and properties induced by the scattering of the probes off the constituents of the matter to infer the nature of the interactions and constrain the properties of the matter. This talk will describe recent jet measurements in lead-lead collisions at 5.02 TeV collision energy using the ATLAS detector at the Large Hadron Collider. The prospects for making these measurements at lower collision energy, and thus at lower temperature QCD, using the sPHENIX detector at the Relativistic Heavy Ion Collider will also be discussed. Together measurements at these two facilities provide a unique opportunity to understand high temperature QCD.