

DNP15-2015-020042

Abstract for an Invited Paper  
for the DNP15 Meeting of  
the American Physical Society

### **Hot QCD Physics and the Perfect Fluid Future**

JAMES NAGLE, University of Colorado

Hot QCD physics encompasses the creation of new states of matter in the laboratory through the collision of relativistic heavy ions. In this talk we review the great progress in the field from data at RHIC and the LHC and advances in theory in the last decade. We then detail plans and requirements to answer the key questions regarding the phases and properties of the Quark Gluon Plasma and how exciting emergent phenomena relate to fundamental features of QCD. We discuss what is needed to complete the scientific mission at RHIC and how this physics relates to the exciting opportunities with an Electron Ion Collider.