Argonne NATIONAL LABORATORY

PHY Seminar

## Physics Division Seminar


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# Probing the Micro-Structure of Hot QCD Matter

**Host: José Repond**

**Monday, November 19, 2018 – 203, R150, 3:30 PM**


**As every physics student knows, the microscopic structure of matter is best measured by scattering a controlled beam of particles off it, with the momentum-transfer of the scattering determining the scale of the structure being probed. Can we carry out a Rutherford-like or DIS-like scattering experiment on the Quark-Gluon Plasma generated in heavy ion collisions at RHIC and the LHC, to elucidate its microscopic structure? The QGP in such experiments lives for only a brief instant, so that probing it with an externally-generated beam is not a winning strategy. Rather, we utilize as projectiles the QCD jets also generated in the collision, and measure both the coherent deflection of such jets and the modification of jet sub-structure to probe the inner workings of the QGP. I will discuss recent measurements and theoretical developments in this area, focusing on data from the STAR experiment at RHIC and the ALICE experiment at the LHC. I will also discuss projections for measurements of this kind at both colliders in the coming decade.**