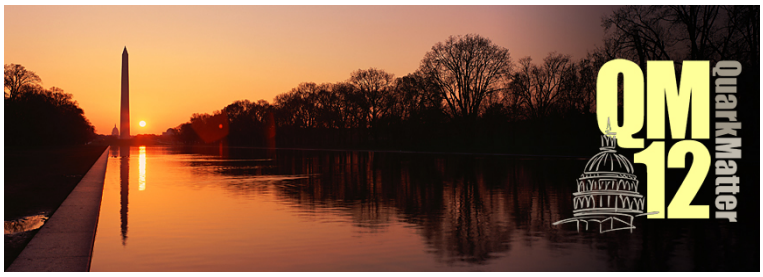

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The sPHENIX Barrel Upgrade: Jet Physics and Beyond

Friday 17 August 2012 14:20 (20 minutes)

The past decade of heavy ion physics at RHIC has produced many surprising discoveries and puzzles. Currently the experiments at the LHC are providing a first look at things to come: a burgeoning program for studying the Quark Gluon Plasma with reconstructed jets. The PHENIX collaboration is in the process of developing a long term plan involving a series of aggressive upgrades designed to expand the physics capabilities and make use of the full enhanced luminosity at RHIC. With increased coverage and the addition of hadronic calorimetry, we will demonstrate that the sPHENIX upgrade will be well positioned to provide a broad and exciting program of jet probe measurements. Sampling 50 billion Au+Au events annually, we will collect 10 million jets with transverse energy above 20 GeV and 100 thousand jets above 40 GeV. With the addition of tracking layers and an EM preshower, a crucial program of upsilon measurements, as well as neutral pion and direct photon measurements with a 40 GeV/c reach, can be made in a flexible accelerator facility capable of providing a diverse range of collision systems across many beam energies. And, ultimately, the sPHENIX detector will provide the base for staging a future electron-ion collider detector at eRHIC.

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