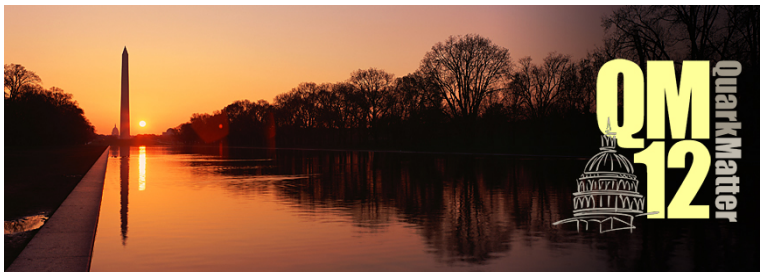

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Low mass di-electron production in Au+Au collisions at $\sqrt{s_{NN}} = 19.6$ GeV at STAR

Thursday, August 16, 2012 4:00 PM (2 hours)

An enhancement of low-mass di-electron production which is compared to expected yields from known hadron sources was observed by the CERES experiment at CERN SPS in 158 A GeV central Pb+Au collisions (sqrt(s)=17.3GeV). More recently, NA60 reported their di-muon
measurements in 158 A GeV In+In collisions. The enhancement of di-muon at $M_{\mu\mu} < 1$ GeV/c^2 can be described by a broadened spectral function. At RHIC, PHENIX experiment observed a significant enhancement in the di-electron continuum in Au+Au collisions at $0.15 < M_{ee} < 0.75$ GeV/c^2 at low transverse momentum (p_T < 1 GeV/c). The models, which describe the SPS di-lepton data, have not been able to consistently describe the PHENIX data in the low mass and low p_T region. STAR has recently presented preliminary results on the di-electron production in Au+Au at 200 GeV[1] Which was made possible by the addition of full-coverage time-of-flight detector. The Beam Energy
Scan program covering beam energies down to SPS energies, and STAR's large acceptance, allow for measurements that can provide invaluable insights in this subject. We will present the mid-rapidity di-electron measurements in the $M < 1.2$ GeV/c^2 mass region in Au+Au collision at $\sqrt{s_{NN}}$ = 19.6 GeV taken in 2011 with the full Time-of-Flight detector coverage at STAR. The di-electron production will be compared to hadronic cocktail simulation. Comparisons to model calculations with in-medium vector meson modifications will be made.

[1] Jie Zhao (for the STAR collaboration) 2011. J. Phys. G: Nucl. Part.
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