Stony Brook University
The Graduate School

Doctoral Defense Announcement

Abstract

Dielectron Mass Spectra in \sqrt{s_{NN}} =200 GeV Cu+Cu Collisions at PHENIX

By

Sarah Catherine Campbell

The dielectron mass spectrum consists of light vector meson decays, correlated heavy quark contributions and decays from other hadronic and photonic sources. Light vector mesons, modified by the medium via chiral symmetry restoration, and thermal radiation may provide additional signals at low masses above known hadronic sources. The PHENIX $\sqrt{s_{\rm NN}}$ = 200 GeV Au+Au and Cu+Cu analyses has measured a centrality dependent excess in the the low mass region ($0.15 GeV/c^{2} < m_{ee} < 0.75 GeV/c^{2}$) over the cocktail of known hadronic sources. Between the \phi and the J/\psi, the correlated heavy quark contribution is the primary dielectron source; thermal radiation may augment this region as well. In both the low mass region and the intermediate mass region ($1.2 < m_{ee} < 2.87 GeV/c^{2}$), low p_{T} pairs dominate the yields.

The Cu+Cu system is more sensitive to the onset of the dielectron excess. By studying the Cu+Cu mass spectra and yields as a function of pair p_{T} and collision centrality we obtain further understanding of the behavior of the dielectron excess. Comparisons to the PHENIX Au+Au and p+p measurements will also be presented.

Date: July 6, 2011
Time: 2 :00 PM
Place: Physics Building, C-120

Program: Physics
Dissertation Advisor: Thomas K. Hemmick