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**Investigating nearside (NS) correlation structure in two particle number correlations at RHIC** L. CHANAKA DE SILVA, University of Houston, STAR COLLABORATION — 2D two particle number correlation measurements at RHIC have shown an eta elongated correlation at the NS in heavy ion collisions relative to p+p. A quantitative investigation of the NS structure as a function of momentum of the correlated particles will be shown for Cu+Cu and Au+Au 200GeV collisions. A smooth evolution of the NS structure properties is observed. We extract NS structure amplitude and angular widths via a fit model and compare our data to a theory based on CGC initial conditions and radial flow [1,2]. Agreement between data and theory will be discussed for different pT ranges. Finally we discuss other possible explanations behind the NS long range correlation, in particular fits with an extended Fourier decomposition for the NS structure [3]. We show the effect that the inclusion of the third moment (v3) has on the second moment (v2) and the overall quality of the fit.

[1] Gavin, McLerran and Moschelli: Phys.Rev.C79:051902,2009
[2] Moschelli and Gavin: Nucl.Phys.A836:43-58,2010
[3] Alver and Roland: Phys.Rev.C81:054905,2010

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