

Abstract Submitted
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Calculating dilepton production from pions interacting with a disoriented chiral condensate SHAWN WITHAM¹, Texas A&M University Cyclotron REU — Recent data by the PHENIX collaboration at RHIC show an enhancement of low invariant-mass dilepton production in Au-Au collisions at 200 GeV [1]. In this project we study whether the formation of a Disoriented Chiral Condensate (DCC) could explain (part of) this dilepton enhancement. In particular, we compute dilepton production by means of annihilation of DCC domains [2], and compare it to baseline calculations where two thermal pions are annihilating via a rho meson. Using an in-vacuum rho meson line shape, the DCC-DCC annihilation is the dominant source at very low mass ranges. However, it is shown that using an in-medium rho meson [3] the thermal pion-pion annihilation drowns out the effects of the DCC-DCC annihilation. The calculation of dilepton production from thermal pions interacting with a DCC will also be looked at in continued work. [1] PHENIX Collaboration, “Enhancement of the dielectron continuum in Au+Au collisions at $\sqrt{s_{NN}}=200$ GeV.” arXiv:0706.3034v1 (2007). [2] Huang, Z., Wang, X. 1996. “Dilepton and Photon Productions from a Coherent Pion Oscillation.” Phys. Rev. B, Vol. 383:4, 457-462. [3] R. Rapp, 2007. J. Phys. G 34, 405.

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