

1 Low- p_T e^+e^- pair production in Au+Au 2 collisions and exclusive J/ψ production in 3 d+Au collisions at STAR

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5 In ultra-relativistic heavy-ion collisions, strong electromagnetic fields arising from the Lorentz-contraction of highly charged nuclei generate a large flux
6 of quasi-real photons. STAR measurements of the Breit-Wheeler photon-photon fusion process in Ultra-Peripheral Collisions (UPC) have recently
7 demonstrated that the colliding photons are linearly polarized and that the
8 linear polarization leads to azimuthal angle modulations in the final state
9 particle distribution. Similar measurements in peripheral collisions provide
10 an opportunity to directly test the energy and impact parameter dependence
11 of this newly observed phenomena of QED.

12 It has been recently suggested that exclusive photo-nuclear J/ψ production in electron-deuteron scattering at the Electron-Ion Collider (EIC) would
13 provide new insights into the Short-Range Correlations inside nuclei, particularly from the perspective of the underlying quark-gluon dynamics. While
14 awaiting for EIC, data from deuteron-gold (d+Au) UPCs recorded by the
15 STAR detector at the Relativistic Heavy Ion Collider can be used as a proxy
16 to test various techniques and hypotheses.

17 In this presentation, we will present measurements of the $\gamma\gamma \rightarrow e^+e^-$ process at low transverse momentum in peripheral (80-100%) Au+Au collisions
18 and exclusive J/ψ photo-production measurements in ultra-peripheral d+Au
19 collisions. The implications of the related results will also be discussed.
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