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Explore double slit interference effect with linearly polarized photons in UPCs

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In this talk, I will discuss the $\cos 2\varphi$ azimuthal angular correlation in ρ^0 meson production in ultraperipheral heavy ion collisions. The asymmetry essentially results from the linear polarization of incident coherent photons, which just has been experimentally confirmed by the recent STAR measurement. The asymmetries evaluated in the dipole model for ρ^0 photoproduction at RHIC and LHC energies are shown to be rather sizable, and is in reasonably good agreement with the STAR measurement. I will show that the double slit interference effect plays a key role in yielding the distinctive diffractive pattern of the observed asymmetry.

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