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From soft to hard diffraction in ultraperipheral collisions at tLHC

We review a number of coherent phenomena which are studied in the ultraperipheral collisions (UPC) at the LHC. In particular, we demonstrate that much larger shadowing for coherent rho-meson production than in the Glauber model naturally emerges in the color fluctuation picture of high energy hadron –nucleon interaction. We also demonstrate that the theory of the leading twist gluon shadowing correctly predicted large suppression of the γ A->J/ψA production as compared to the impulse approximation as well as the increase of the slope of the cross section. We explain that in long run studies of the UPC processes would probe x at least as small as x=10-4. Such studies would allow to test proximity of the scales of the onset of black disk regime for protons and heavy nuclei. Several other UPC processes will be considered as well.

Author: Prof. STRIKMAN, Mark (Penn State University)

Presenter: Prof. STRIKMAN, Mark (Penn State University)