



Contribution ID: 246

Type: **not specified**

Exploring gluon saturation with photons in high energy hadron-hadron collisions

Thursday 19 April 2018 10:12 (24 minutes)

We report on a recent computation of the NLO inclusive photon cross section using the Color Glass Condensate framework at the RHIC and LHC energies. Our result is appropriate for collisions where a dilute projectile (proton) hits a dense target (a proton or a heavy ion). We will briefly elucidate the main analytic NLO formula obtained in [1], while the main focus of this contribution are the first numerical results of the inclusive isolated photon cross section up to NLO [2] and its comparison to the available experimental data. Our main findings are summarized as:

- (i) We demonstrate the kinematic region where the NLO contribution completely dominates over the LO valence quark bremsstrahlung [3].
- (ii) We find that our results compare well with the available $p + p \rightarrow \gamma + X$ LHC data at 2.76 TeV and 7 TeV.
- (iii) We make predictions for the upcoming LHC data at 13 TeV.

[1] S. Benic, K. Fukushima, O. Garcia-Montero and R. Venugopalan, JHEP 1701, 115 (2017).

[2] S. Benic, K. Fukushima, O. Garcia-Montero and R. Venugopalan, in preparation.

[3] F. Gelis, J. Jalilian-Marian, Phys. Rev. D 66, 014021 (2002).

Authors: BENIC, Sanjin; FUKUSHIMA, Kenji (The University of Tokyo); GARCIA MONTERO, Oscar (Karlsruhe-Rupprechts-Universität Heidelberg); VENUGOPALAN, Raju (Brookhaven National Laboratory)

Presenter: BENIC, Sanjin

Session Classification: WG2: Small-x and Diffraction

Track Classification: WG2: Small-x and Diffraction