



Contribution ID: 27

Type: Talk

## Photons as probes of gluon saturation in p+A collision

*Tuesday, 22 May 2018 11:30 (30 minutes)*

We compute the cross section for photons emitted from a  $q\bar{q}$  pair produced from gluon splitting in proton-nucleus (p+A) collisions at ultra-relativistic energies [1]. The computation is performed within the dilute-dense kinematics of the Color Glass Condensate (CGC) effective theory. Although the result obtained is formally at next-to-leading order in the CGC power counting, it provides at higher energies the dominant contribution for central rapidities.

We present the first numerical results for the photon cross-section including both the leading order terms computed previously [2,3] supplemented by novel next-to-leading results [4]. We compare the relative contributions of the LO and the NLO terms at different collider energies, and present detailed comparisons to data from RHIC and LHC on p+p and p/d+A collisions.

References:

- [1] S. Benic, K. Fukushima, O. Garcia-Montero, R. Venugopalan, JHEP 1701 (2017) 115
- [2] J. Jalilian-Marian and A.H. Rezaeian, Phys. Rev. D 86 (2012) 034016
- [3] B. Ducloué, T. Lappi, H. Mäntysaari, arXiv: 1710.02206
- [4] S. Benic, K. Fukushima, O. Garcia-Montero, R. Venugopalan, (In preparation)

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**Session Classification:** Contributed Talks