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Photons as probes of gluon saturation in p+A collisions

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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)

Content type

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Presenter name already specified

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