

# Photon jet angular correlations in p+A collisions at central rapidities

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We report on a recent computation [1] of the semi-inclusive photon-jet angular correlations in high energy  $p + A$  collisions at the next-to-leading order (NLO) in the Color Glass Condensate framework. The NLO result considers the  $p + A \rightarrow q\bar{q}\gamma$  channel appropriate at central rapidities. We focus on the nearly back-to-back photon-jet configurations and find the leading-order  $p + A \rightarrow q\gamma$  contribution to be suppressed relative to the NLO. Integrating over the quark phase space at NLO we obtain an analytic expression for the  $p + A \rightarrow q\gamma + X$  cross section and identify the corresponding transverse momentum gluon distributions. We find explicit expressions for the angular harmonics  $\langle \cos n\phi \rangle$  with  $\phi$  as the angle between the net and the average photon-jet transverse momentum and provide numerical estimates on their transverse momentum dependence and sensitivity to the saturation scale.

[1] S. Benic, A. Dumitru, Phys.Rev. D97 (2018) no.1, 014012.

**Authors:** BENIC, Sanjin; DUMITRU, Adrian (Baruch College (City University of New York))

**Presenter:** BENIC, Sanjin