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Search for gluon saturation at Bjorken-x of 10^{-6}-10^{-5} with the LHCb detector.[1] CESAR DA SILVA, Los Alamos Natl Lab, LHCB COLLABORATION — Gluon saturation at small Byorken-x has been in the minds of particle and nuclear physicists for decades. This state can explain several recent observations such as 1) particle collectivity observed in p+p, p+A and A+A collisions at RHIC and LHC; and 2) depleted yield of particles coming from soft gluons. Previous results from DIS experiments at HERA show a fast increase of gluons as their fractional momentum x decreases. The LHCb experiment is a forward spectrometer with vertexing, tracking, p, K, pi, e, μ identification and calorimetry in the rapidity region $1.6< \eta < 4.9$. LHCb is the only experiment in the world which can probe $x \sim 10^{-6} - 10^{-5}$, up to two orders of magnitude smaller than HERA. A direct probe of gluons at small-x and small Q^2 can be performed with γ+jet correlation measurements. The current detector acceptance is not optimized for soft particles coming from Q^2 <10 [GeV/c]^2 processes, where gluon saturation is expected. RD is underway for a new tracking detector to be placed inside the LHCb magnet, the Magnet Station (MS), which will enable measurements of these soft particles. This talk is going to report the status of the analysis efforts aimed at finding the gluon saturation scale at LHCb, and details of the MS.

[1]Los Alamos National Lab LDRD program

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