



Contribution ID: 25

Type: **Poster**

Saturation and forward jets in proton-lead collisions at the LHC

We investigate the forward-jet energy spectrum within the color glass condensate framework at 5 TeV center-of-mass energy. In particular, we focus on the kinematic range covered by the CMS-CASTOR calorimeter. We show that our saturation-model calculations are compatible with the CASTOR measurements and that to optimally reproduce the data, effects of multiparton interactions need to be included. We predict a significant nuclear suppression—reaching down to 50% at the lowest considered jet energies $E_{\text{jet}} \sim 500$ GeV.

References: H. Mäntysaari, H. Paukkunen, Phys.Rev. D100 (2019) no.11, 114029, arXiv:1910.13116

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Session Classification: Poster Session

Track Classification: Poster Session