

# STAR 2022+ BUR inputs for low B-field running

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BNL

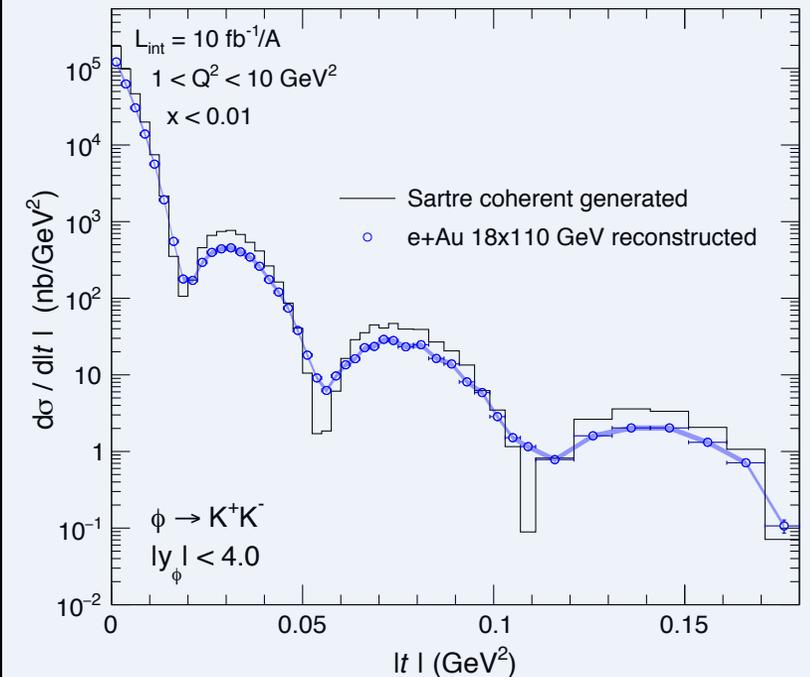
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Photoproduction of  $\phi$  meson

# Motivation

- Diffractive Vector Meson (VM) is one of the golden channels for understanding the nucleon and nucleus structure – gluon density and distributions.
- UPC VM photoproduction at hadron collider has its unique position and complementary to the Electron-Ion Collider, especially in the photoproduction regime.
- Recent NLO UPC J/psi calculations pointed out the strong **scale dependence** and its role of gluon distributions in nuclei, where more experimental inputs are very important! (arXiv:2203.11613)
- No UPC photoproduction  $\phi$  meson has ever been measured.

EIC Detector-1 Proposal (ATHENA)  
One of the most important sciences  
at the EIC



But even at EIC, photoproduction of  $\phi$  meson is difficult, if not impossible