Sartre + BeAGLE

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ATHENA Exclusive & Tagging WG - diffractive VM production

Golden process – diffractive ϕ

- Physics has 2 main implications:
  1. Gluon density distribution
  2. Saturation dynamics

- What matters:
  1. Background from incoherent contributions (Veto) – event level
  2. Background from \rho, e', etc…(PID) – particle level
  3. *t* resolutions, t reconstructions methods and their sensitivity/resolutions (Detector performance, e', KK, pipi, ee, etc..)
  4. …

Sartre samples (eAu)

All VM (phi, rho, J/psi, …), coherent + incoherent.

✓Photoproduction 100M, generated.

✓$1<Q^2<20$ 100M, generated.

(~500G)

BeAGLE samples (ePb)

All VM (phi, rho, J/psi, …), incoherent only.

✓$1<Q^2<200$ 100M, generated. (J/psi, for example, around 1.3M)

(~2T for EICTree, ~5T for lund output, ~20 hours)

Status

- Incoherent background study is finished with J/psi based on BeAGLE (~paper will be on arXiv next week).
- ϕ will need a separate but similar study

- Background from \pho from PID perspective – Zhangbu Xu

- ***t*** reconstruction was studied in YR (Thomas) and publication (*Phys.Lett.B* 811 (2020) 135877)

Main question/work:

- Study all effects and how to combine them?
- Iterate with detector group/configurations, etc.