

# Status of SIDIS working group

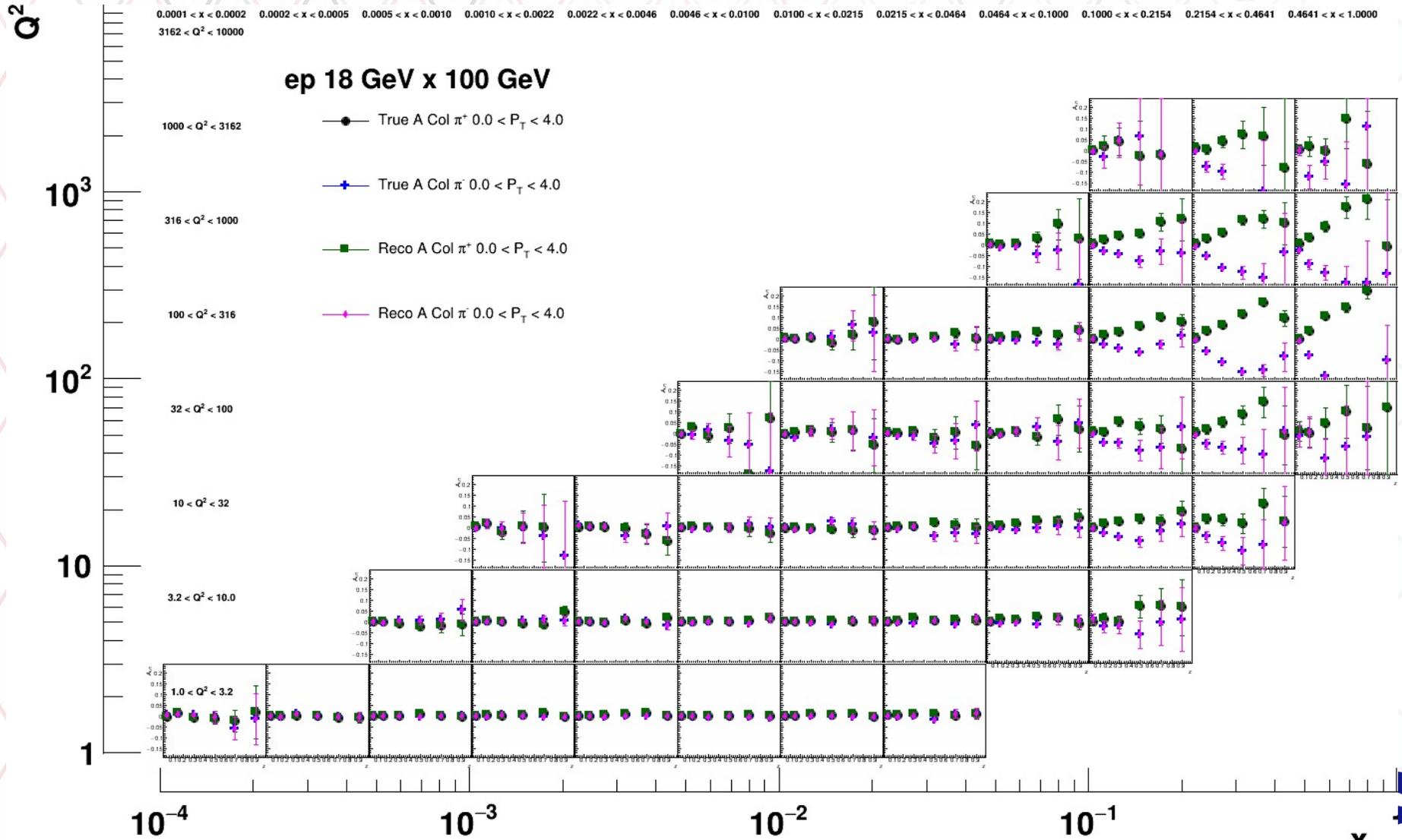
**Physics meeting  
July 19**

**Charlotte Van Hulse  
Ralf Seidl (RIKEN)**

# Status

- Test production for SIDIS output is available under:
  - high  $Q^2$ ,  $\sim 3.8$  M DIS events,  $Q^2 > 100$  GeV  
`EIC_S3/eic_test/ECCE/MC/ana.14/5f210c7/SIDIS/pythia6/ep_18x100highq2`
  - Low  $Q^2$ ,  $\sim 20$  M DIS events,  $1 < Q^2 < 100$  GeV  
`EIC_S3/eic_test/ECCE/MC/ana.14/5f210c7/SIDIS/pythia6/ep_18x100lowq2`
- *Tested track projections for identifying clusters from charged particles  $\rightarrow$  works reasonably well but room for improvement*
- *Resolution studies ongoing*
- *Meeting between SIDIS conveners of ECCE and ATHENA (Anselm) to agree on common way of assessing systematics, cuts, contacting theorists for impact studies etc (see pages 5/6).*
- *Checked for acceptance holes due to crossing angle, but within  $|\eta| < 3.5$  not affected*

# Updated Collins asymmetries using *ana.14* SIDIS simulations



# Systematics for SIDIS measurements

- Common
  - Polarization
  - Luminosity
  - Detector effects
  - Electron misidentification →
- Azimuthal asymmetries
  - Smearing
    - Difference between injected (**model (torino)**) and reconstructed
    - $y_{cut}: 0.01, 0.95, Q^2 > 1.0, W^2 > 10$
  - PID
    - Systematics also based on models (do we have kaon sivers?)
    - Pion systematics = kaon contamination?
    - Or specify purity
- $A_{LL}$ 
  - Detector effects
  - → use model DSSV
- Cross-Section
  - Model

- Collins → JAM
- Di-hadron → Pavia
- TMD evolution → Pavia, Artemide
- Sea quarks → Argentinian
- Sivers → Artemide
  
- → contact Alexey, JAM (transversity) (Daniel Pitonyak)