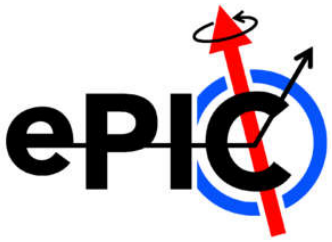

SIDIS Working Group

Conveners: Charlotte Van Hulse (U Alcala),
Stefan Diehl (JLU Giessen and UConn)

Wiki of the SIDIS PWG: https://wiki.bnl.gov/EPIC/index.php?title=SIDIS

PWG meetings: Tuesday 2.30 pm (~ every 2 weeks)

SIDIS Working Group

Physics channels:

- Collinear double-helicity asymmetry [sea-quark helicity PDFs]
- Unpolarised TMD measurements [spin-independent TMD PDFs/FFs]
- Sivers and Collins asymmetry [Sivers TMD, transversity, tensor charge, Collins FF]
- Dihadron asymmetry [transversity, tensor charge, collinear dihadron FF]
- High-pT dihadron asymmetry [gluon Sivers]
- Lambda polarisation [polarised FF]
- Back-to-back hadrons to probe saturation
- **New feasability study:** Semi-inclusive J/ψ production to probe gluon TMDs

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Status of most physics analyses:

- Analysis framework ready

  see talk by C. Dilks: https://indico.bnl.gov/event/17018/contributions/67903/attachments/43129/72509/sidis-eic.pdf

  Github: https://github.com/eic/epic-analysis

Next steps:

- realistic PID (priority: high)
- radiative effects (priority: high)
- inclusion of realistic simulations with background (priority: medium-high)
- inclusion of new PDF/FF set to study variation of outcome (priority: medium)
- implementation of unfolding (priority: medium, sufficient simulation needed)
- study impact of tracking resolution for some analyses

An overview on detailed studies done so far can be found here:

https://indico.bnl.gov/event/17621/contributions/70630/subcontributions/2135/attachments/45495/76765/2023_01_11_ePIC_SIDIS.pdf

https://indico.bnl.gov/event/15342/contributions/65968/attachments/42422/71057/WG_SIDIS_EICUGJuly22.pdf

SIDIS Working Group

Planned (partly ongoing) activities:

- **Definition and implementation of detector benchmarks:**
  - (SI)DIS resolutions and coverages / acceptances (x_B, Q^2, z, P_T, Φ_h)
  - purity of pions and kaons vs. momentum (e/π K/π separation)
  - reconstruction efficiencies for Lambdas and maybe others [maybe in combination with exclusives]
- More people needed in the PWG!