

TDR meeting, input from SIDIS WG

Stefan Diehl, Charlotte Van Hulse

Simulation input files

Generators for TDR studies:

- Pythia

Input files:

- /gpfs02/eic/DATA/YR_SIDIS/ep_18x275/hepmc_ip6/noradcor/ep_noradcor.18x275_q2_[a]_[b]_run*
- /gpfs02/eic/DATA/YR_SIDIS/ep_18x100/hepmc_ip6/noradcor/ep_noradcor.18x100_q2_[a]_[b]_run*
- /gpfs02/eic/DATA/YR_SIDIS/ep_10x100/hepmc_ip6/noradcor/ep_noradcor.10x100_q2_[a]_[b]_run*
- /gpfs02/eic/DATA/YR_SIDIS/ep_5x41/hepmc_ip6/noradcor/ep_noradcor.5x41_q2_[a]_[b]_run*

with [a] and [b] >1 (cf. $Q^2 > 1 \text{ GeV}^2$).

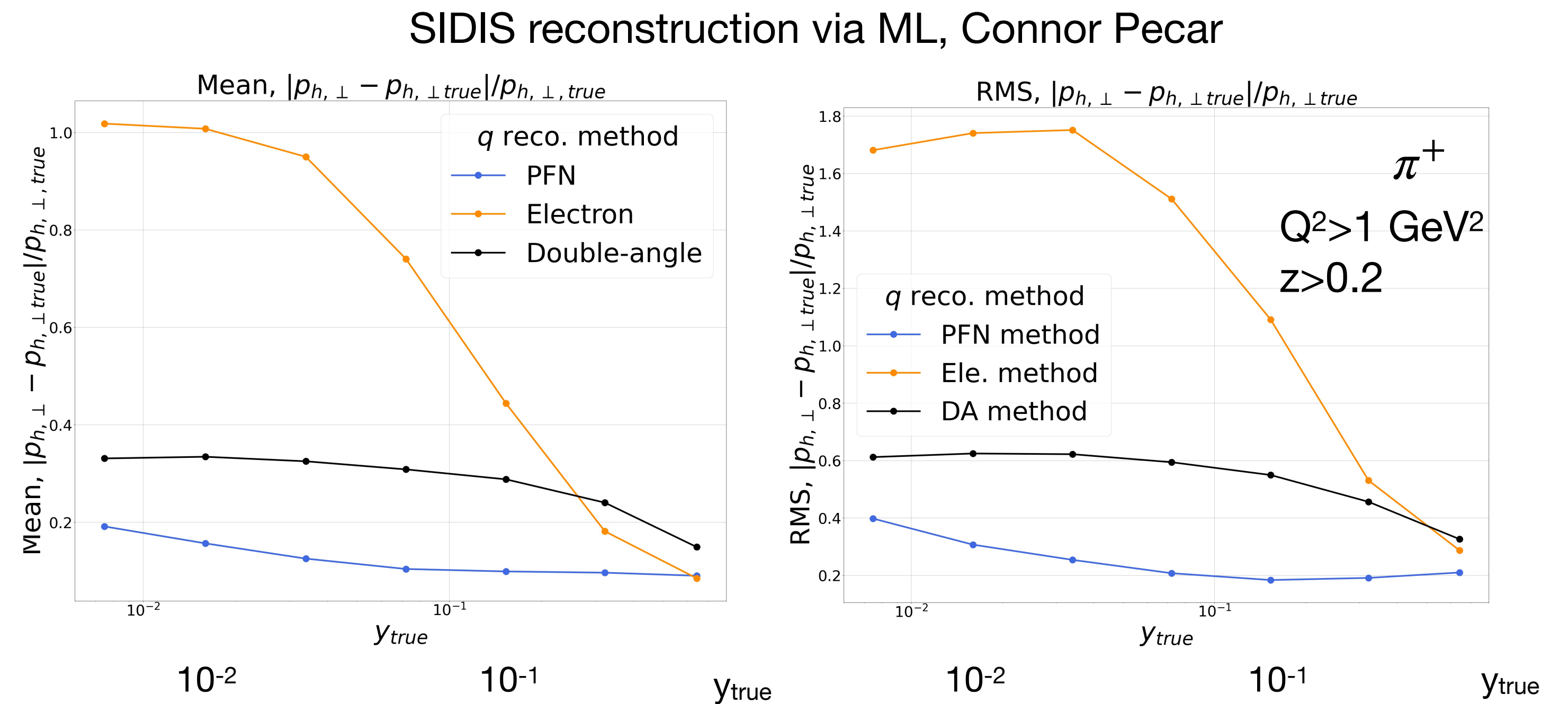
Studies

- Studies for TDR
- Additional studies:
 - high- p_T dihadrons to access Sivers distribution
 - Quarkonium production

Plots for TDR – reconstruction of SIDIS variables

Artur Haghmrtsyan, Connor Pecar

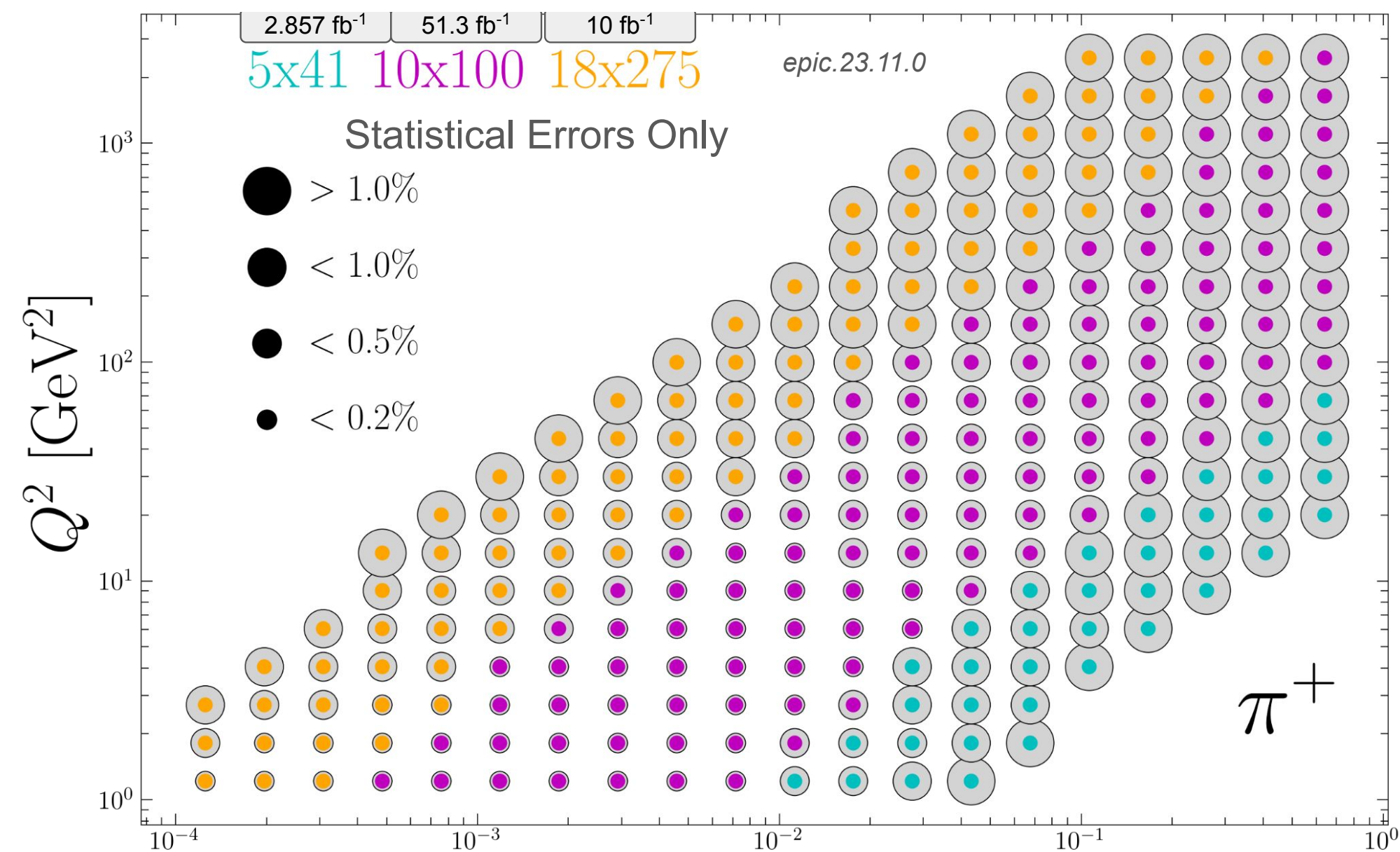
- Resolution SIDIS variables
- Reconstruction of SIDIS variables with ML, important at low y



Plots for TDR – unpolarised TMD PDFs

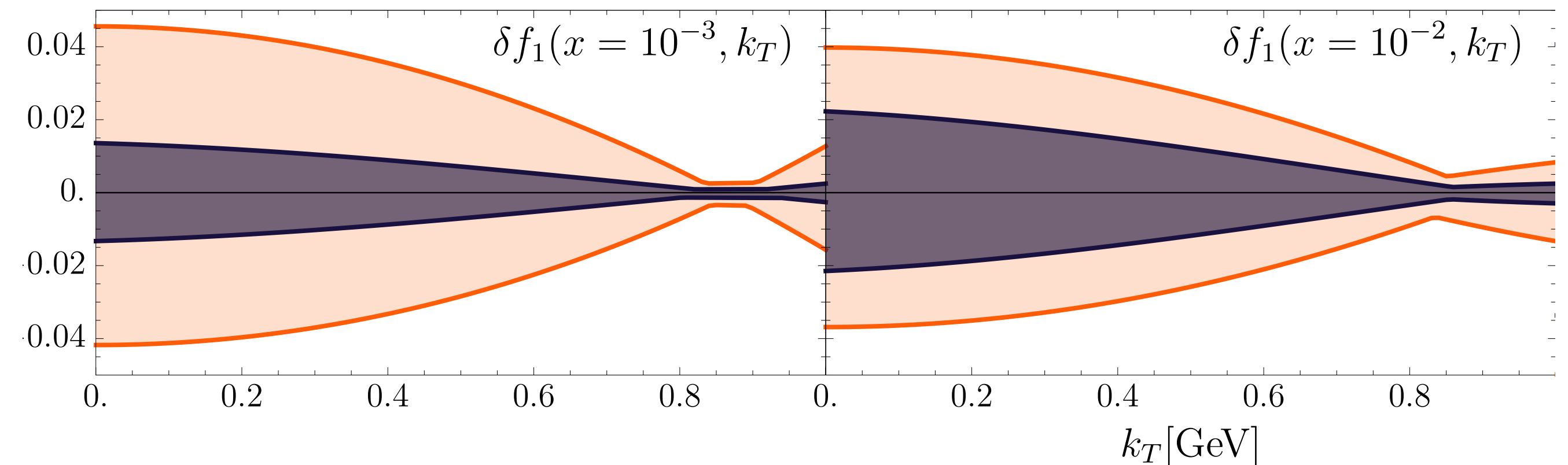
Gregory Matousek/Ralf Seidl; theory: Pavia group/Alexey Vladimirov

Unpolarised TMD PDFs,
preliminary study from Gregory Matousek + Pavia group



Grey circles: uncertainties at present
Coloured circles: uncertainties with EIC,
shown for beam E with highest impact

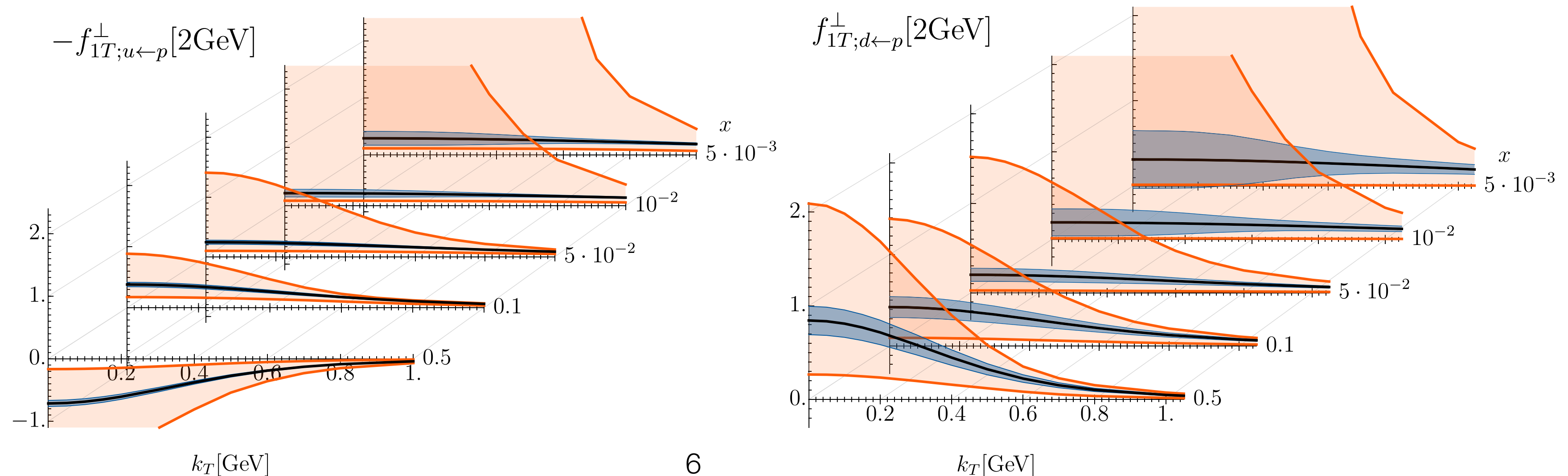
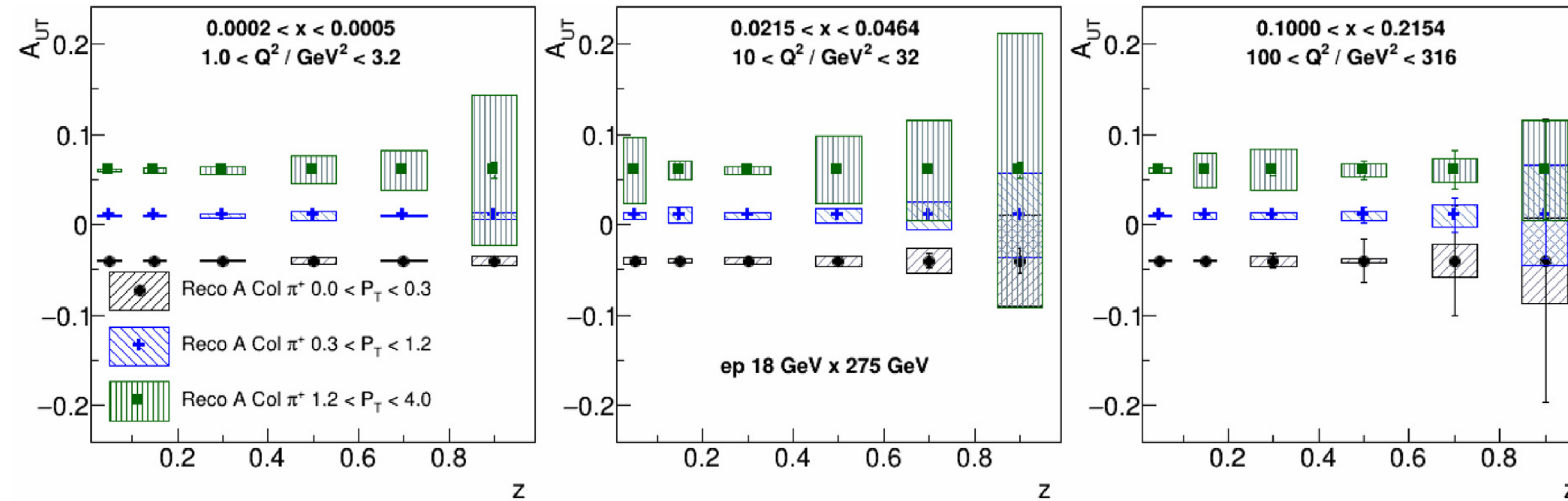
R. Seidl, A. Vladimirov et al., NIMA **1049** (2023) 168017



Plots for TDR – Collins and Sivers asymmetry

Ralf Seidl; theory Alexey Vladimirov, Daniel Pitonyak, Alexei Prokudin

NIMA 1049 (2023) 168017



Plots for TDR – A_{LL} asymmetry

Charlotte Van Hulse; theory Ignacio Borsa

NIMA 1056 (2023) 168563

