

Status update:
impact studies for EIC
Sivers function + PID comparison

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For details of derivation see previous meetings

Bury, Prokudin, AV fit of Siverts function

- ▶ **HERMES 3D**, Compass, JLab (63 points)
- ▶ RHIC, Compass π DY (12 points)
- ▶ Unpolarized input = SV19
- ▶ Total 12 parameters.
- ▶ NNLO and N³LO TMD evolution (difference is minor)
- ▶ Global $\chi^2/N_{pt} = 0.86 = 0.78_{\text{DY}} + 0.88_{\text{SIDIS}}$

Difference from 2 months ago

- ▶ Some change of the fitting ansatz (added $N_{\text{sea}} \neq N_s$, some parameters = 0)
- ▶ Changed definition of the central value (= average over SV19)

It effects the position of the central value, but not of the band



Opt 6

High pt 6	$\pi/K/p$
-3.5 - -1.0	0.2 - 7
-1.0 - 1.0	0.2 - 10
1.0 - 2.0	0.2 - 40
2.0 - 3.0	0.5 - 45
3.0 - 3.5	0.5 - 50

VS.

Opt 8

Final 8	$\pi/K/p$
-3.5 - -1.0	0.2 - 7
-1.0 - 1.0	0.2 - 6
1.0 - 2.0	0.2 - 50
2.0 - 3.0	0.5 - 50
3.0 - 3.5	0.5 - 50

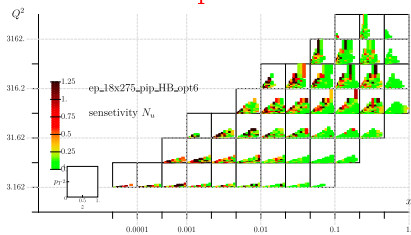
More pseudo-data by Ralf

- ▶ All energy configurations
- ▶ Opt6 & Opt8
- ▶ HB & ACC
- ▶ π^\pm & K^\pm
- ▶ $e + p$ & $e + n$ (and some $e + d$, $e + He^3$)

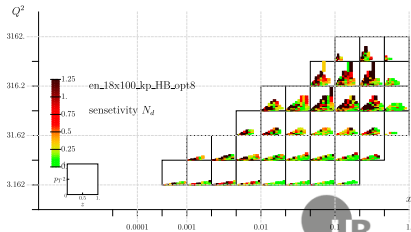
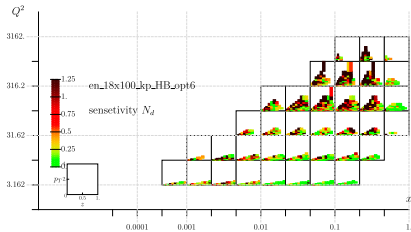
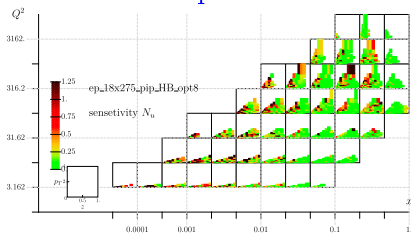


Differences are tiny

Opt 6



Opt 8

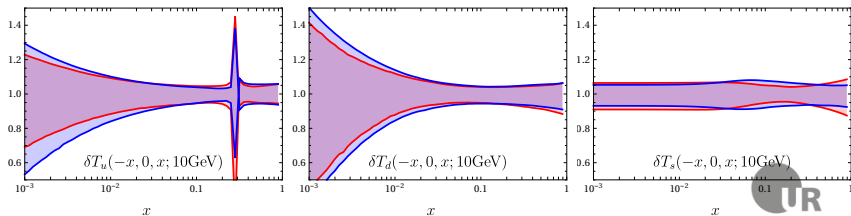
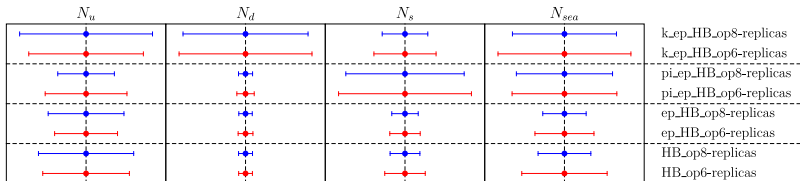


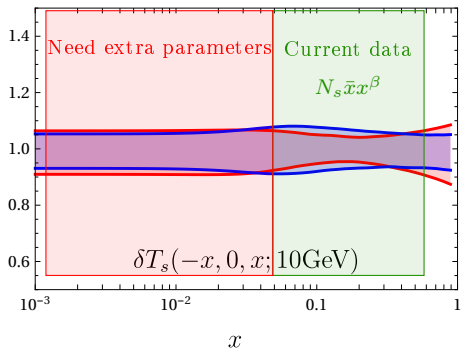
These options almost equal.

Opt8 a bit better...

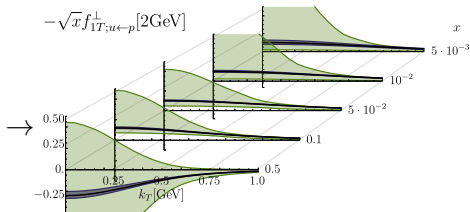
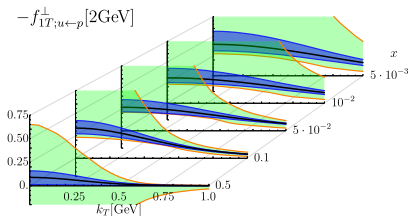
Only light differences

(which are not reliable given the accuracy of estimation of systematics)





Update for plot in EIC YR



Reasons

- ▶ Bury, Prokudin, AV fit is finished (previous was preliminary)
- ▶ π^\pm & K^\pm in $(e+p)$ & $(e+n)$ (previously was π^+ in $(e+p)$)

Update for plot in EIC YR

