



Jet Bencharks @ EIC

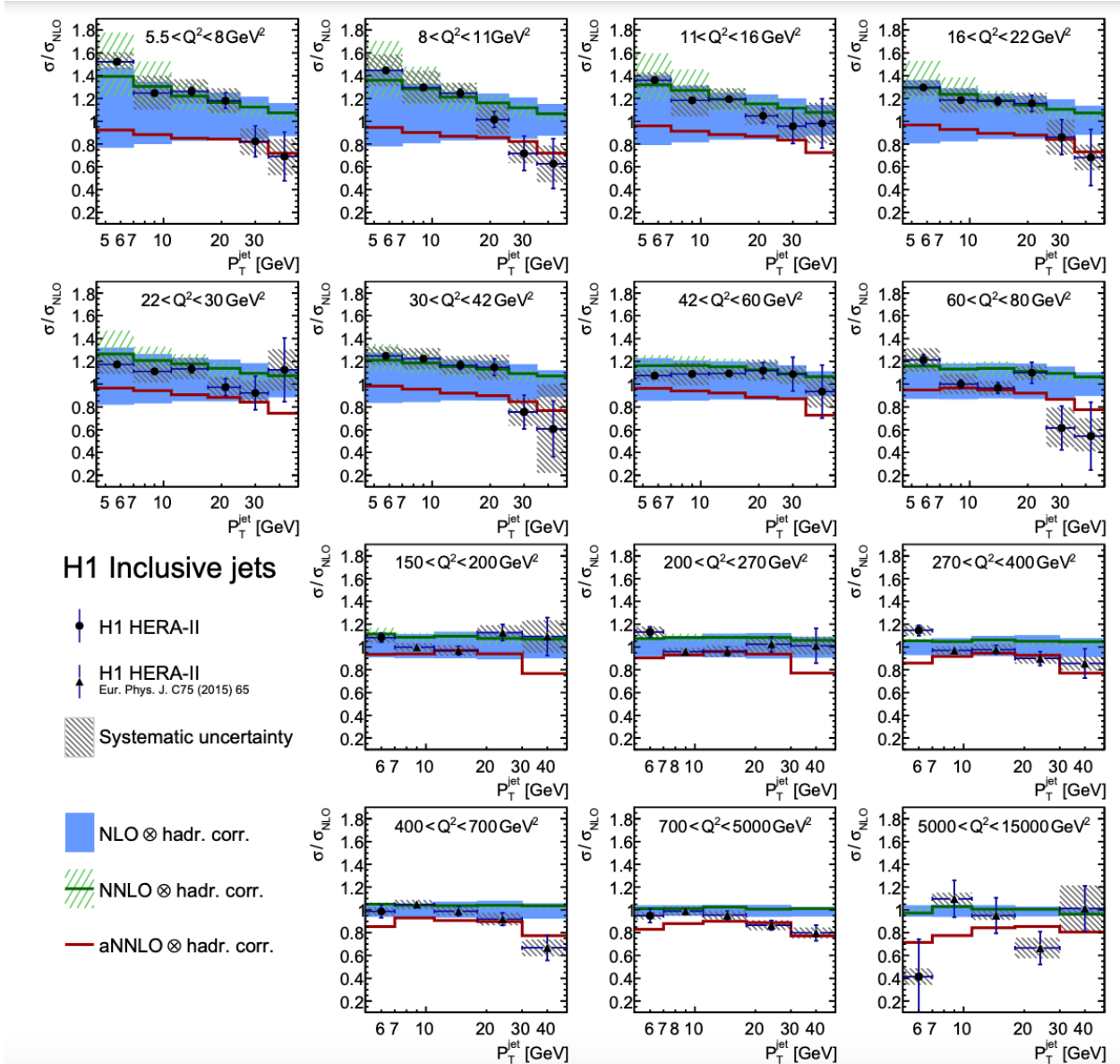
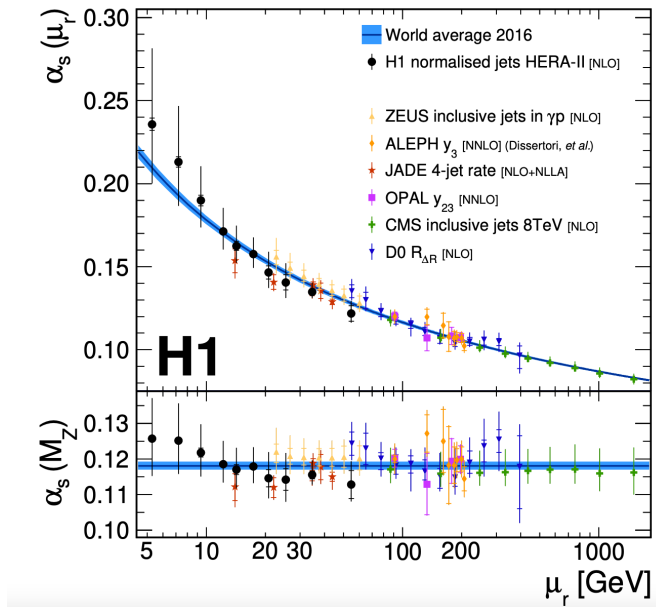
Renee Fatemi
October 11, 2023

Inclusive & Dijet Xsecs

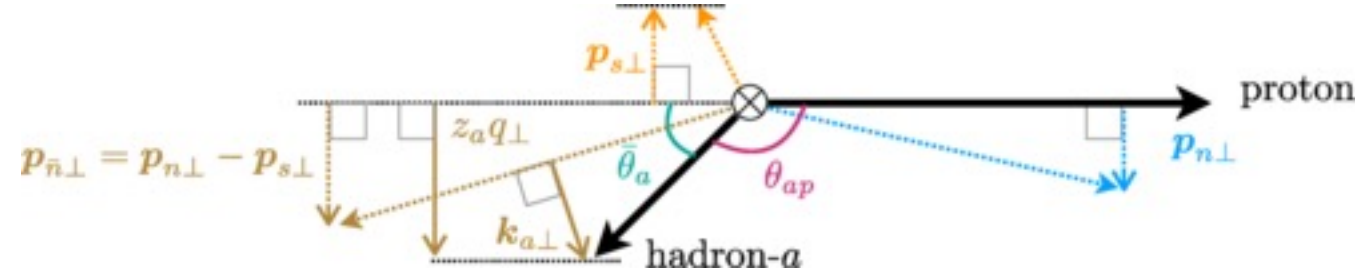
<https://arxiv.org/pdf/1611.03421.pdf>

<https://arxiv.org/abs/2303.13620>

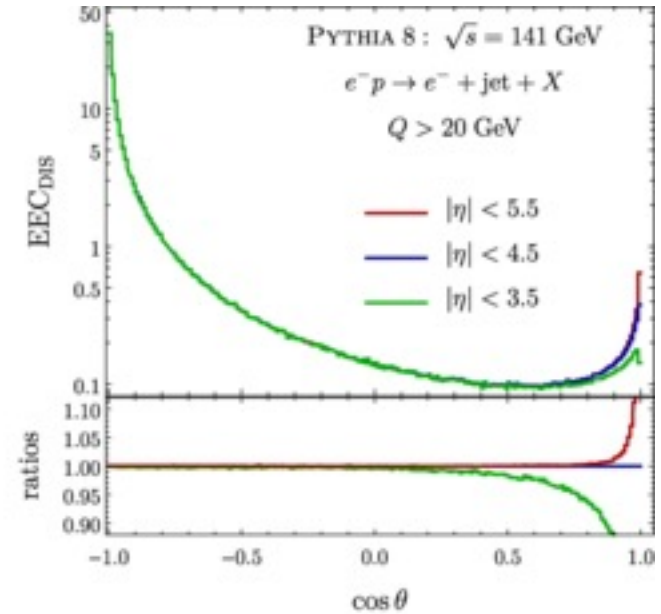
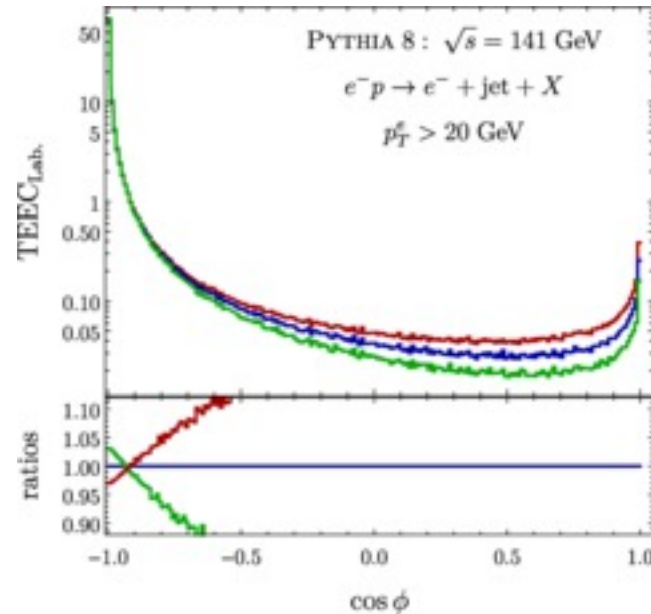
- Reconstruction in NC events – requires detection of electron as well as jets.
- Input for NNLO fits and may be used to extract strong coupling constant
- Xsec differential in jet angularities is sensitive to hadronization models



EE Correlators in DIS



- Classic energy-energy correlator shape observable adapted for the Breit frame
- Sensitive to TMDPDFs and TMDFF
- Can be studied in traditional TMD framework
- Suited for precision studies due to high perturbative accuracy in both resummed and fixed order calculations



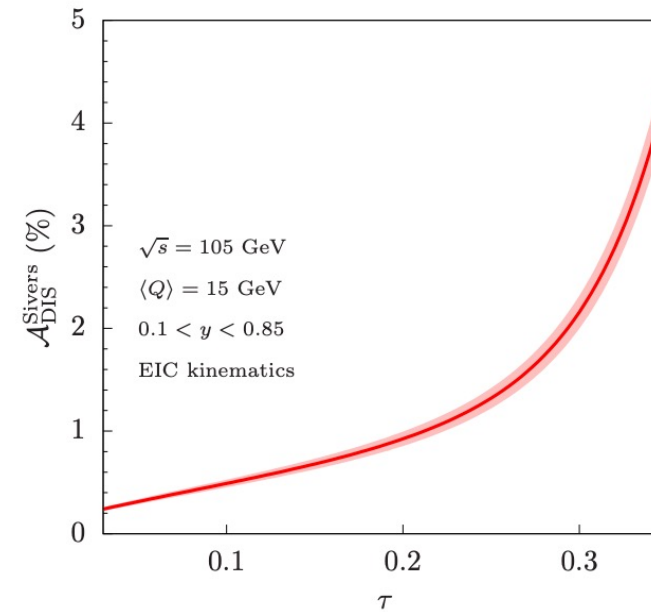
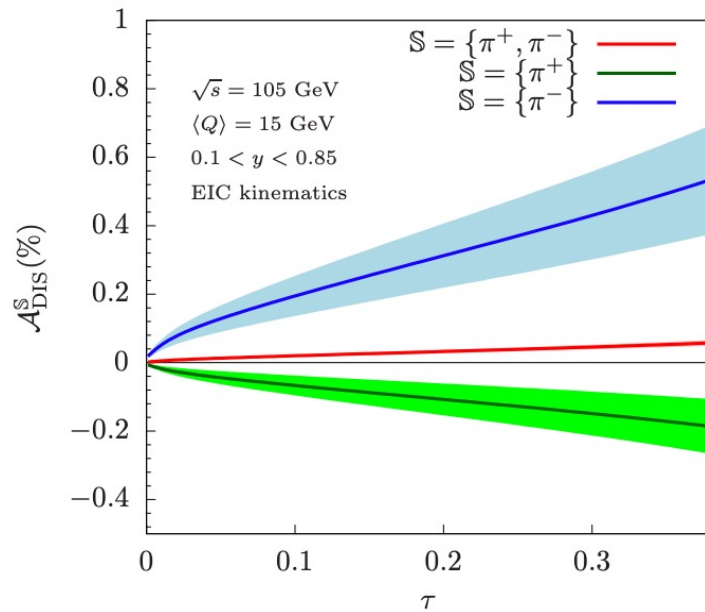


Figure 3: $A_{\text{DIS}}^{\mathbb{S}=\{\pi^\pm\}, \{\pi^+, \pi^-\}}$ (left) and $A_{\text{DIS}}^{\text{Sivers}}$ for $\mathbb{S} = \{\pi^+, \pi^-\}$ (right) at EIC kinematics.

Spin dependent EECs

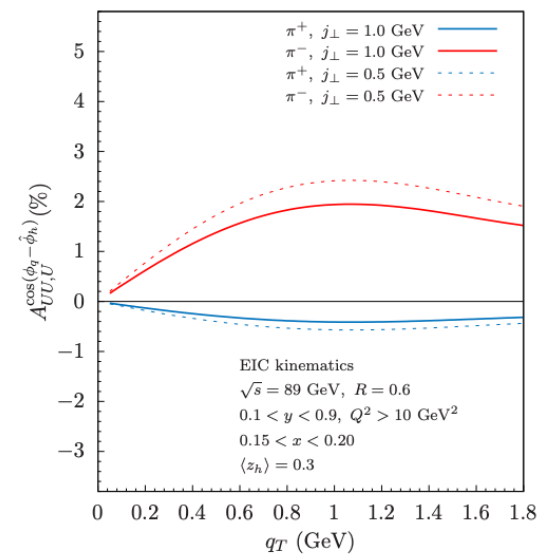
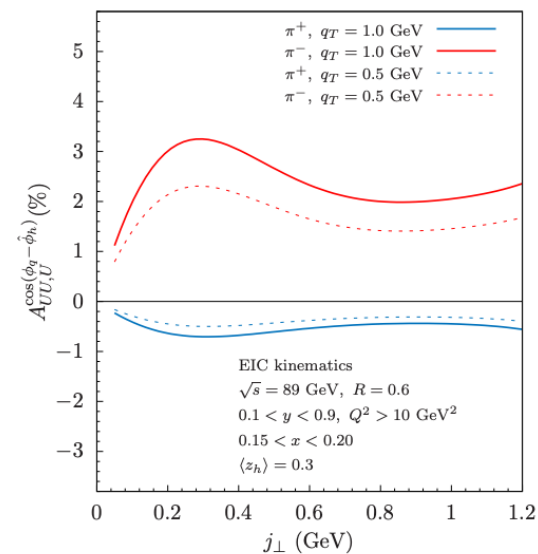
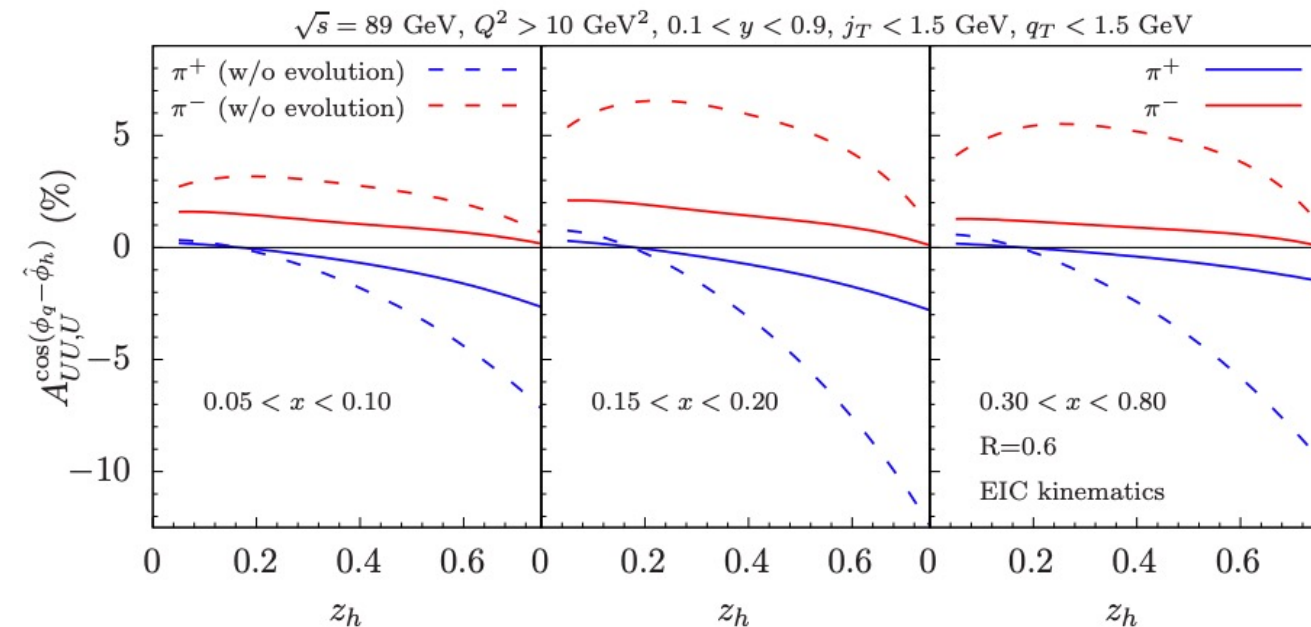
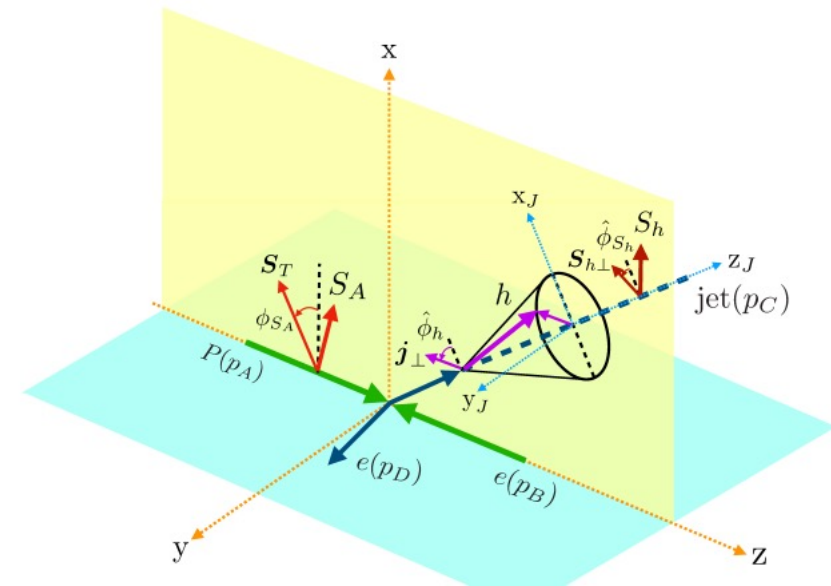
<https://arxiv.org/pdf/2307.06935.pdf>

Generalized to include azimuthal angle dependence
 EECs are sensitive to the unpolarized and Collins TMDFF
 Sensitivity to Sivers as well
 Asymmetries are pretty large

Hadron-in-jet observables

[https://link.springer.com/article/10.1007/JHEP11\(2021\)005](https://link.springer.com/article/10.1007/JHEP11(2021)005)

1. Unpolarized pions in jet – Boer-Mulders PDF x Collins FF



Hadron-in-jet observables

[https://link.springer.com/article/10.1007/JHEP11\(2021\)005](https://link.springer.com/article/10.1007/JHEP11(2021)005)

2. Polarized Lambda in jet – unpolarized TMDPDF x Lambda TMDJFF

