

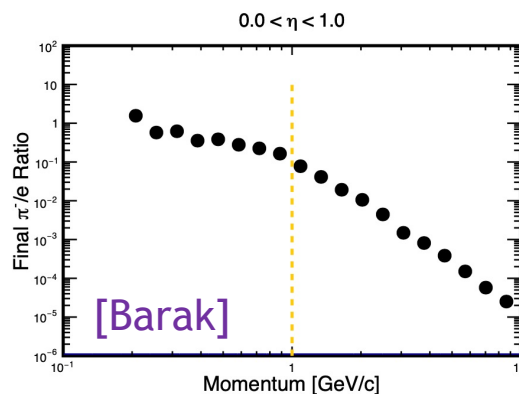
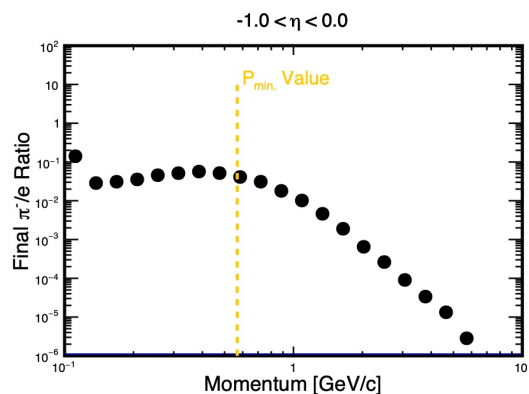
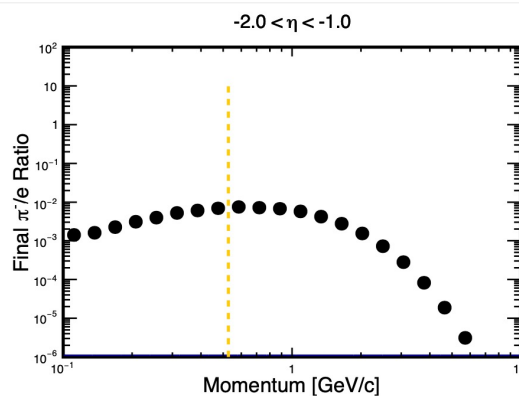
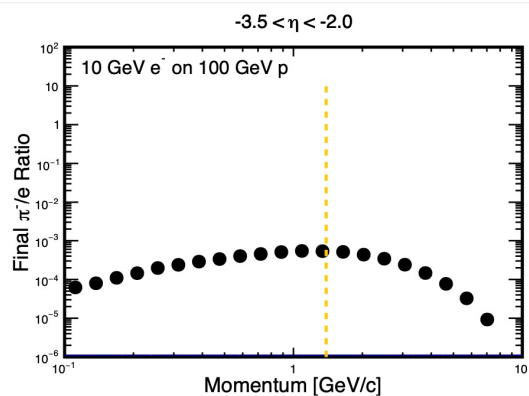
Discussion:
Convergence on ...
- Simulated data
- Plots for Proposal

(see also previous discussion sessions
at meetings on 23 August, 20 September, 18 October)

- Summary of current input to proposal draft
- Proposed pseudodata to send to fitters (today?)

Electron ID performance

- Backgrounds / purities



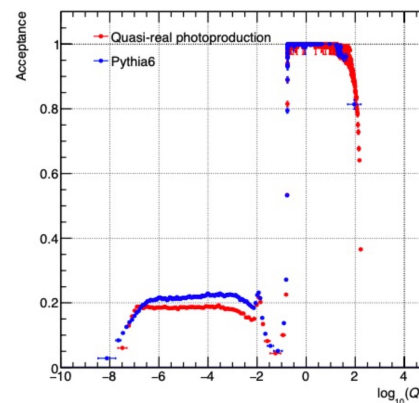
- Derived from e^-/π^- rejection ratios from ECAL plus E-pz, isolation requirements

- Covoluted with e, π yields from PYTHIA6 (?)

→ Backgrounds $< \sim 10\%$ for full measured DIS range defined by $Q^2 > 1\text{GeV}^2$ and $y < 0.95$

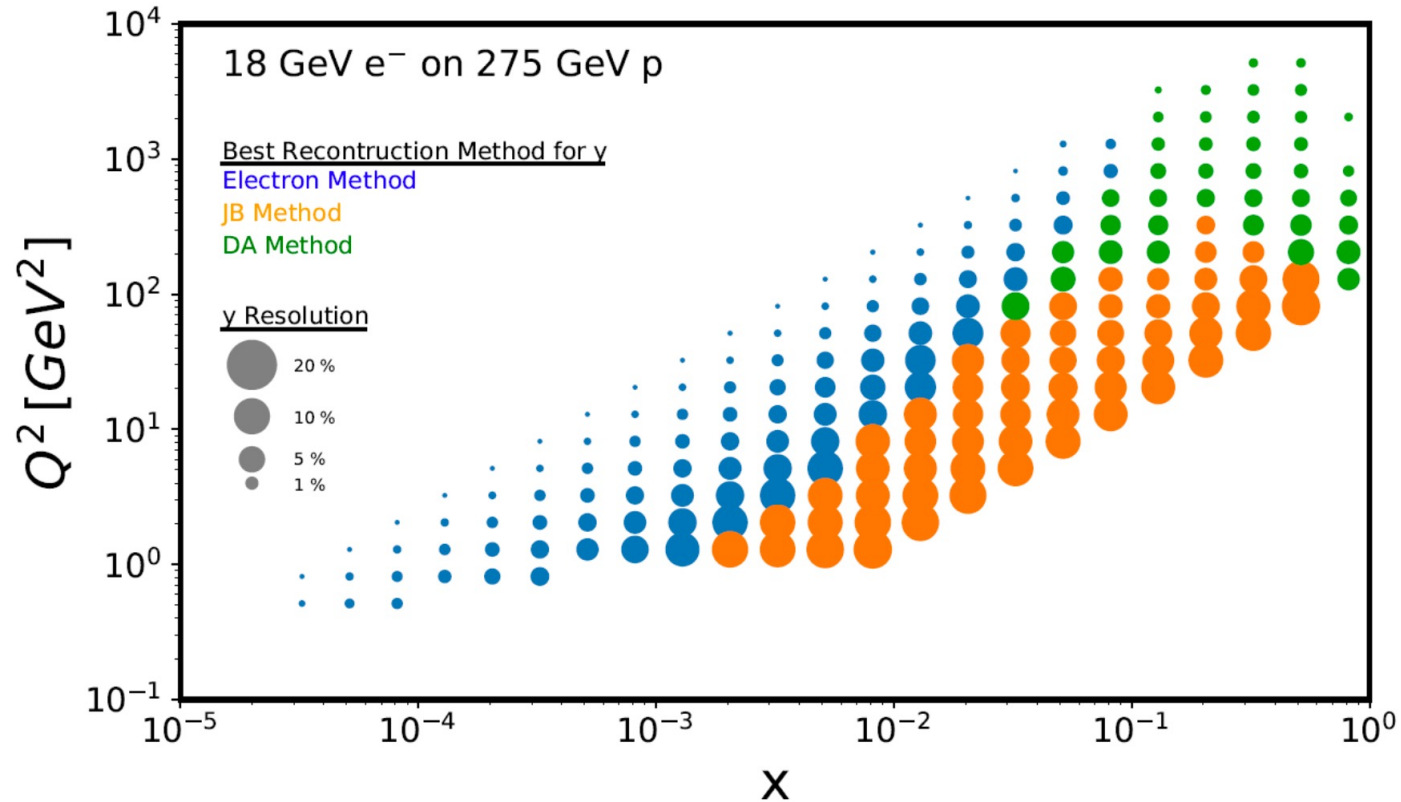
- Electron acceptance as function of Q^2 ?

- Perhaps this could be dropped if there is nothing detailed on beamline taggers?



Resolution on Kinematic Variables

- Placeholder unchanged from previous discussions

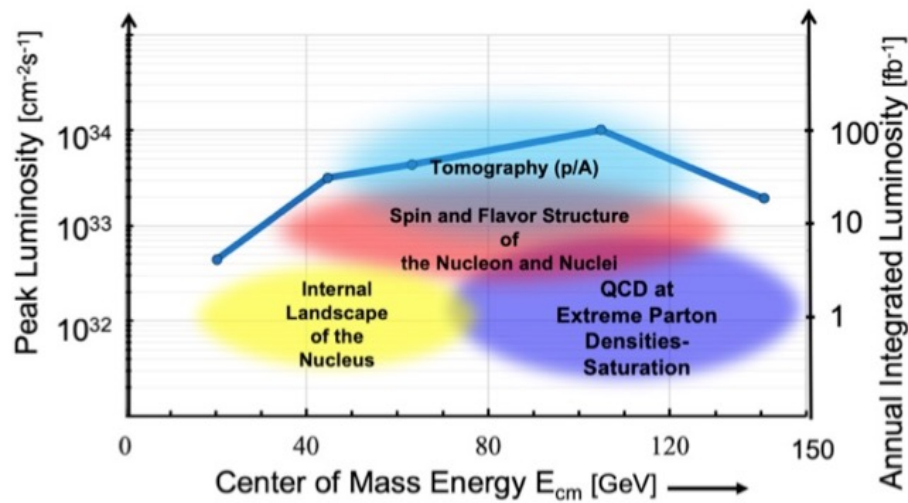


- General agreement on presentation style
- Input for hadron / mixed methods still to be fixed

Simulated NC Inclusive Cross Sections

Proposal (for unpol ep) following discussion between Qinghua, Barak, Paul:

- Produce two pseudodata sets based on $0.001 < y < 0.95$, $Q^2 > 1 \text{ GeV}^2$, 5 logarithmically spaced bins per decade in each of x , Q^2 .
- Luminosity 100 fb^{-1} for best E_e , E_p combination, others scaled accordingly (to 1 year each at peak EIC luminosity)
- Take uncertainties from Yellow Report (no reason to suppose ATHENA is better or worse). → Optimistic version?...
- Polarised ep by propagation. eA assumptions similar to ep



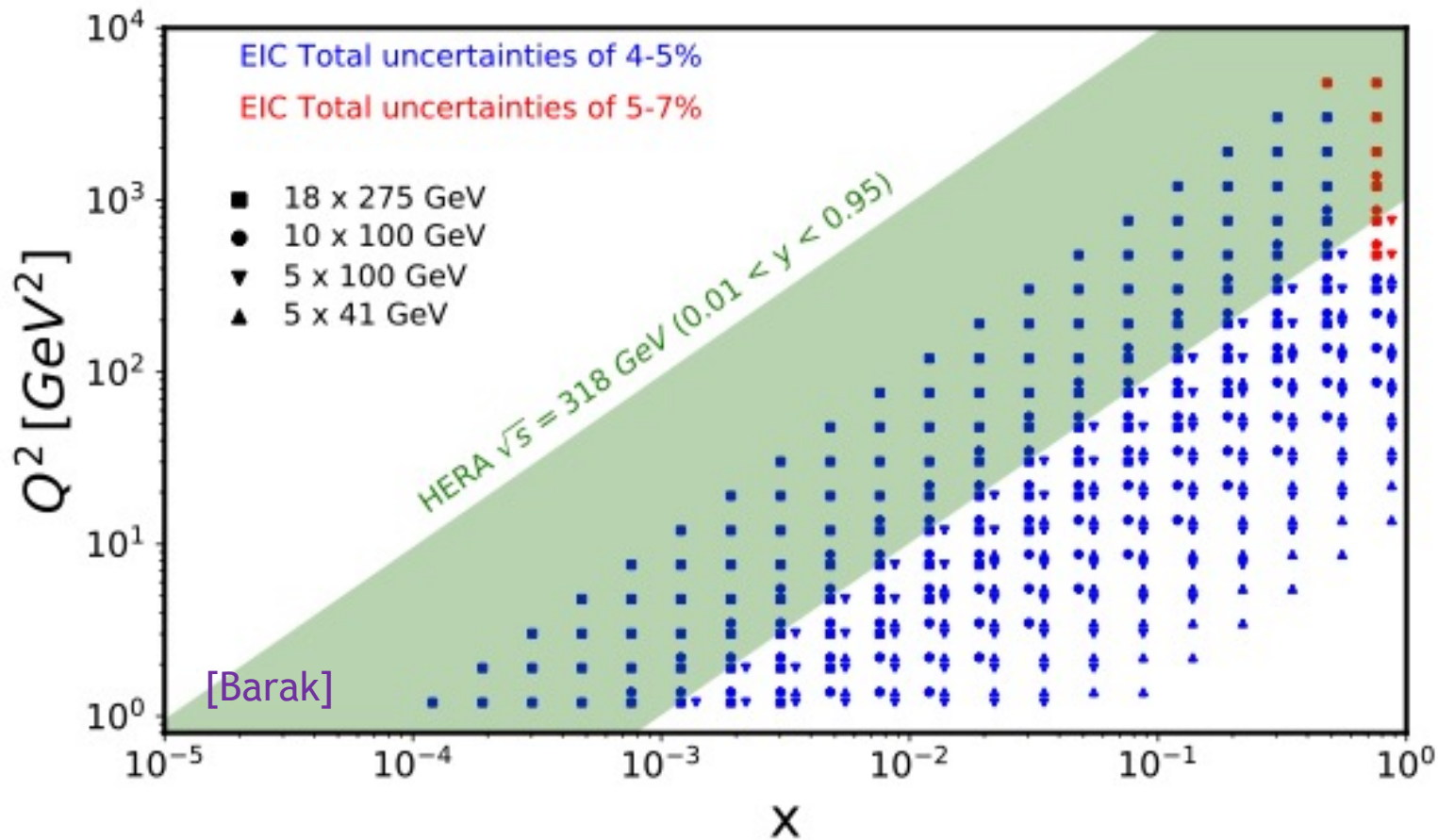
N.C. systematic uncertainties

	Point-to-Point (%)	Normalization (%)
Statistics (10 fb^{-1})	0.01-0.35	-
Luminosity	-	~ 1
Electron Purity	-	~ 1 (for 90% purity)
Bin-Centering	< 0.5	< 0.5
Radiative Corrections (<i>HERA</i>)	1	-
Acceptance / Bin-Migration + Trigger & Tracking Eff. + Charge-Symmetric Background	1-2	2-4
Additional uncertainty for $y < 0.01$ bins	2	-
Total	1.5-2.3 (2.5-3 for $y < 0.01$)	2.5-4.3

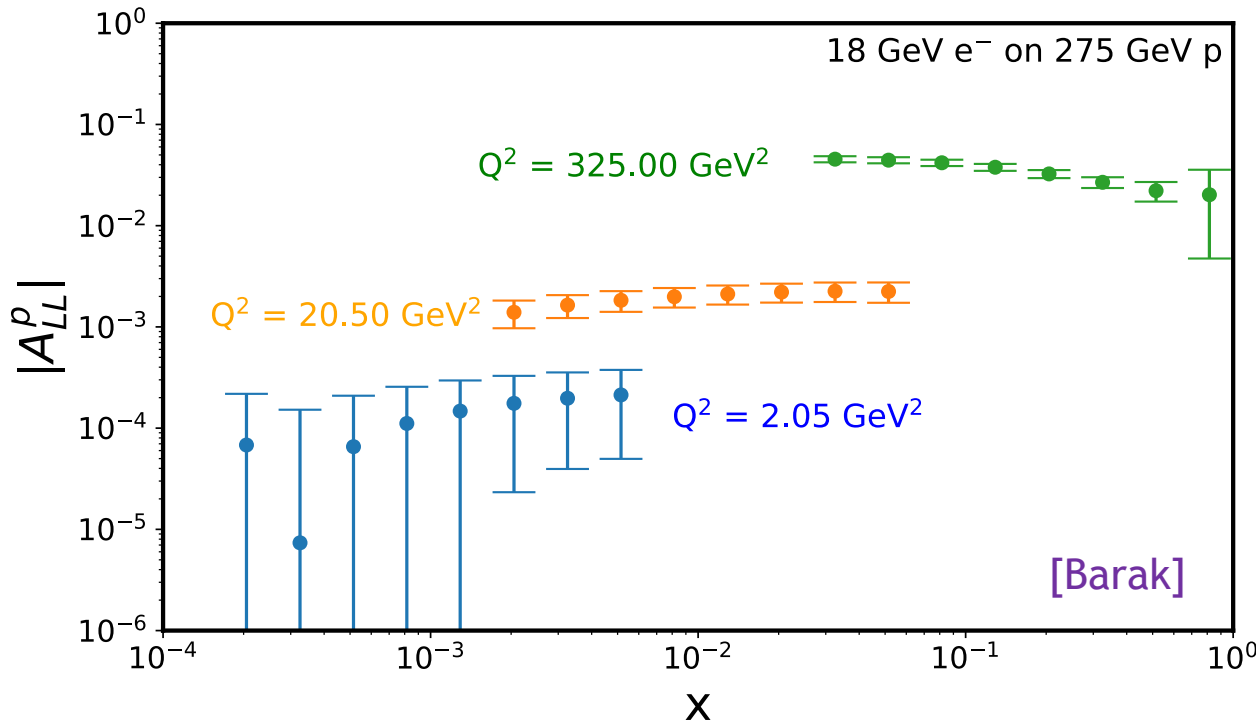
→ Urgent need to send something ‘nearly final’ to fitters

Simulated NC Inclusive Cross Sections

First version implementation of presentation plan for measurement range and precision ...



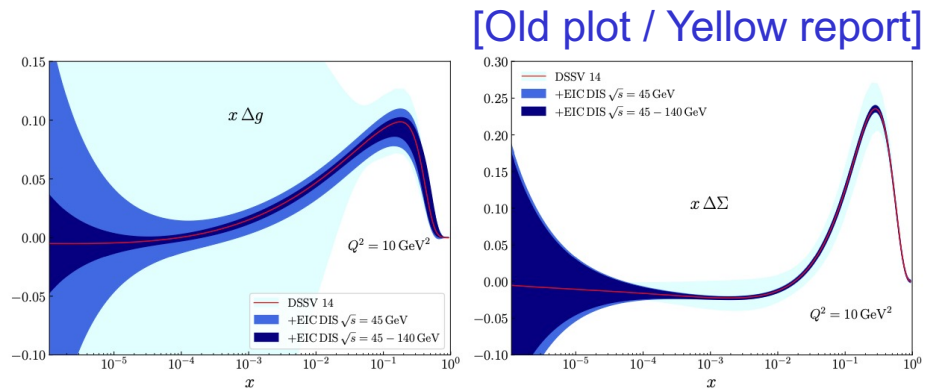
Simulated Double Spin Asymmetry / Impact on Helicity Distributions



Derived from
 $y > 0.01$ ep data,
 assuming 10fb-1 (?)

... looks very nice!

Still aiming for
 D_g , DS plots from
 JAM and DSSV fits?



Impact on Nuclear (and Proton) PDFs

- Work with K Wichmann and N Armesto in xfitter framework using (so far) Yellow Report simulated data
 - precision on proton and gold PDFs with EIC (soon, ATHENA) data only
 - Precision on Au/p nuclear modification, compared with current global fits (EPPS16)

... Presentation to be optimized
... Statements on sensitivity to low x phenomena can follow from this ...

- For proton PDFs, also produce comparisons between
 - ATHENA only (xfitter)
 - ATHENA + HERA (xfitter)
 - ATHENA + Global Fits (MHST / Robert Thorne)

