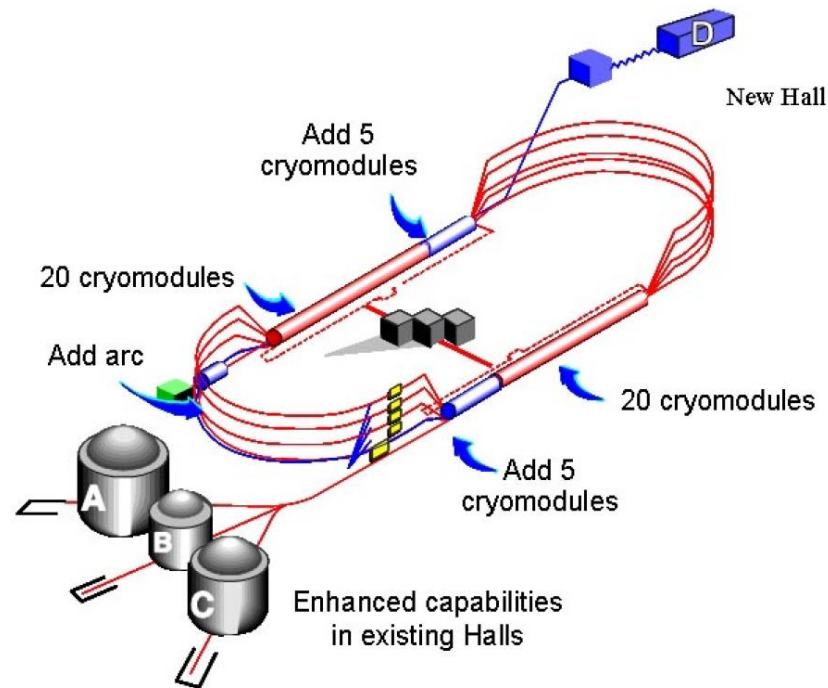


The 12 GeV GPD program at JLab

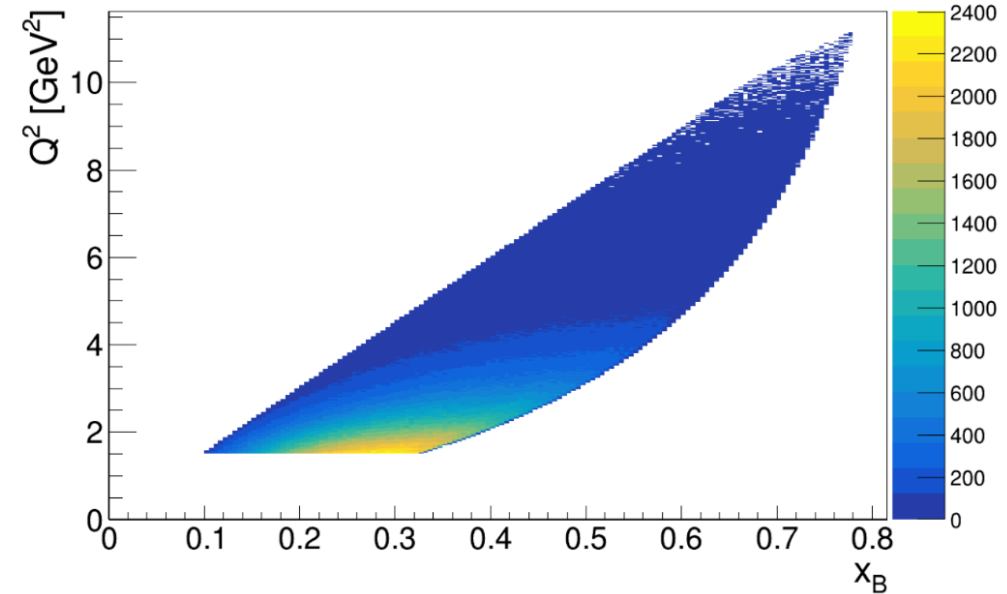
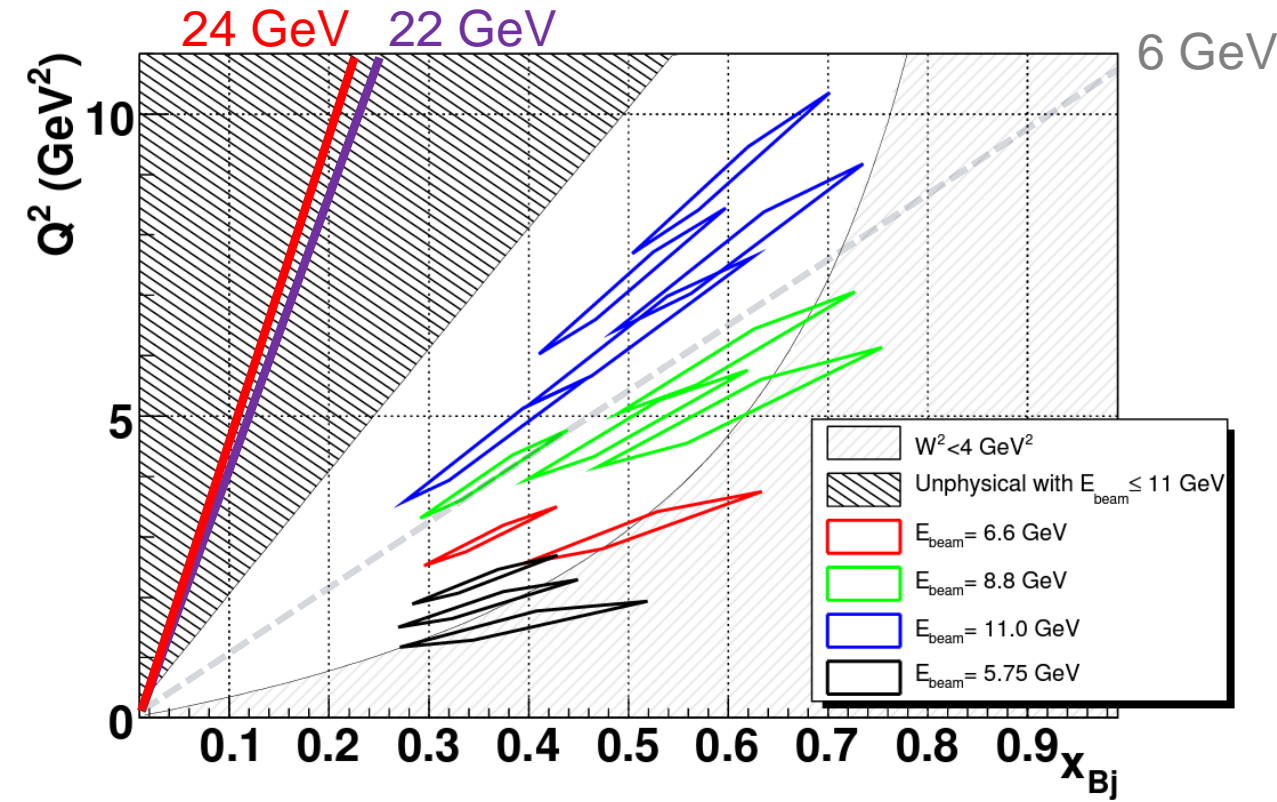
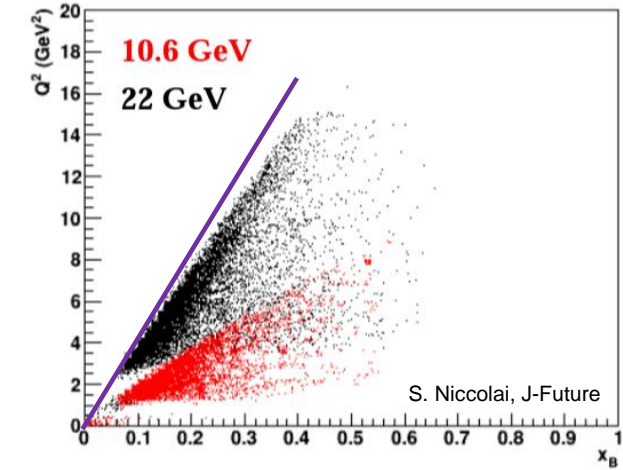


Carlos MUÑOZ CAMACHO

- GPD program in all 3 electron Halls (A, B, C)
- Cleaner channels: DVCS & TCS
- Unpolarized, longitudinally and transversely polarized proton targets
- Deuterium targets for quasi-free neutron DVCS (unp. & long. pol)
+ ^3He target – quasi-free trans. pol. (eg. SOLID)
- Meson production: vector meson (ρ, ω, ϕ) and pseudoscalar mesons (π, η)
- Recently (conditionally) approve program with positrons (medium-term future)

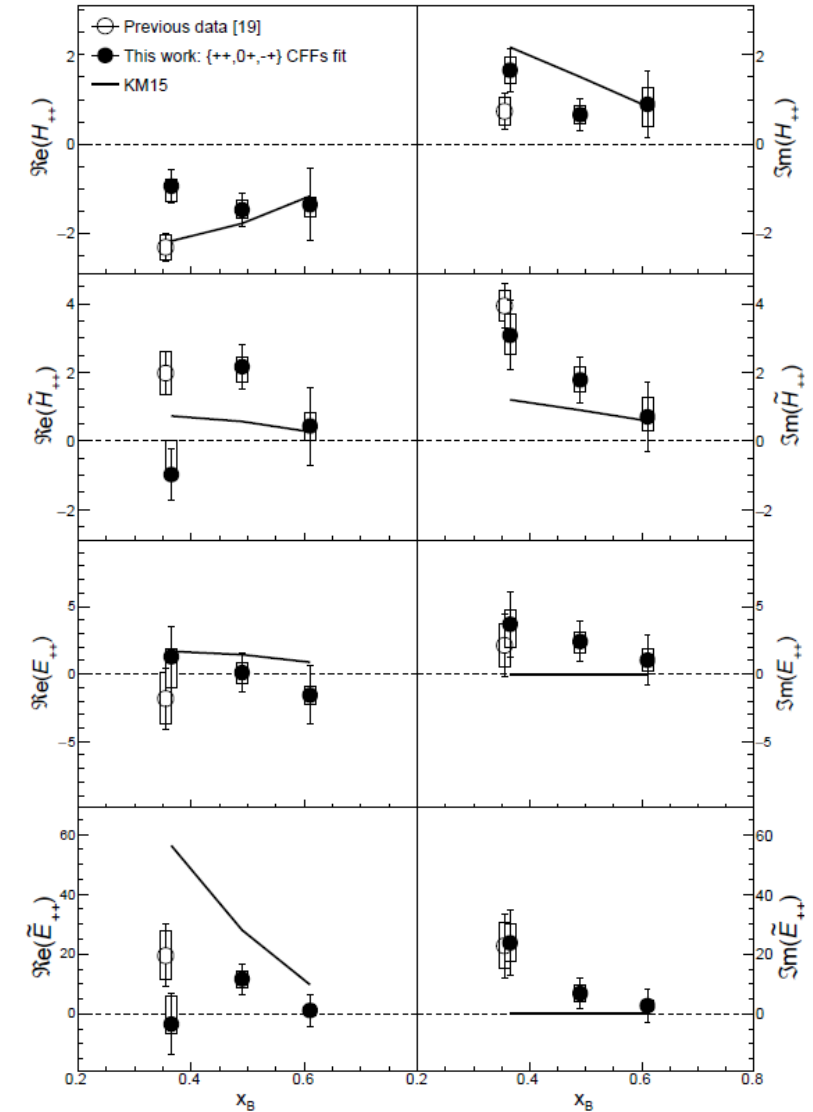
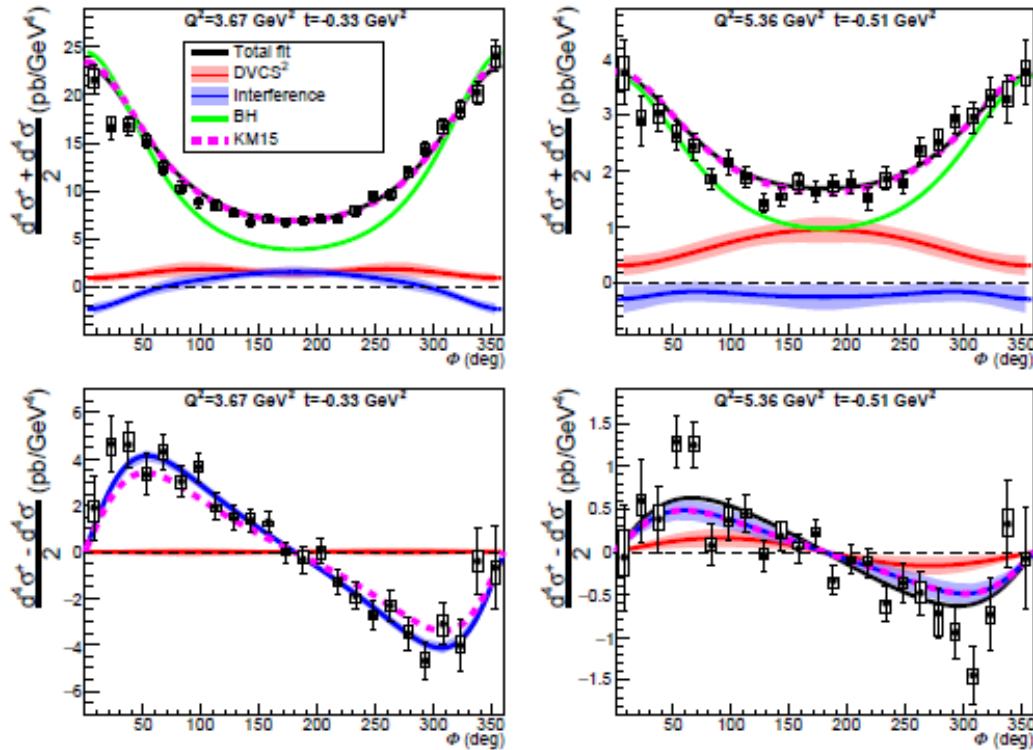
Measurement	Hall	Notes
DVCS	A,B,C	B includes long. & trans. target
nDVCS	B	Unp. & long. pol. target
DVCS w/ e+	B, C	
TCS	A (Solid), B, C	
Excl. π^0	A,B,C	
Excl. π^-	A (Solid), (B)	
Excl. ϕ, η	B	
L/T separation (K, π^+)	C	
WACS (γ, π^0)	A, C	
Backwards π^0	C	

Q^2 and x_B region accessible by an 11 GeV beam



Constraints in all 4 CFFs (Re & Im parts)

High precision
 helicity-dependent & helicity-independent cross sections

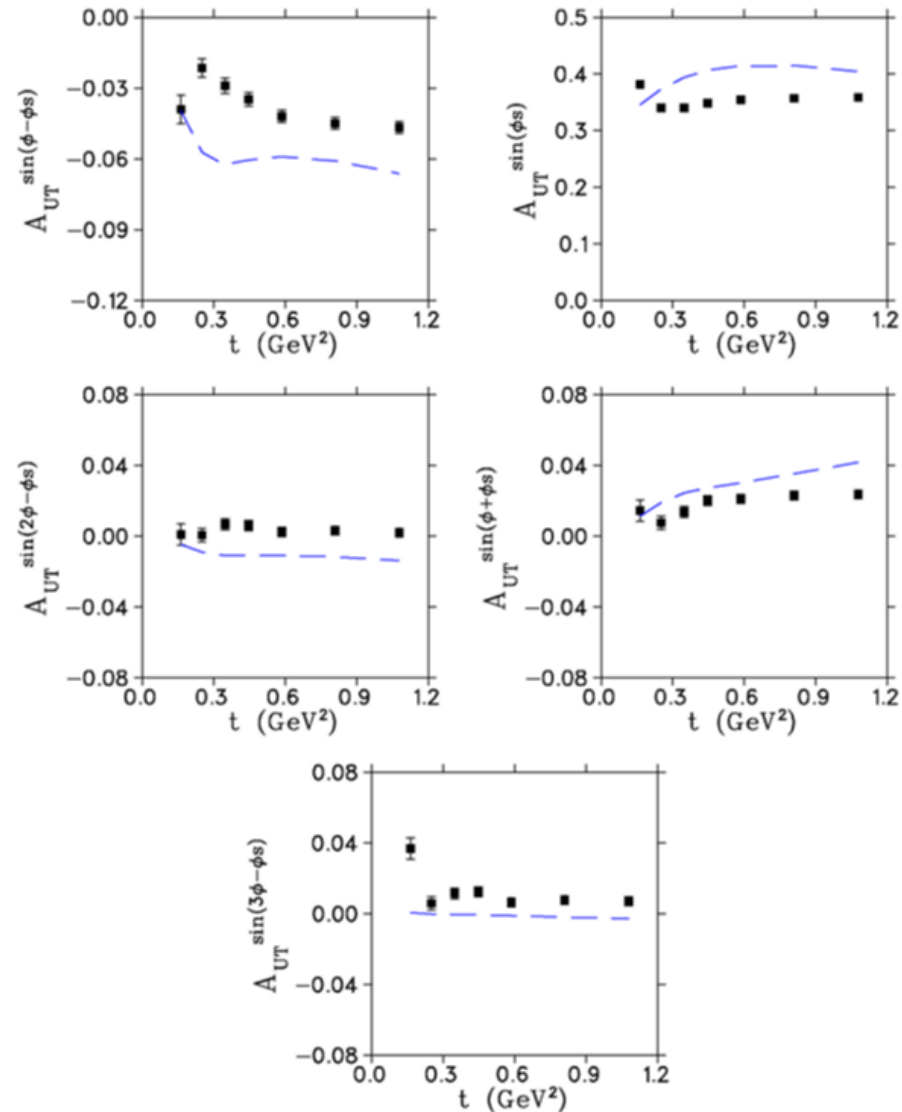


Phys. Rev. Lett. (in press)

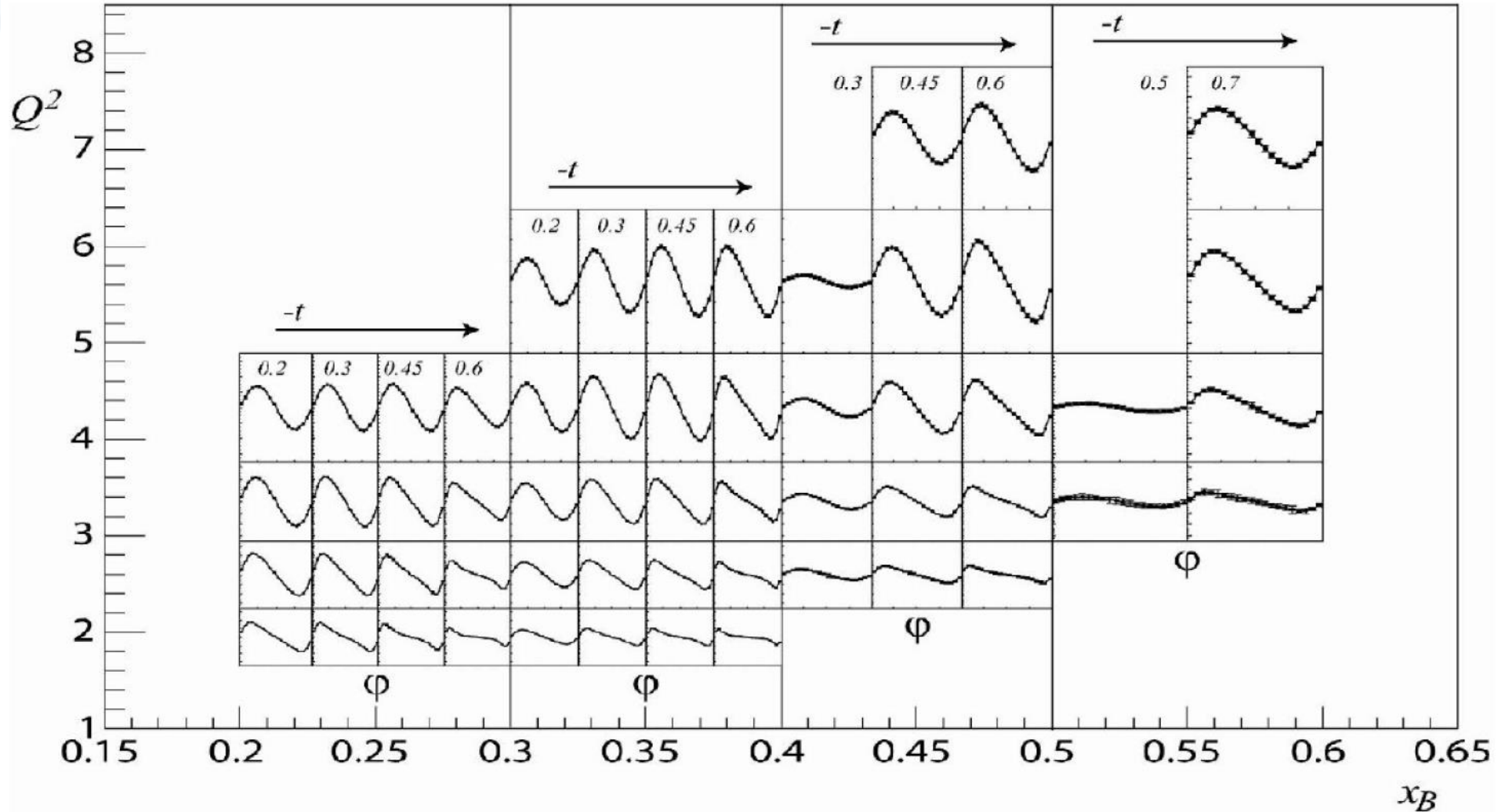
One rungroup experiment approved

 to measure DVCS with a polarized

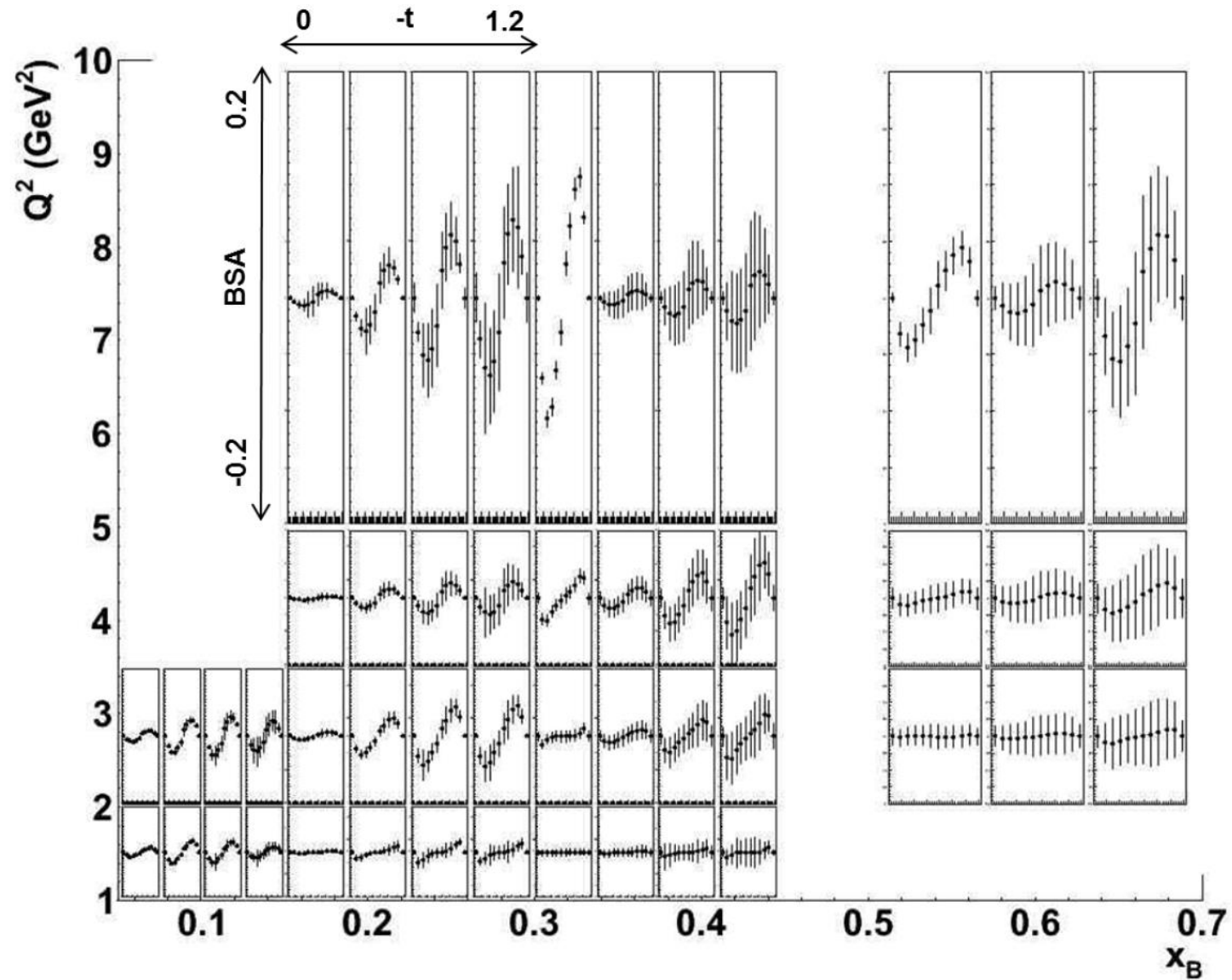
³He target



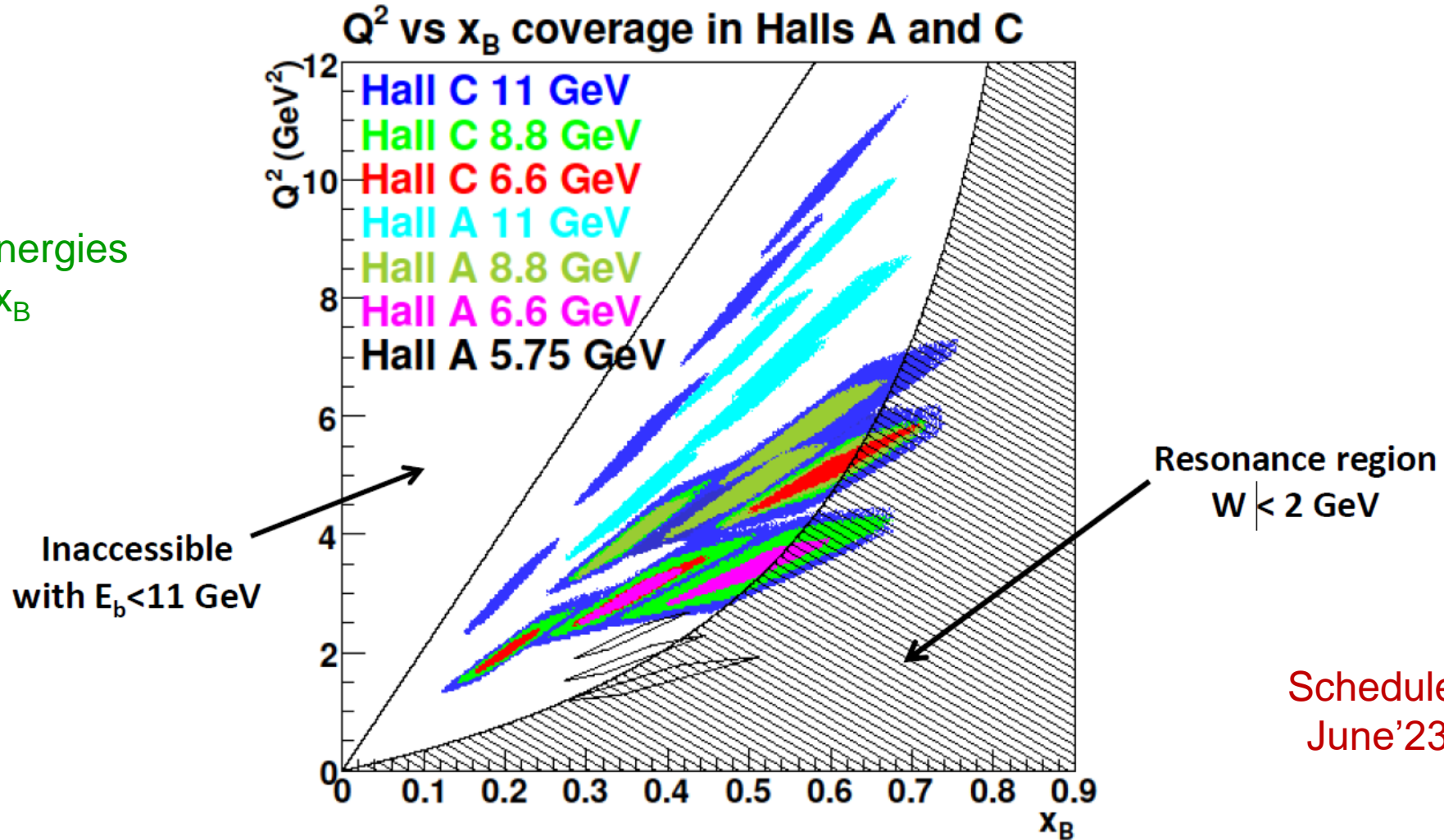
Beam spin asymmetries



Beam spin asymmetries

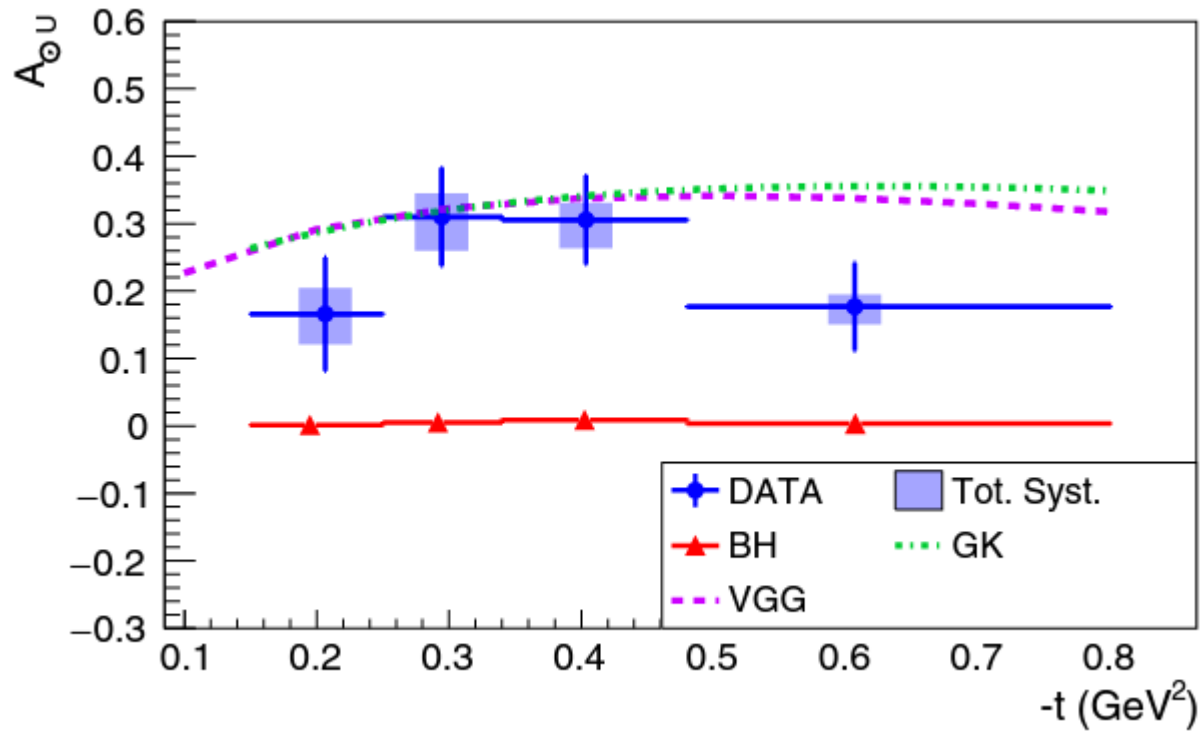


Different beam energies
 at fixed Q^2, x_B

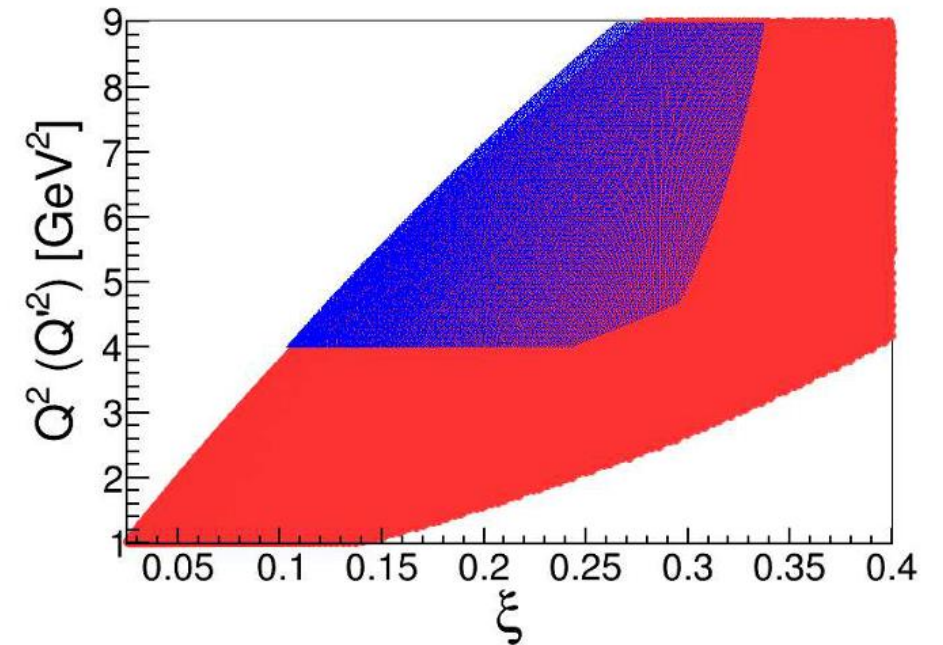


Scheduled to run in
 June'23 – Mar'24

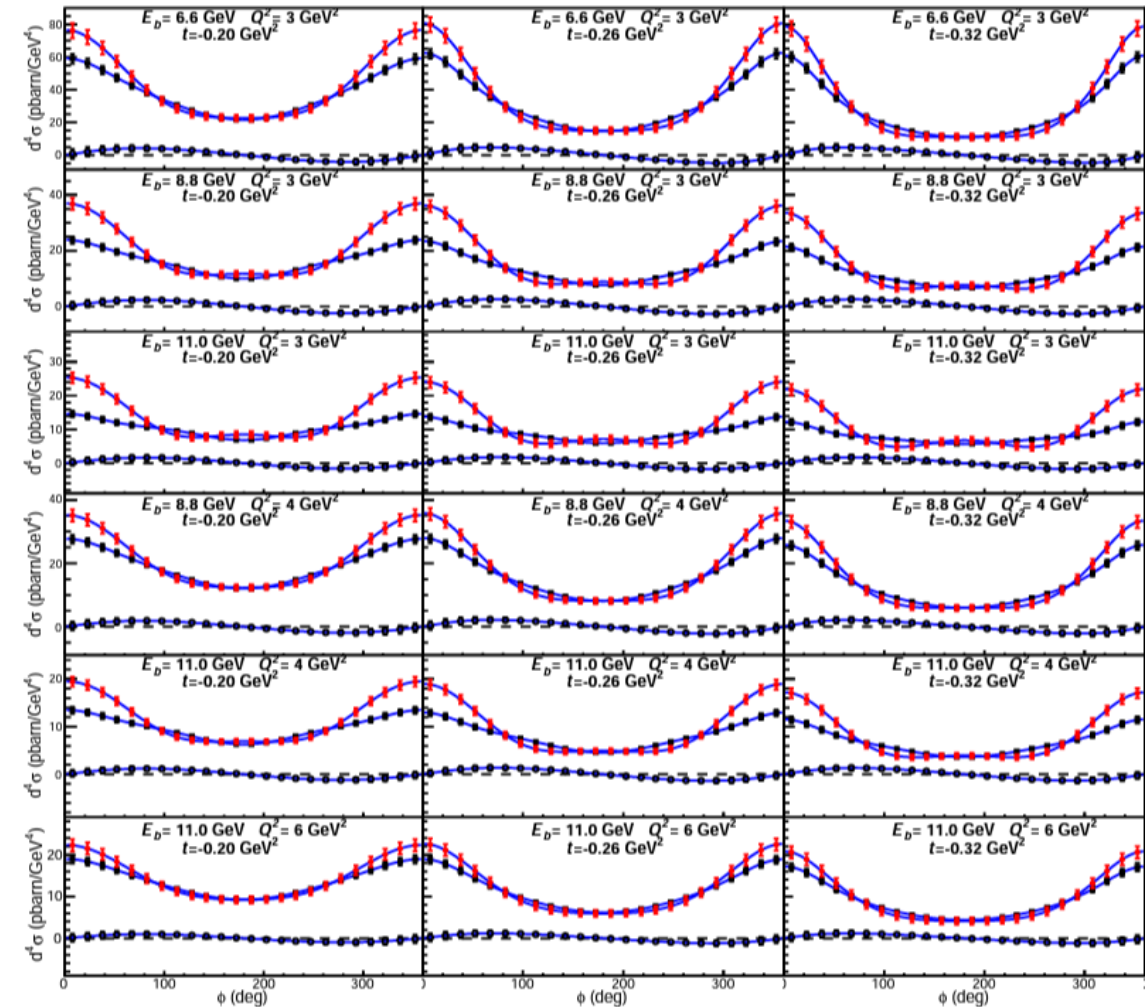
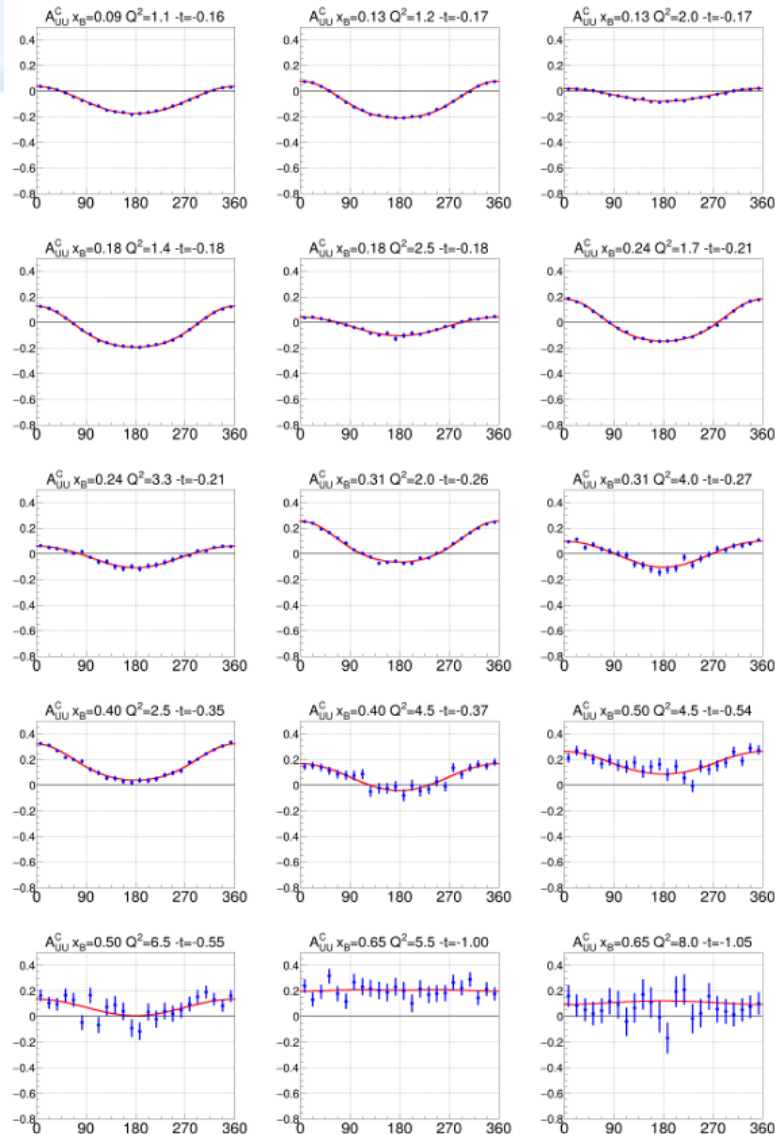
Hall B BSA, PRL127, 262501 (2021)



SOLID: TCS vs DVCS coverage

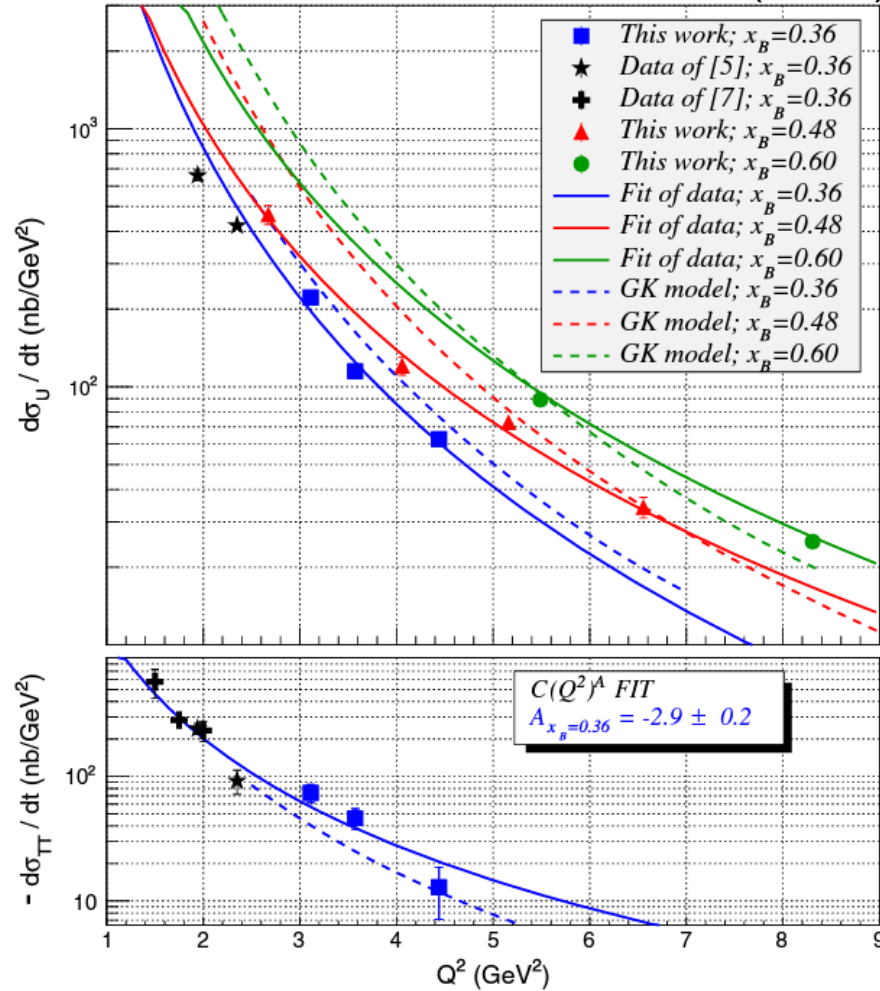


Hall B,
BCA

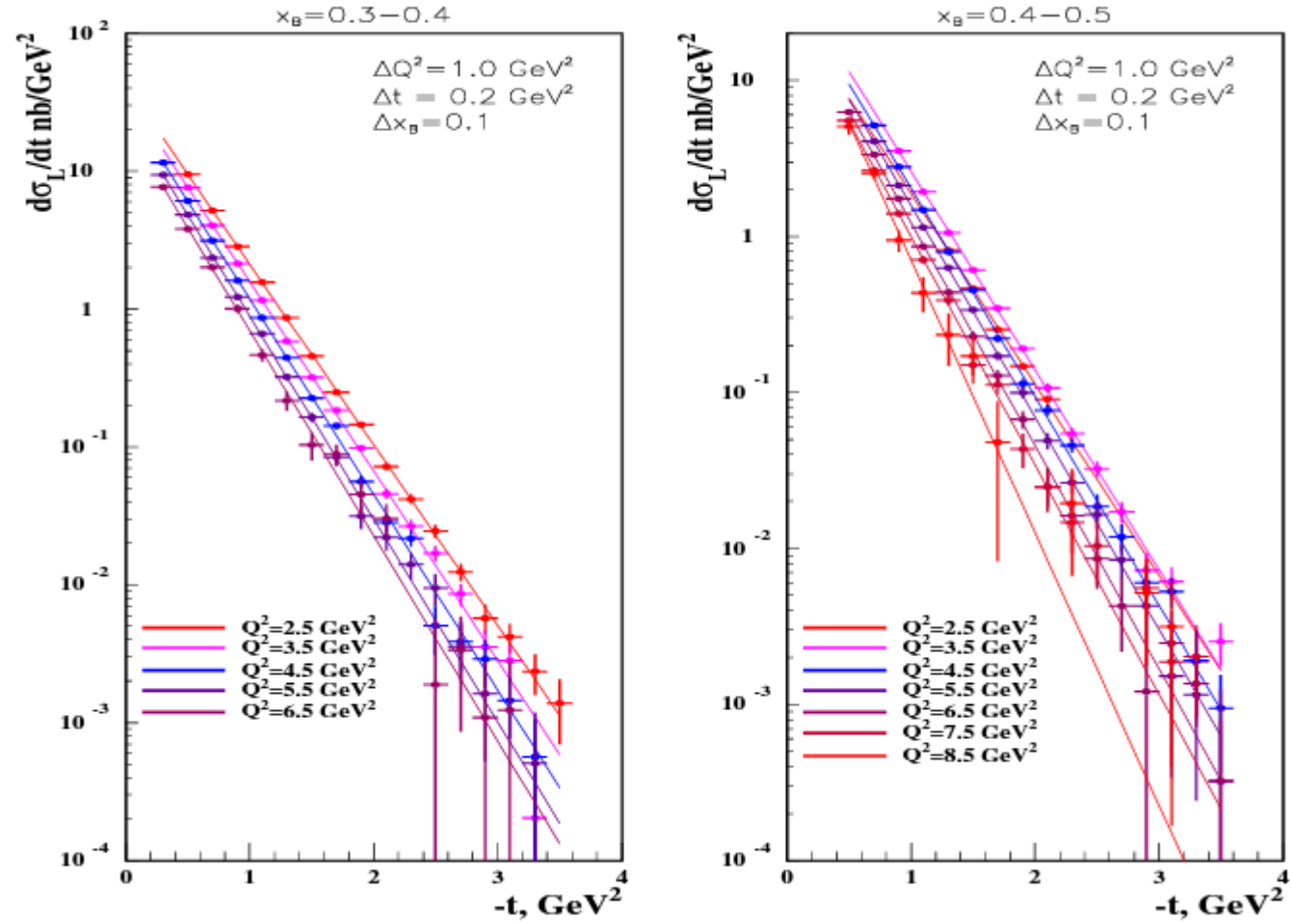


Hall C,
cross sections

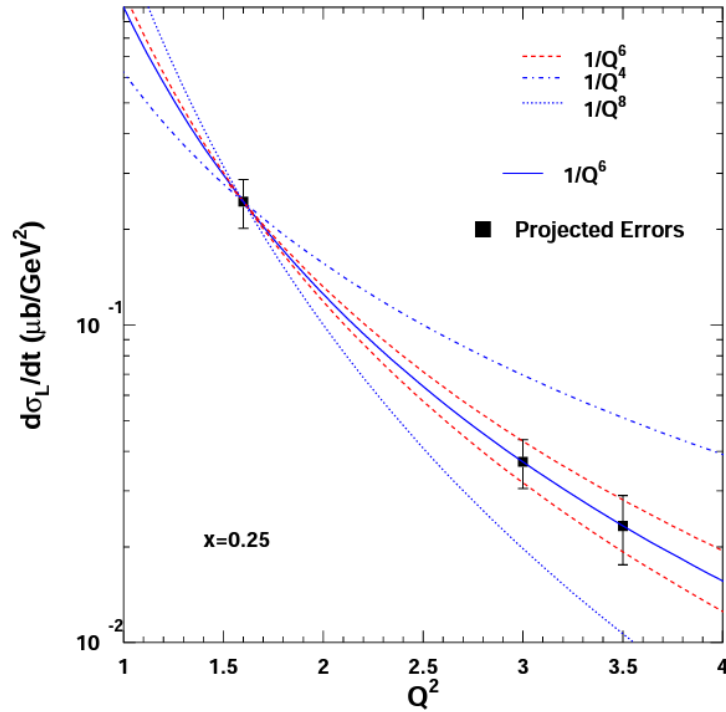
Hall A π^0 , PRL 127, 152301 (2021)



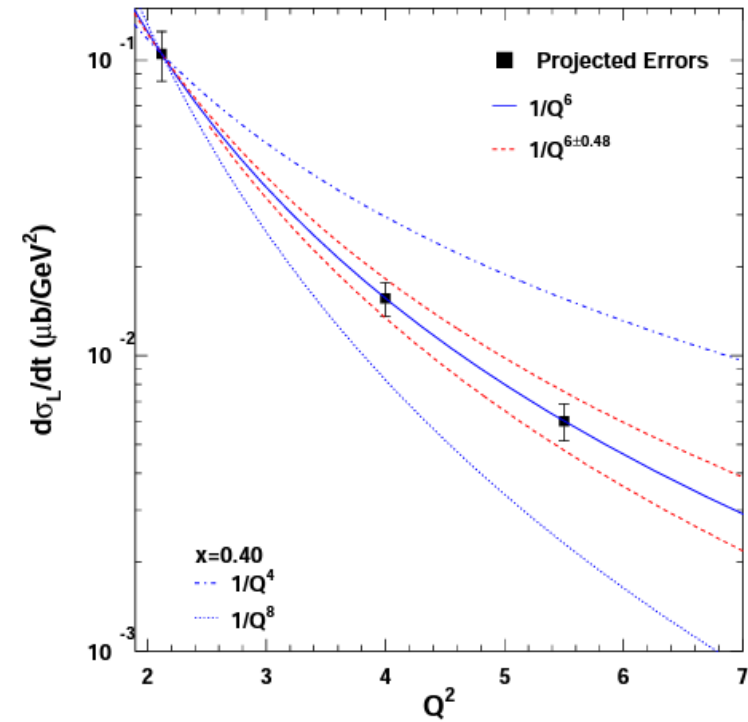
CLAS12 $d\sigma_L/dt (\gamma^* p \rightarrow p\phi)$



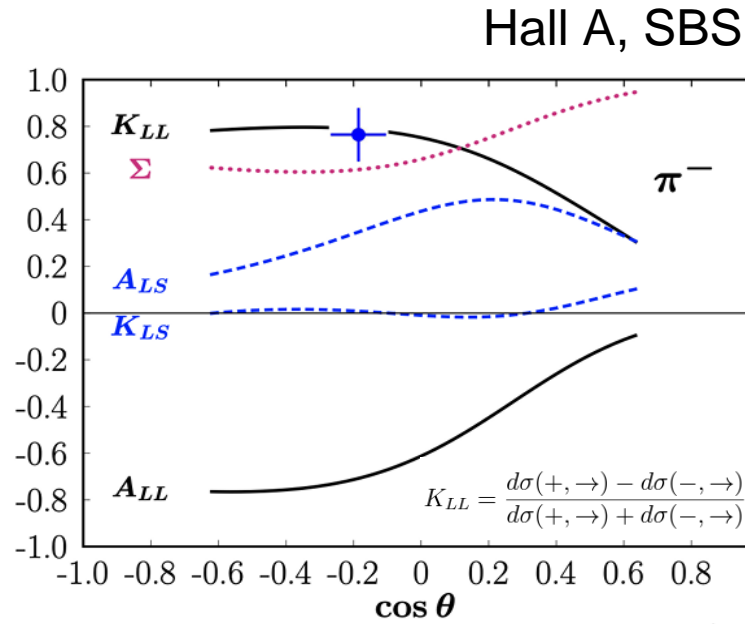
Excl. K^+ L/T, Hall C



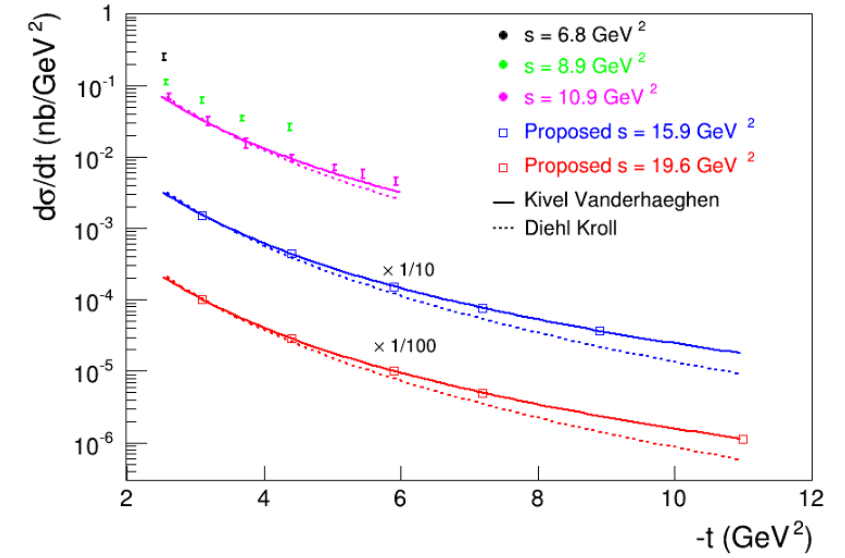
Excl. π^+ L/T, Hall C



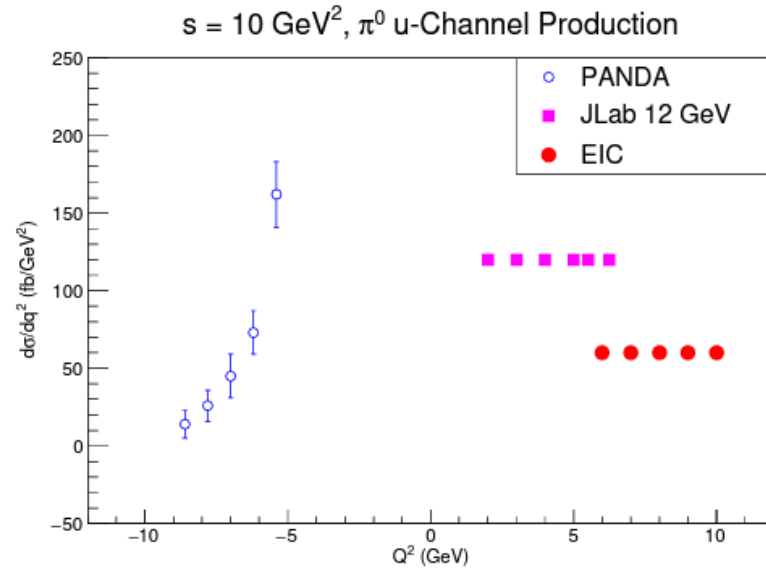
WACS



Hall C. NPS



u-channel
 DVCS



- The 12 GeV program have a comprehensive set to GPD experiments already approved (DVCS, TCS, DVMP)
 - Proton, quasi-free neutron (+nuclear) targets
 - Long. & transverse polarization
 - More experiments will probably be proposed in the next few years
 - Upcoming 12 GeV positron program
-
- CEBAF energy upgrade will increase the Q^2 reach:
 - Better understanding of higher twist and power corrections to DVCS
 - Potential dominance of σ_L for DVMP