PLB Comments on Asymmetry Paper

Figures edition

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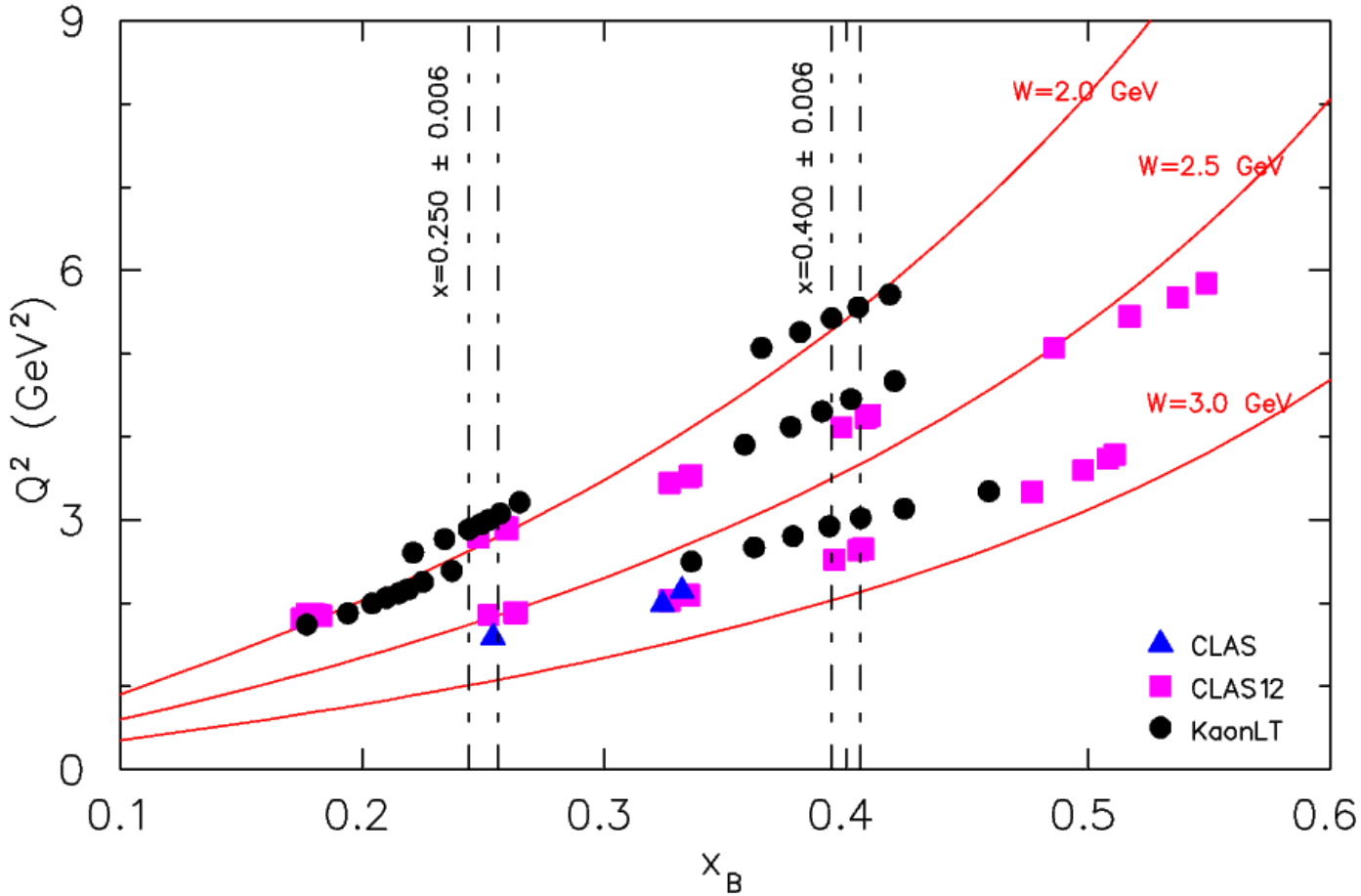
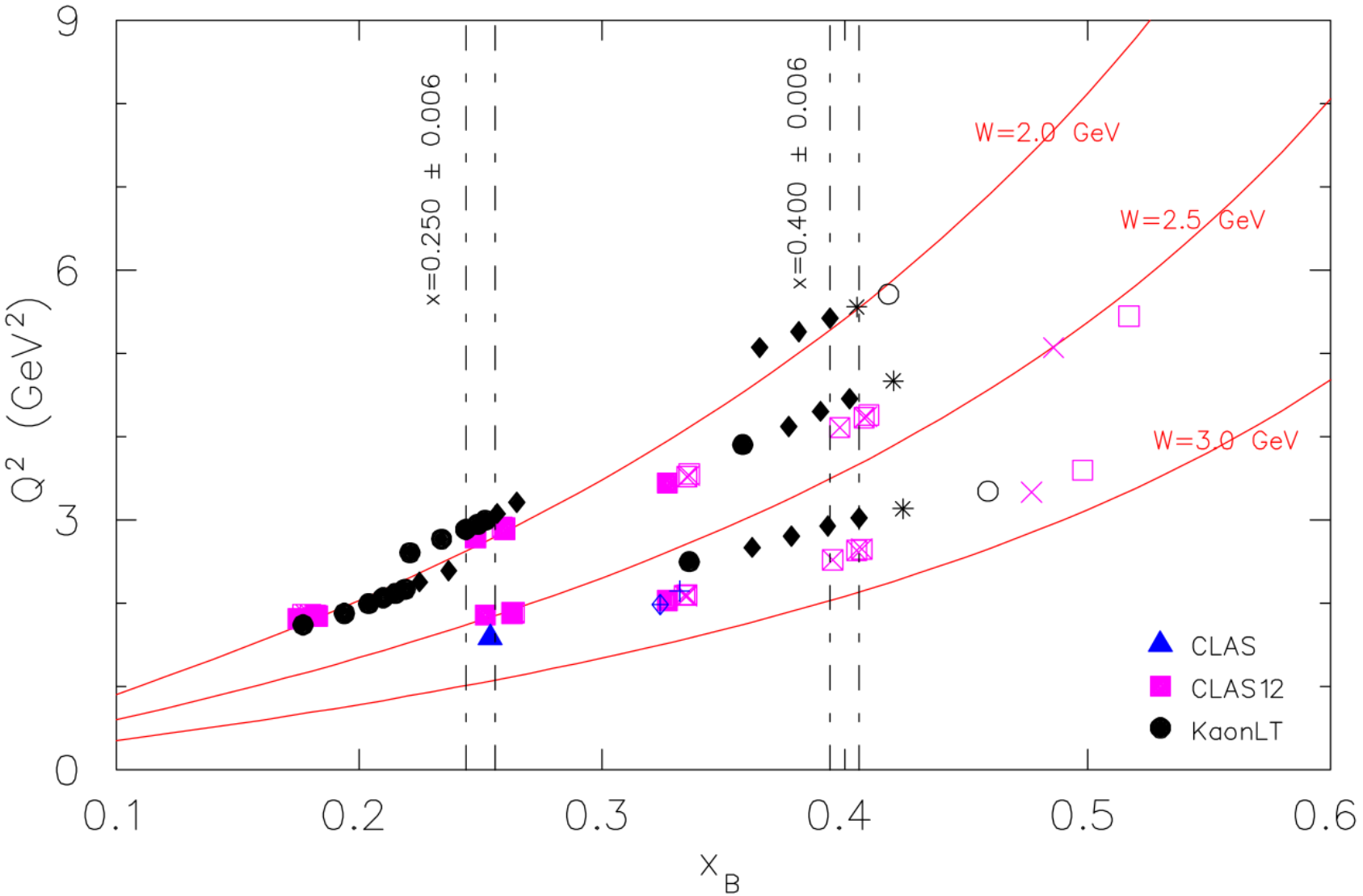
Figure 4: Previous



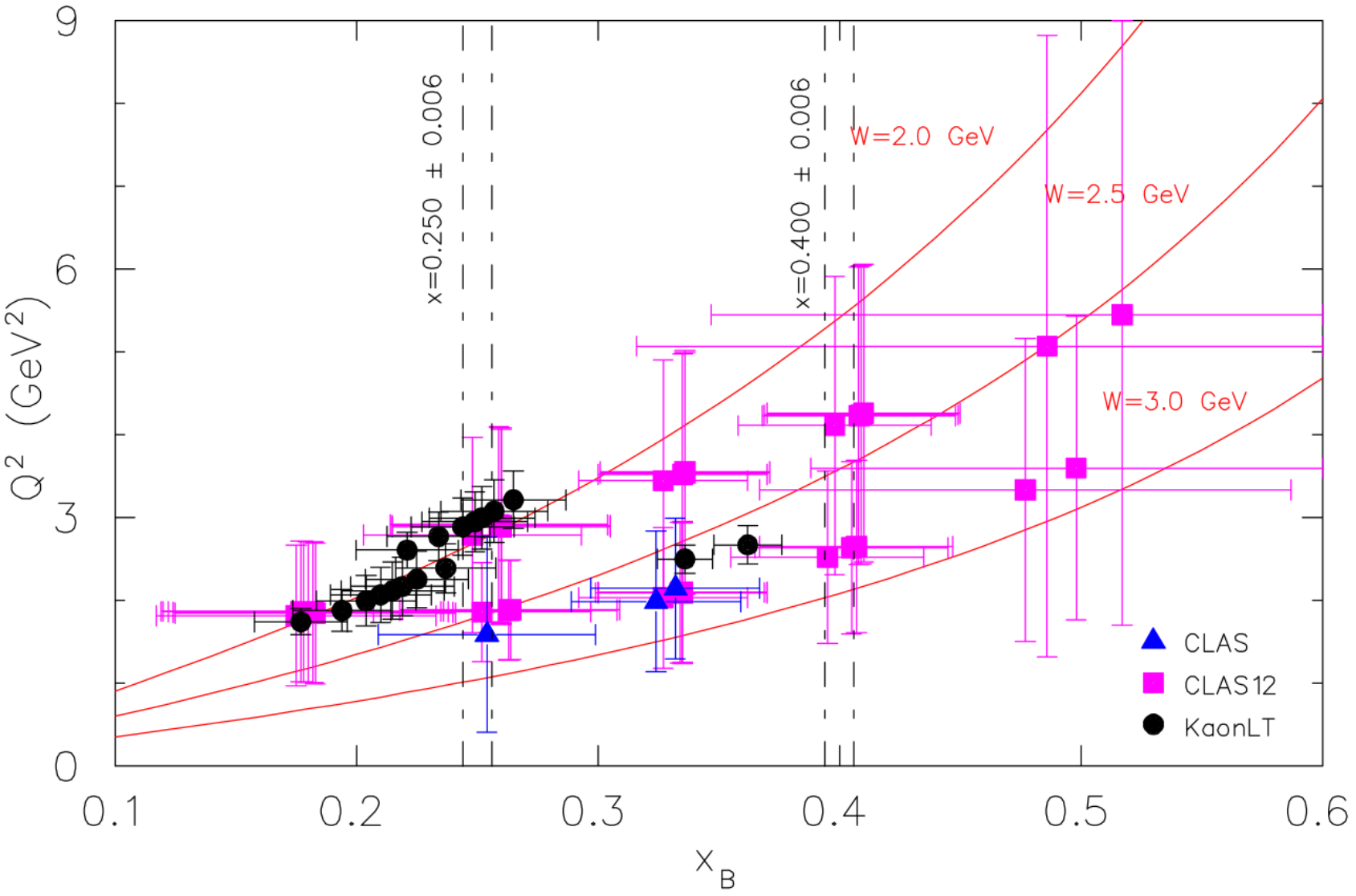
- No representation of t-dependence: referees confused as to why more data is shown in x_B range here than in (x_B, t) bin for Fig 7
- No uncertainty on kinematics: assumption made that our kinematics are less precise than those of CLAS

Figure 4: t-dependence



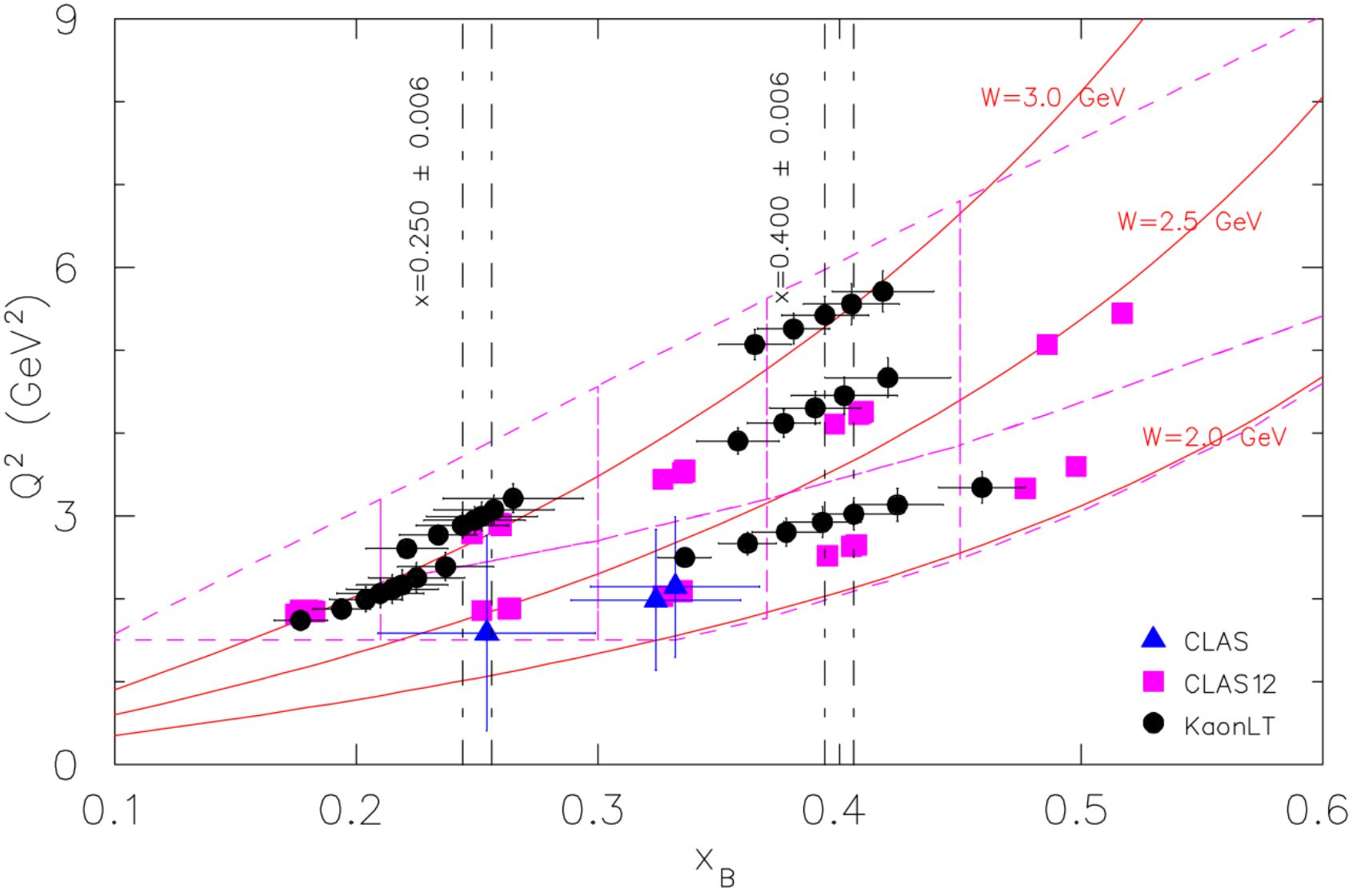
Different symbols for different ranges of t?

Figure 4: Error bars



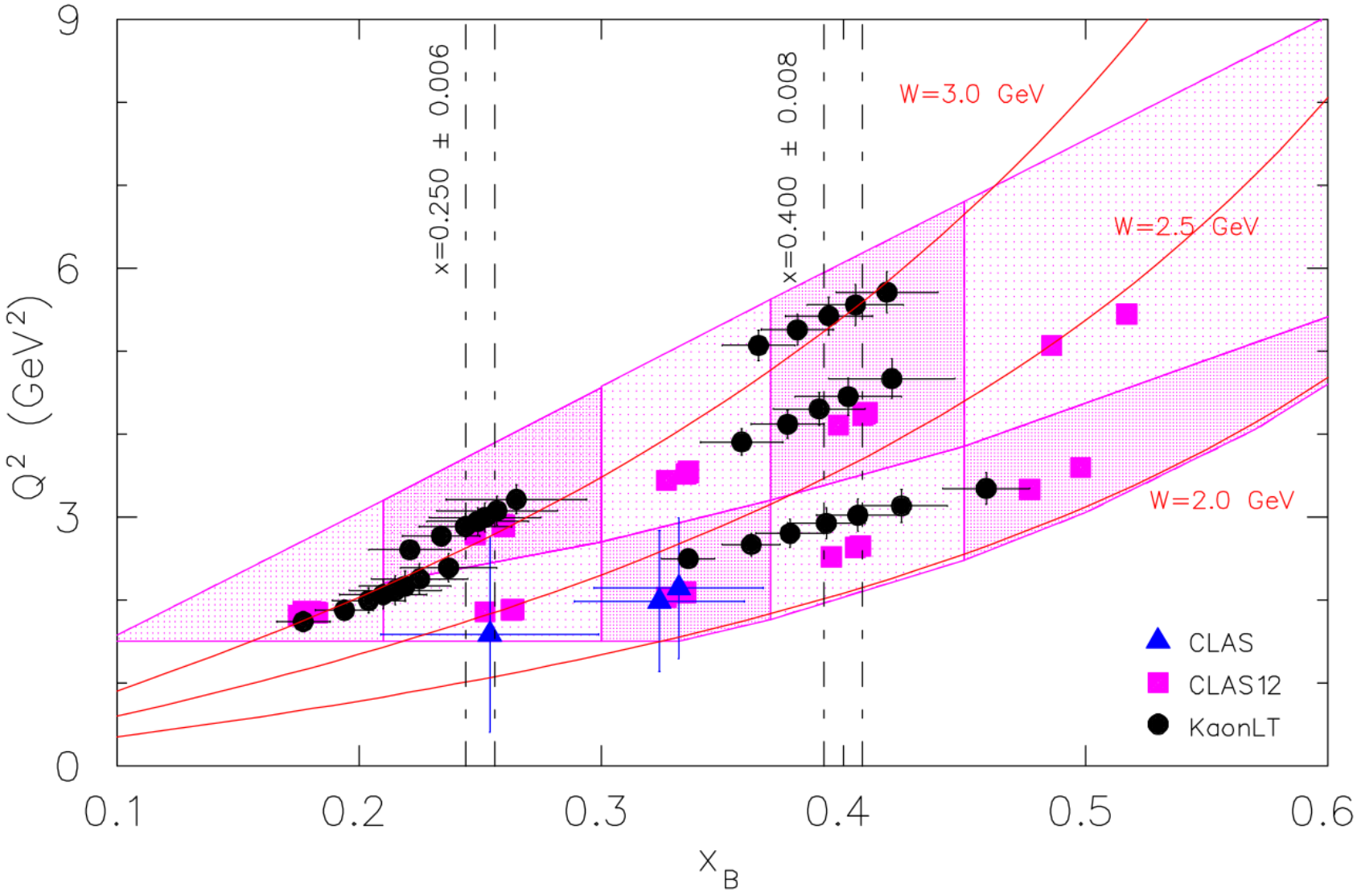
Add error bars to represent bin widths?

Figure 4: Ranges



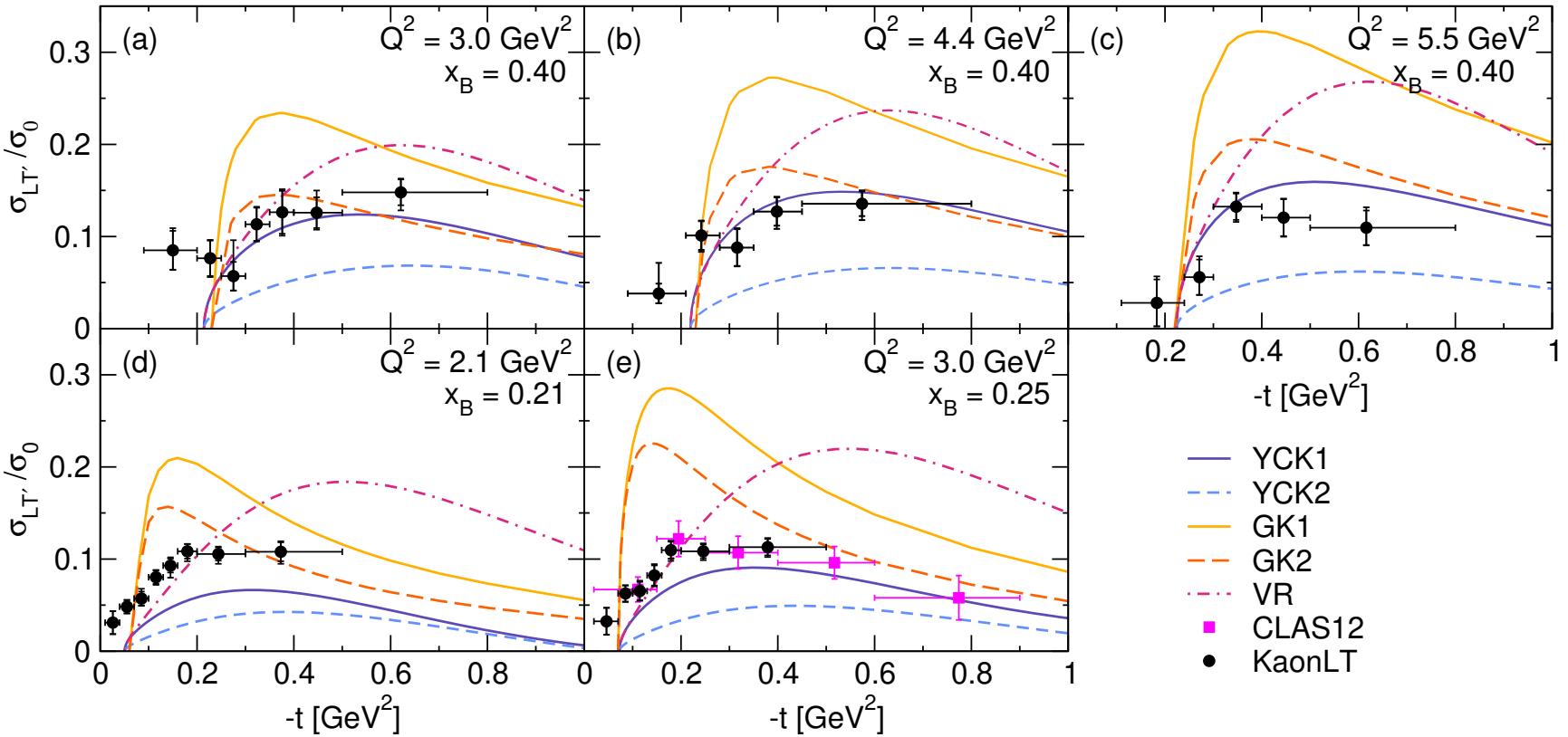
Reproduce the exact binning scheme of the CLAS12 data?

Figure 4: Shaded Ranges



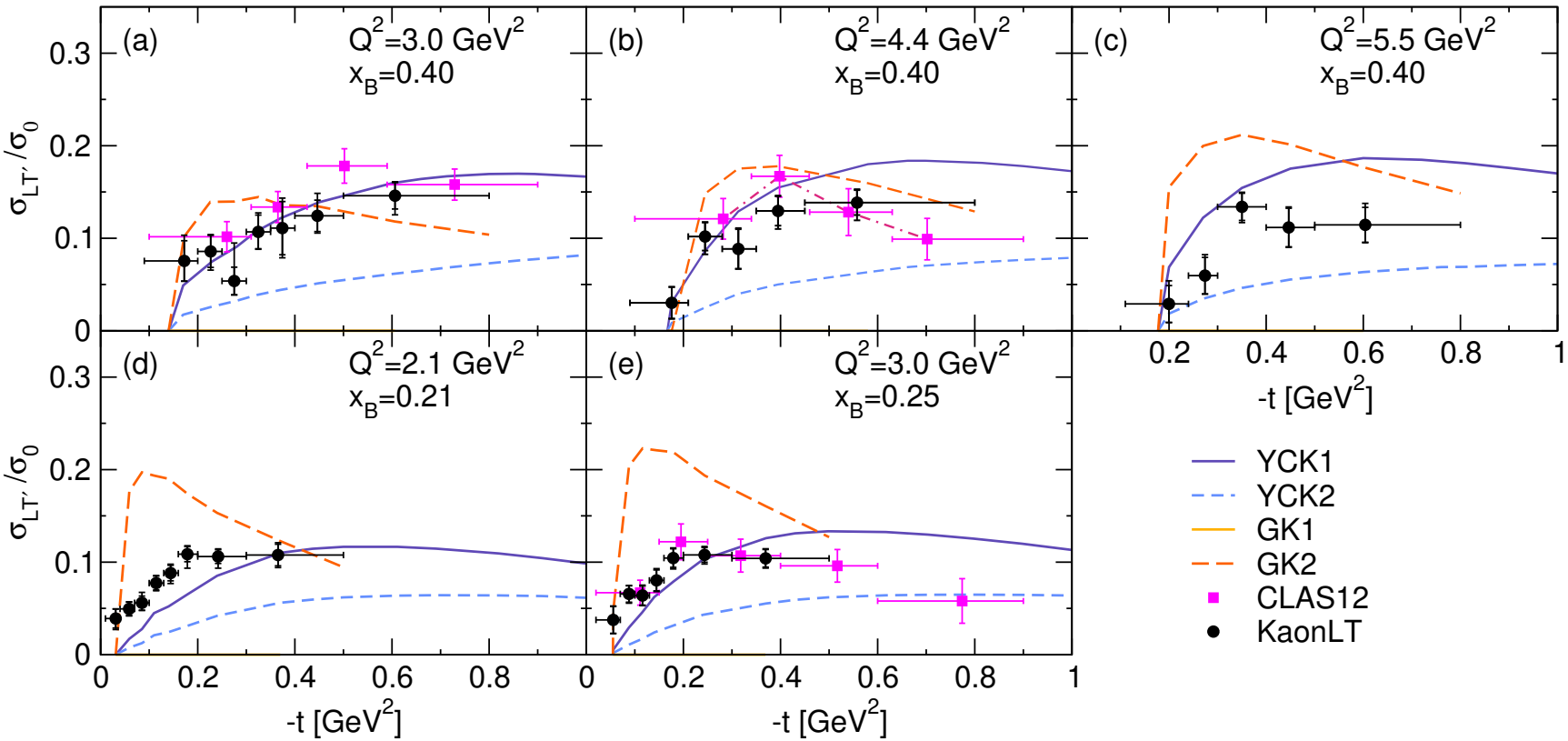
Shade regions for increased visibilty?

Figure 6: Previous



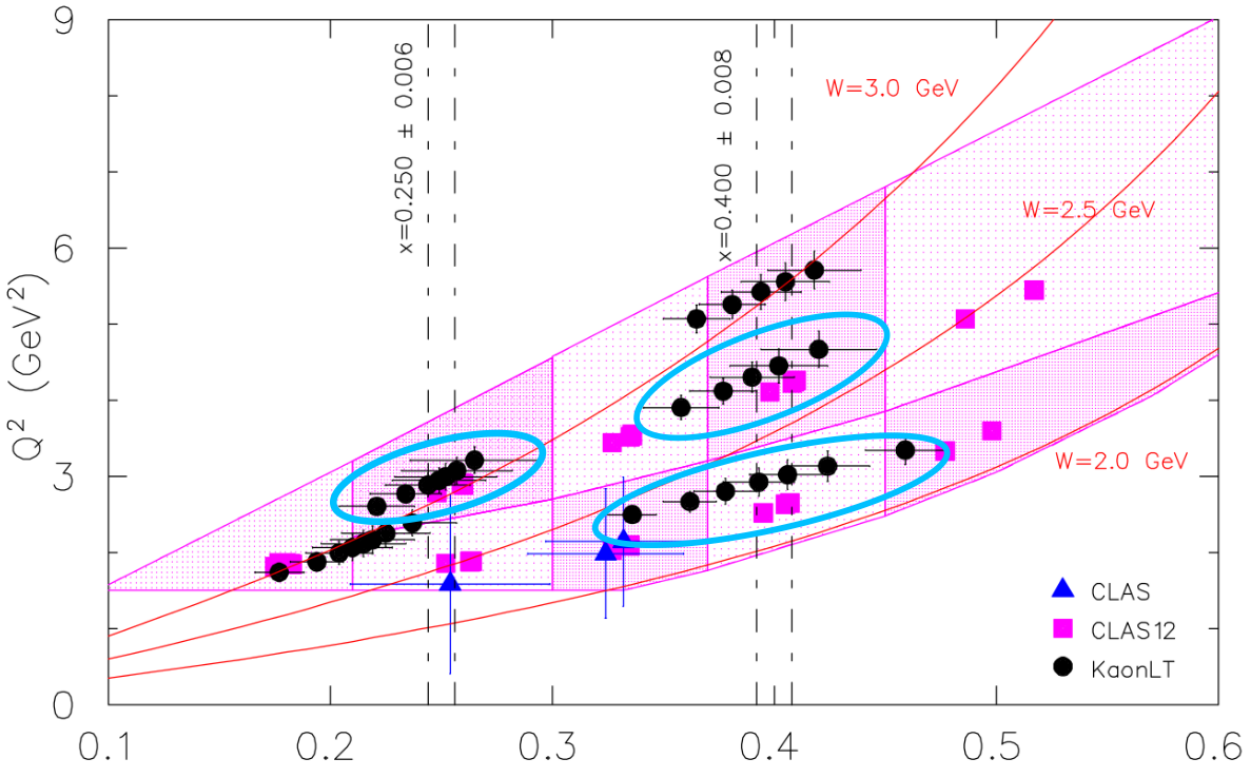
- Referees argue for inclusion of more CLAS data based on overlap in kinematic bins
- Models should be evaluated at binned, not central, kinematics

Figure 6: Modified



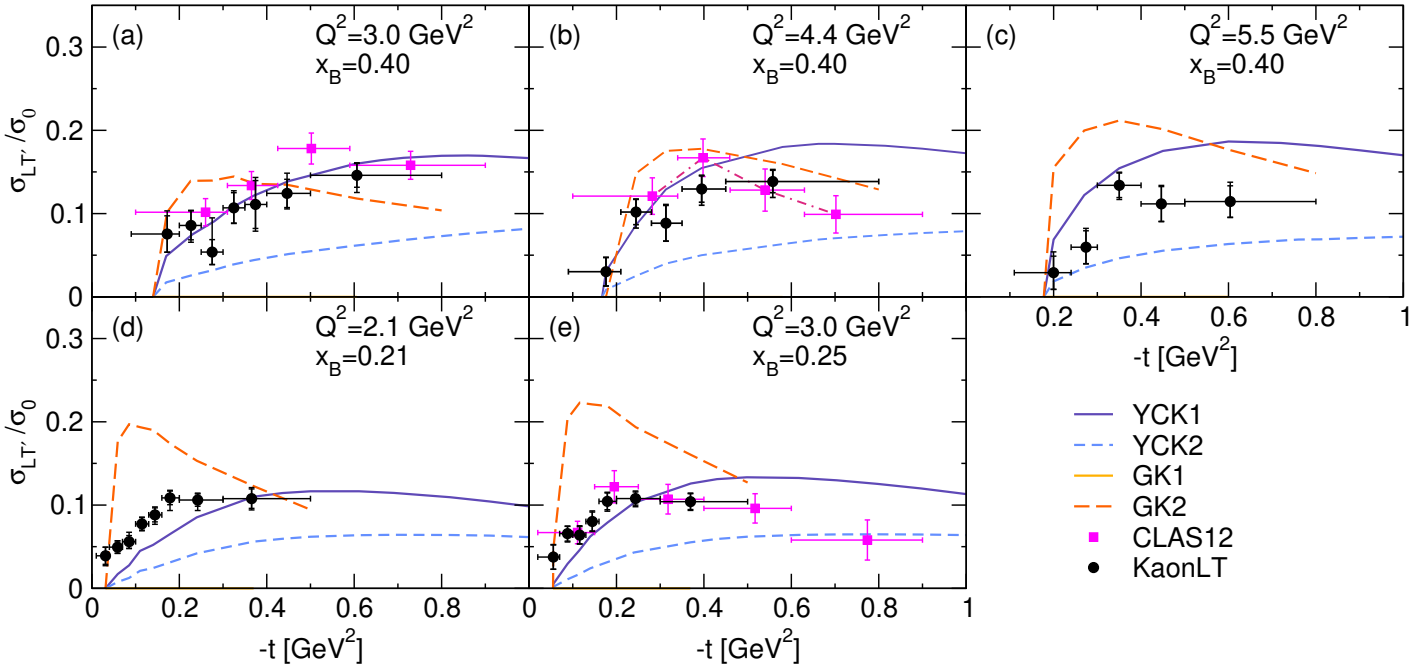
Bin models and add more CLAS12 data

Data Selection



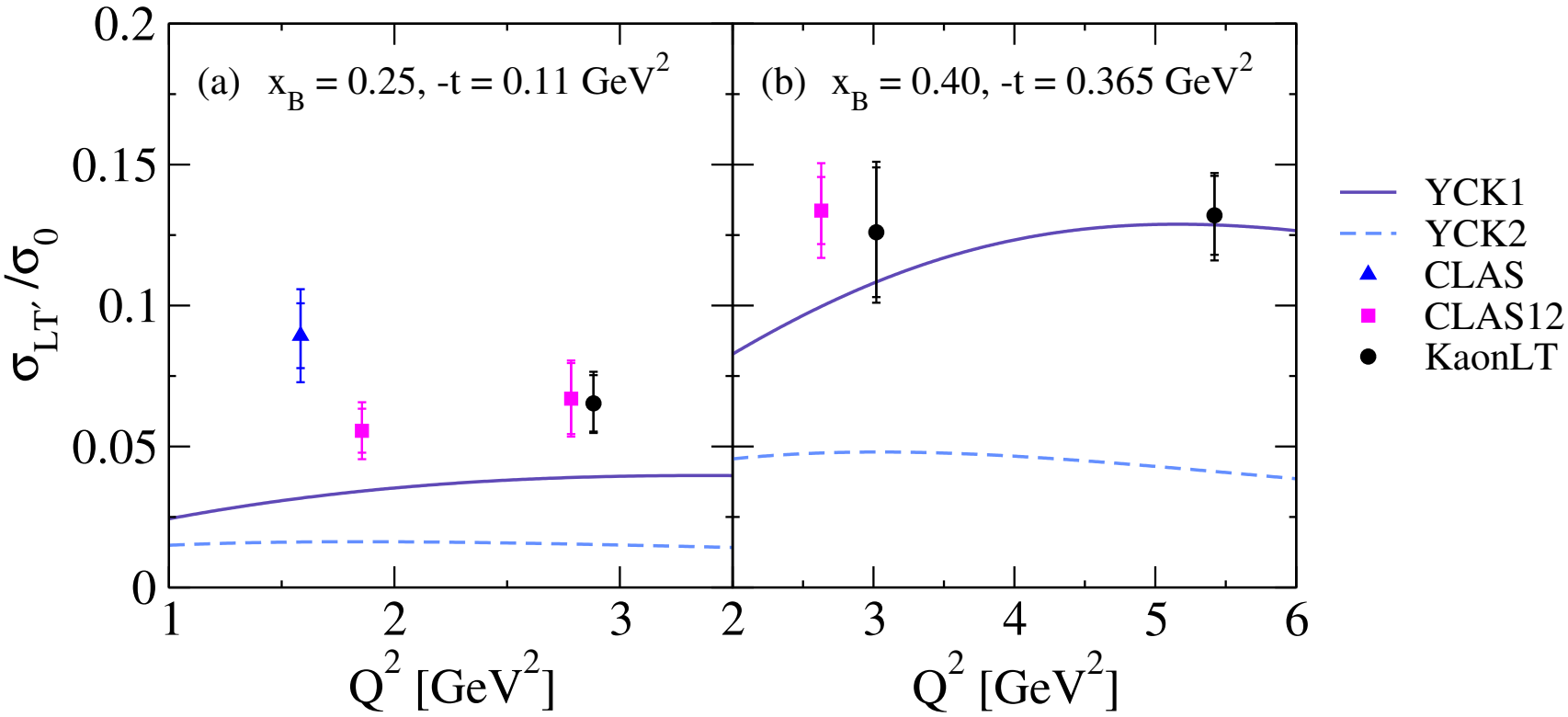
- (Q^2, x_B) = (3.0,0.25), (3.0,0.40), (4.4,0.40) all have data nearby with similar mean kinematics and significant overlap in bin ranges
- (5.5,0.40) has no data with similar means, even if there is bin overlap
- (2.1,0.25) is centered at the corner of 3 CLAS12 bins
- Best overlap of bins is for the (3.0,0.25) setting, which is why this is the only one we showed in the previous version of this figure

Figure 6 Caption



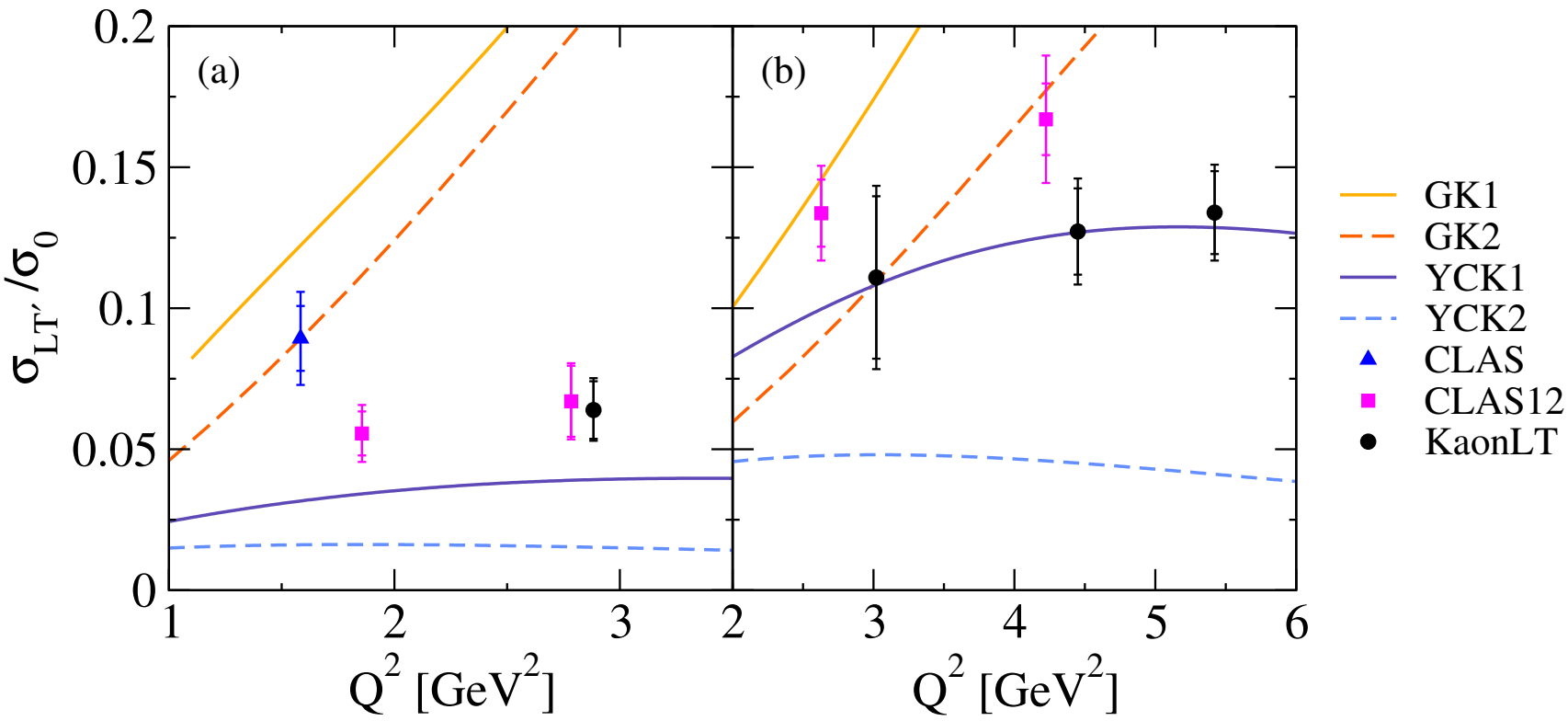
Suggested text from Garth/Alicia: "At low $-t$, where $\sigma_{LT'}/\sigma_0$ varies rapidly, the models are evaluated at the mean kinematics per bin of the KaonLT data. At high $-t$, where $\sigma_{LT'}/\sigma_0$ is more stable, the model is extended using the kinematics of the highest KaonLt t-bin available. In addition, the closest available CLAS12 data is plotted for comparison, although the kinematics of the CLAS12 data differ somewhat from those of KaonLT."

Figure 7: Previous



- Referees request more data points, GK predictions

Figure 7: Add GK, More Data



(a) $x_B = 0.250 \pm 0.006$, $t = 0.112 \pm 0.004$ (unchanged)

(b) $x_B = 0.400 \pm 0.008$, $t = 0.37 \pm 0.03$ (extended from $x_B = 0.400 \pm 0.006$, $t = 0.360 \pm 0.016$)

Table: Add More Data to Q2 Scan

Data set	$\langle -t \rangle$ [GeV^2]	$\langle Q^2 \rangle$ [GeV^2]	$\langle W \rangle$ [GeV]	$\langle x_B \rangle$	$\langle \epsilon \rangle$	$\sigma_{LT'}/\sigma_0$	δ_{stat}	$\delta^{\downarrow}_{\text{sys}}$	$\delta^{\uparrow}_{\text{sys}}$
(a) $x_B = 0.250 \pm 0.006$, $-t = 0.111 \pm 0.004$ GeV^2									
CLAS	0.108	1.583	2.35	0.254	0.648	0.0893	0.0115	0.0118	0.0118
CLAS12	0.111	1.856	2.53	0.252	0.87	0.0556	0.0078	0.0064	0.0064
CLAS12	0.111	2.784	3.10	0.248	0.661	0.0670	0.0126	0.0048	0.0048
KaonLT	0.115	2.88	3.17	0.244	0.67	0.0653	0.0100	0.0034	0.0052
(b) $x_B = 0.400 \pm 0.008$, $-t = 0.37 \pm 0.3$ GeV^2									
CLAS12	0.365	2.629	2.18	0.405	0.895	0.1337	0.0119	0.0119	0.0119
KaonLT	0.376	3.02	2.29	0.406	0.885	0.1263	0.0233	0.0115	0.0110
CLAS12	0.398	4.22	2.65	0.408	0.704	0.1670	0.0187	0.0127	0.0127
KaonLT	0.395	4.45	2.72	0.402	0.719	0.1272	0.0153	0.0050	0.0108
KaonLT	0.347	5.42	3.04	0.394	0.525	0.1324	0.0143	0.0082	0.0052

Table 1: Summary table for Q^2 scans. The range of the second scan has been widened to allow the inclusion of two more points.

Questions for the Group

- "There is no mention of radiative corrections and their systematic uncertainties, and other systematic uncertainties are treated rather superficially (e.g., backgrounds within the PID cuts)."

→ What should we say for radiative corrections?

→ How to respond to "superficial"?

- "A full discussion could include comments on quark-hadron duality (which would explain why both sophisticated Regge models and GPD or other factorization-based models MIGHT describe some of the same data reasonably well), higher twist effects which definitely could modify the GK prediction (and should become smaller at high Q2), and other contributions that might still be consistent with the framework of factorization but aren't included in the GK model."

→ Thoughts on the applicability of quark-hadron duality?

→ Thoughts on other contributions the GK model might not include?