PLB Comments on Asymmetry Paper

Here we go again

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Referee 1: Summary

- "The analysis appears sound, although I have a few questions or comments below"
- Kinematics & settings should be explained in more detail
- "For the comparison to the models a priori a complete integration of the theoretical values inside an experimental bin should be done"
- "Can you comment why the systematic error is so small?"
- "A table of the results of $\sigma_{LT'}/\sigma_0$ for the 5 settings should be given in the publication as you do not have space limitation."
- "A Q2 dependence is presented with a comparison to CLAS and CLAS212 results in Fig. 7., why are not all 5 results introduced?"

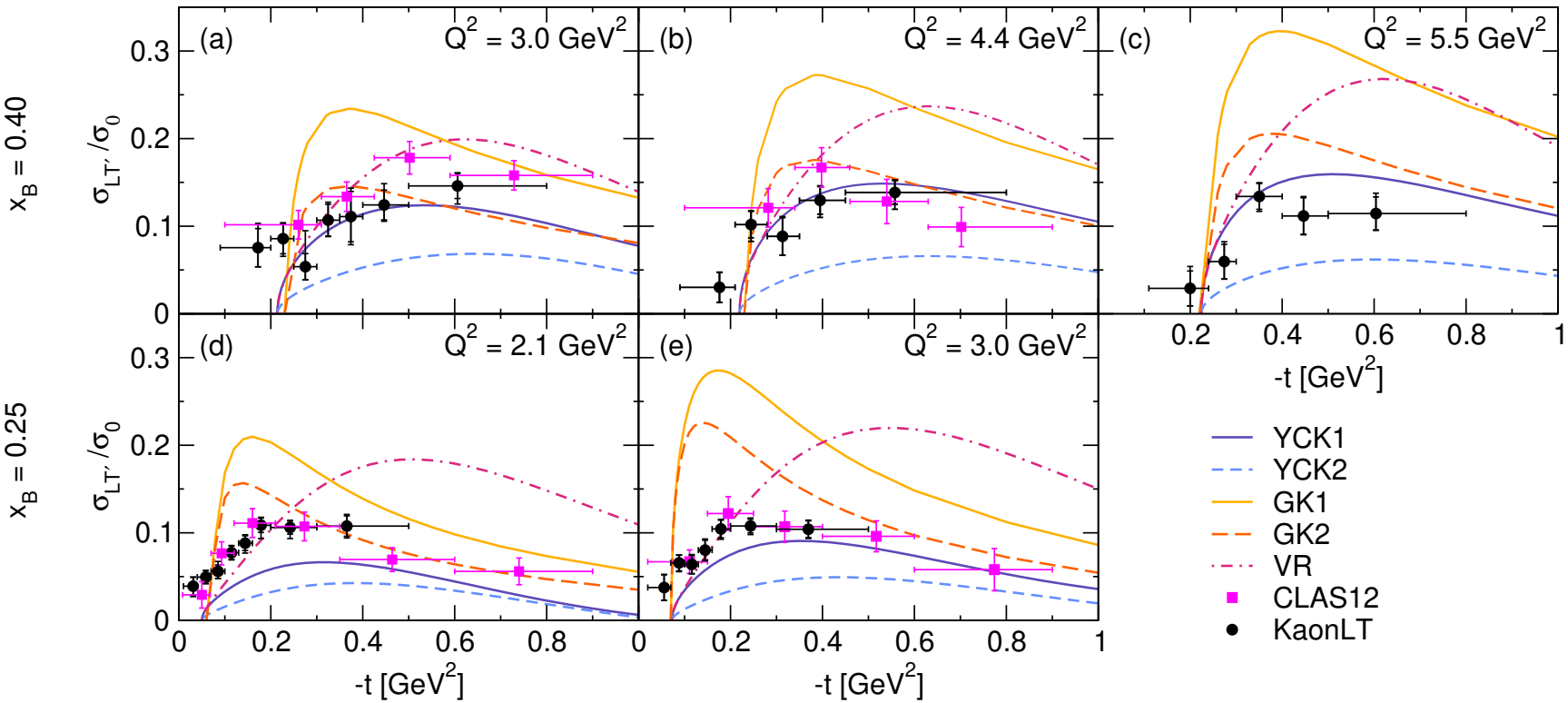
Referee 2: Summary

- "a welcome addition to the overall world data set and should be published [...] not quite convinced that the conclusions drawn by the authors are sufficiently strong (and sufficiently supported by the data) to warrant publication in a Letter journal"
- "There is no mention of radiative corrections and their systematic uncertainties, and other systematics are treated superficially"
- "if the near-constant Q2 behavior for fixed x and t holds and is reproduced in shape (if not in absolute magnitude) by the GK2 curve, I would consider this a stronger indication in FAVOR of factorization than the imperfect description of the t-dependence by the GK2 model would be evidence against it."
- "In general, I wouldn't make absolute claims on "factorization works" or "doesn't work"; for any real data set at finite kinematics." Could comment on on quark-hadron duality, higher twist effects, and other contributions not included in the GK model.
- "All of the above could probably be better addressed in a somewhat longer format than the present paper."

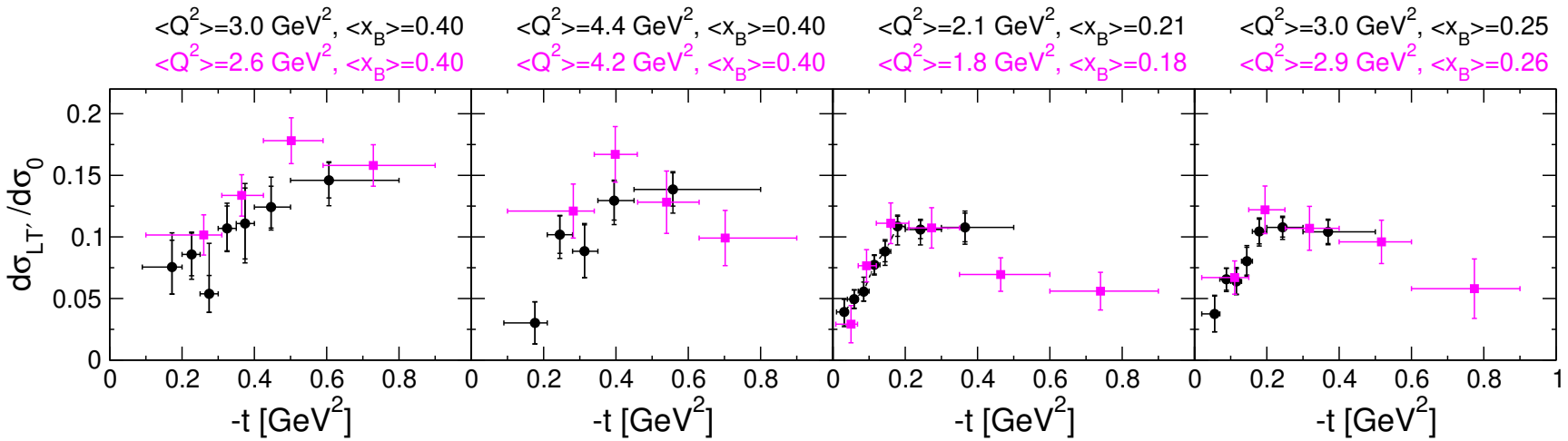
Commonalities

- Kinematics / settings should be explained in more detail
- More CLAS12 data should be shown on our plots, even if kinematics do not precisely match - after all, there is kinematic variation even within a setting
- Models should have a "bin-centering correction" or be integrated over the entire bin

Add More CLAS12 to Fig 6?

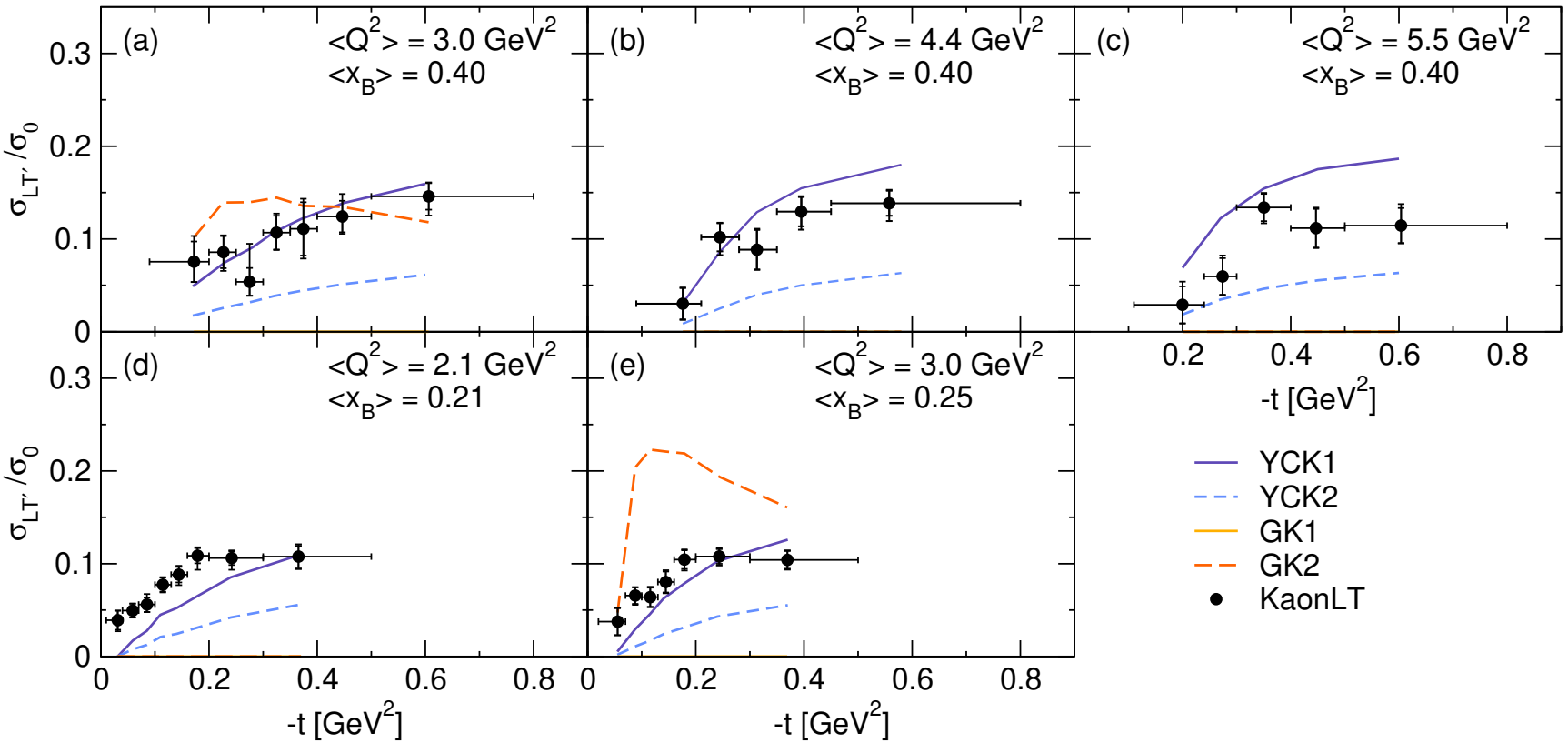


New Figure to Compare with CLAS12?



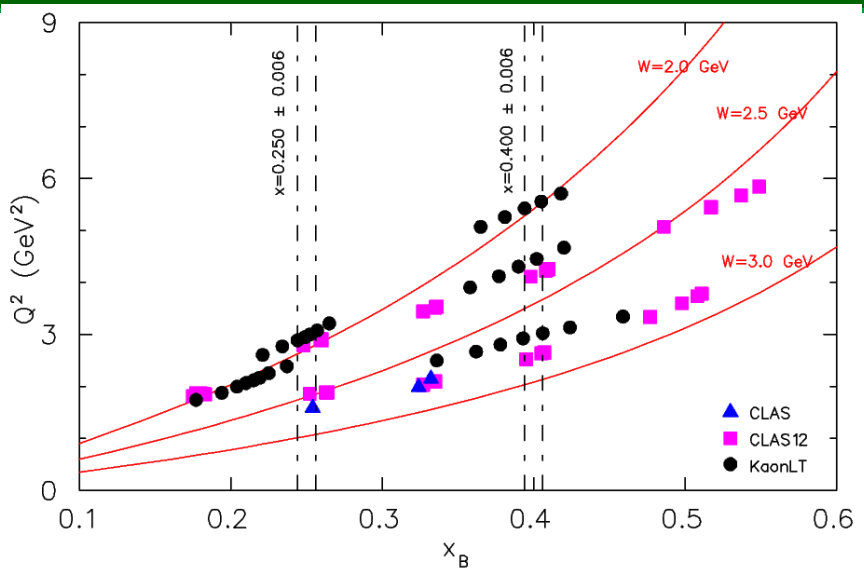
Note: I can not add CLAS12 to Fig 6 at the same time as binning the models in Fig 6.

Binned Models in Fig 6?

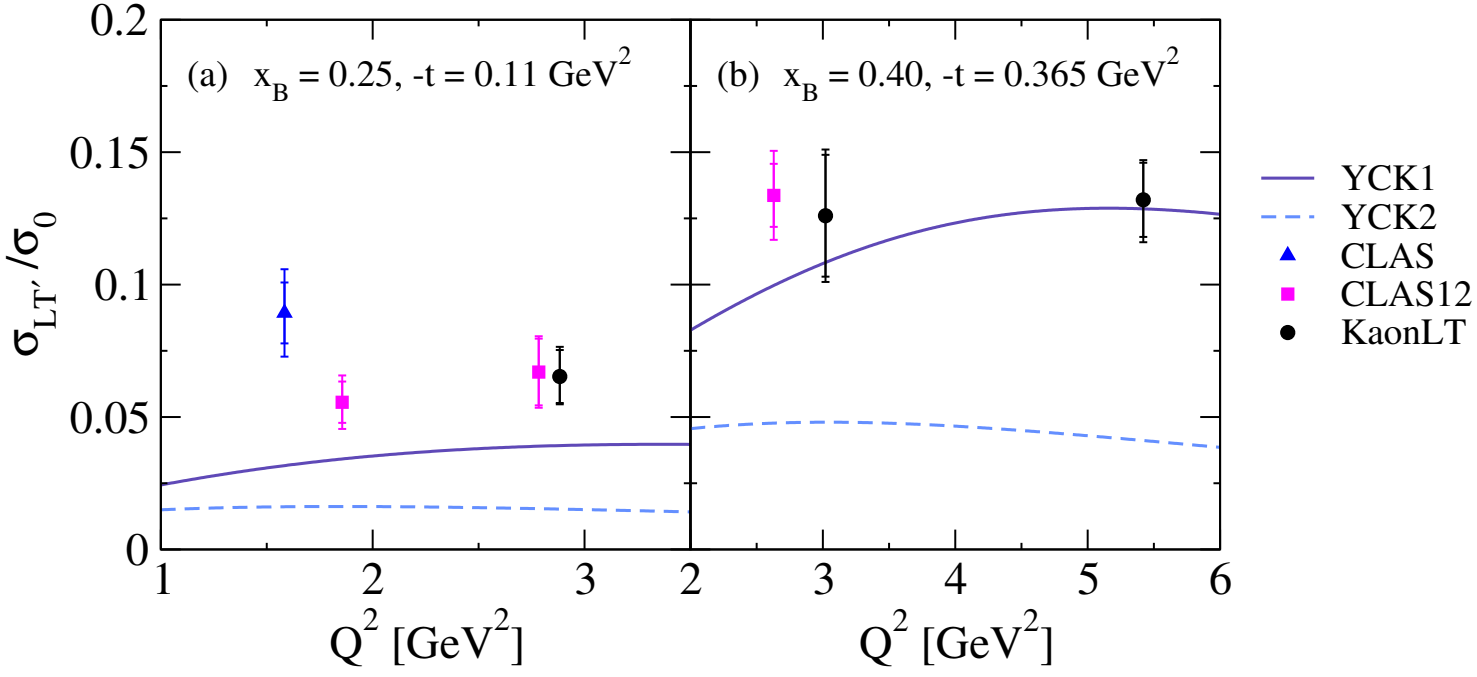


In progress - PARTONS (GK) takes a while to run. VR executable discontinued.

The Confusion



There are more data points visible in the highighted region for a Q^2 scan than actually used in the scan below. (Scan also requires fixed $-t$.)



Add More Data to Fig 7?

Scan 1: x_B=0.4, -t=0.36

→ Other points at x_B=0.4 have -t = 0.26, 0.502, 0.729, 0.282, 0.398, 0.54, 0.702 (CLAS12), -t = 0.45, 0.60, 0.31, 0.35, 0.55, 0.32, 0.44 (KaonLT)

Scan 2: x_B=0.25, -t=0.11

→ Other points at x_B=0.25 have -t = 0.19, 0.35, 0.5, 0.7 (CLAS12), -t = 0.14, 0.18, 0.24 (KaonLT)

I think we need to explicitly state that this scan does not include all points at same x_B but only those at fixed $-t$. We could widen the $-t$ range, but we have seen that the t-dependence of LT' is non-trivial.