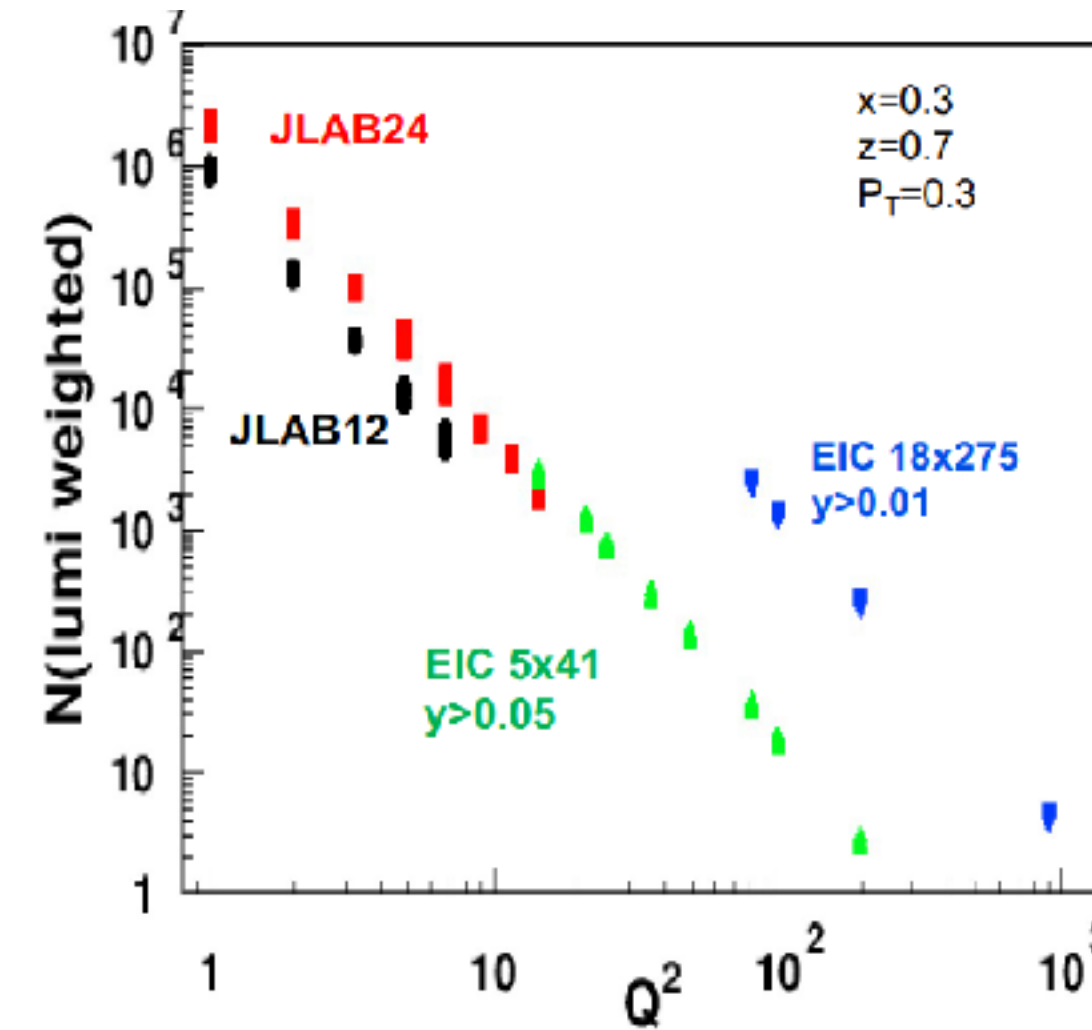
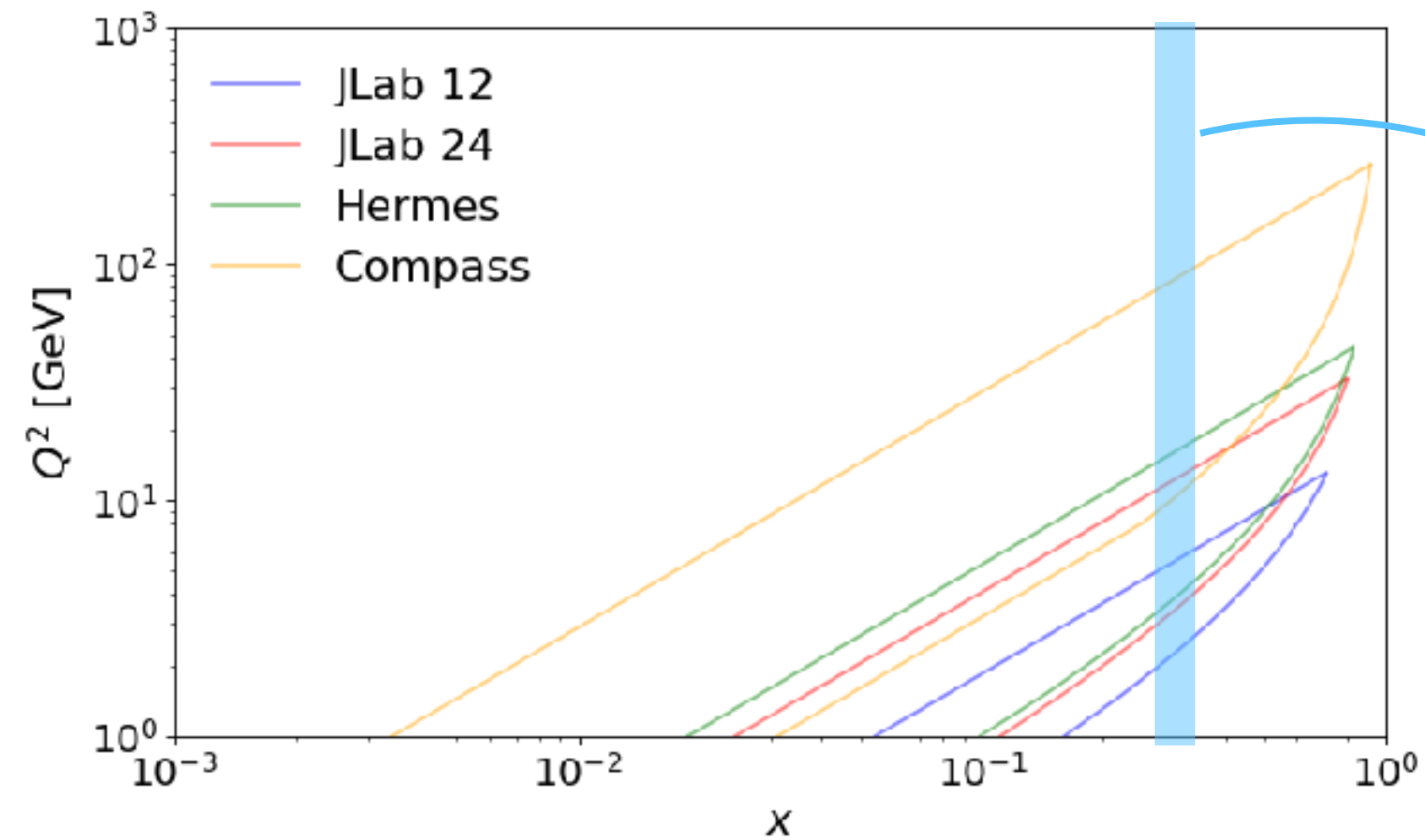


Nucleon structure at an upgraded JLab

From Andrea Signori's talk



From Harut Avakian's talk at CPHI 2022

Do we need more statistics in a region already covered by other experiments?

Discovery



Knowledge

Broader theory questions

- Which properties of the nucleon are described sufficiently well by valence quarks only?
- Which properties of the nucleon can we really measure (e.g., its mechanical properties)?
- To which extent can we trust perturbative calculations? Where does the formalism work and where should it be modified?
- Can we describe a transition to nonperturbative QCD?
- Is lattice QCD able to predict the nonperturbative features of the proton reliably?
- Can we look for physics beyond the Standard Model?

More specific theory questions

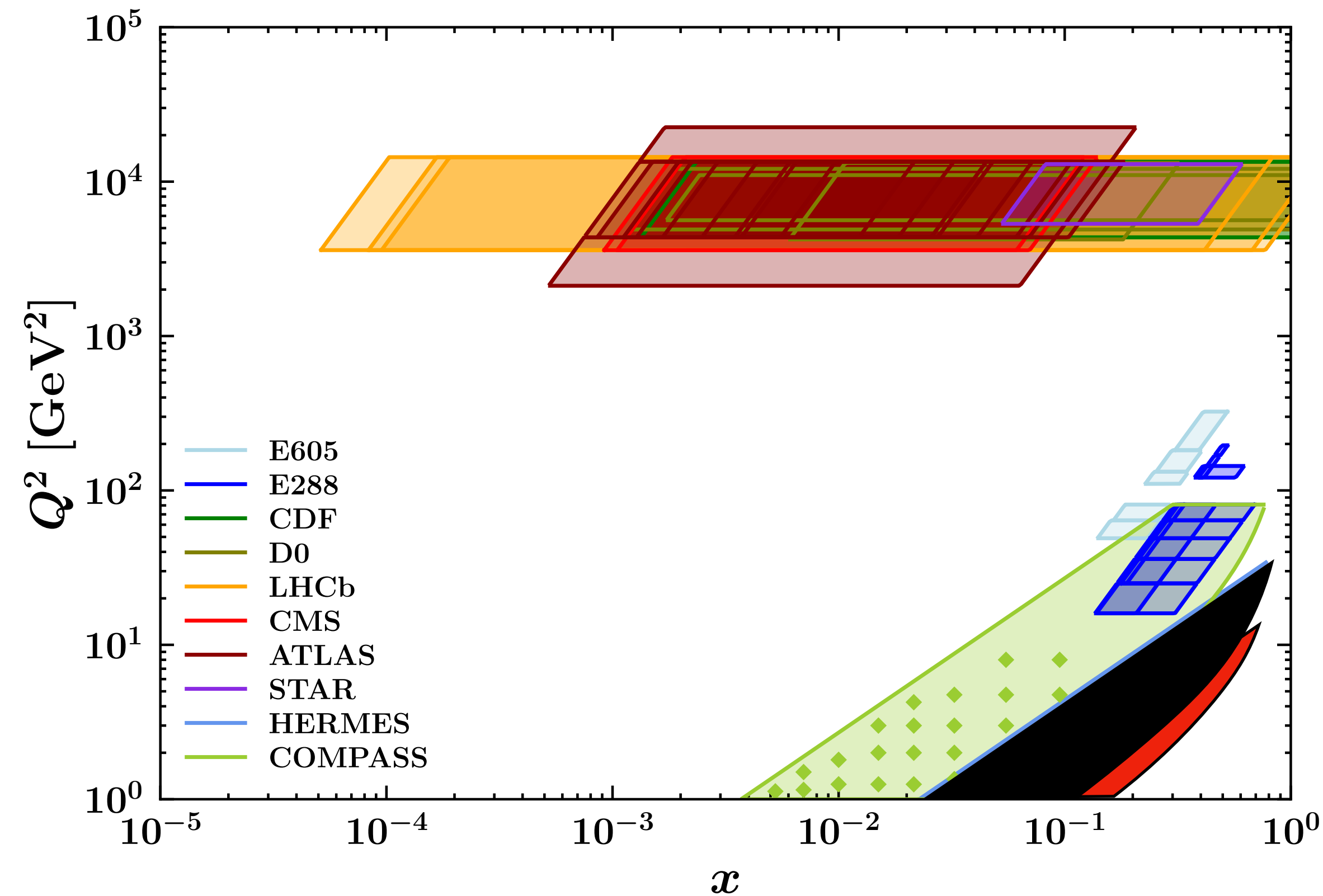
- What's the size and behavior of higher twist (kinematical and dynamical)?
- How do we clearly distinguish current and target fragmentation regions?
- Can we identify different components in parton distribution functions and fragmentation functions?
- Can we combine the information from semi-inclusive and exclusive processes?
- Where do we really need multidimensional studies?

Practical and personal considerations

- After a good brainstorming, I think we should look for a few examples where we can really make some quantitative statement (i.e., identify something that we cannot do without JLab24)
- Manpower is a problem, to a certain extent even more for theory
- Maybe we can find common strategies to save time (for instance, if we decide to present impact studies, maybe we can construct the same performance indices for different observables)

Presently used data for PDFs and TMDs

Present coverage of unpolarized TMD fits



Present coverage of unpolarized PDF fits
From Emanuele Nocera POETIC 2016 talk

