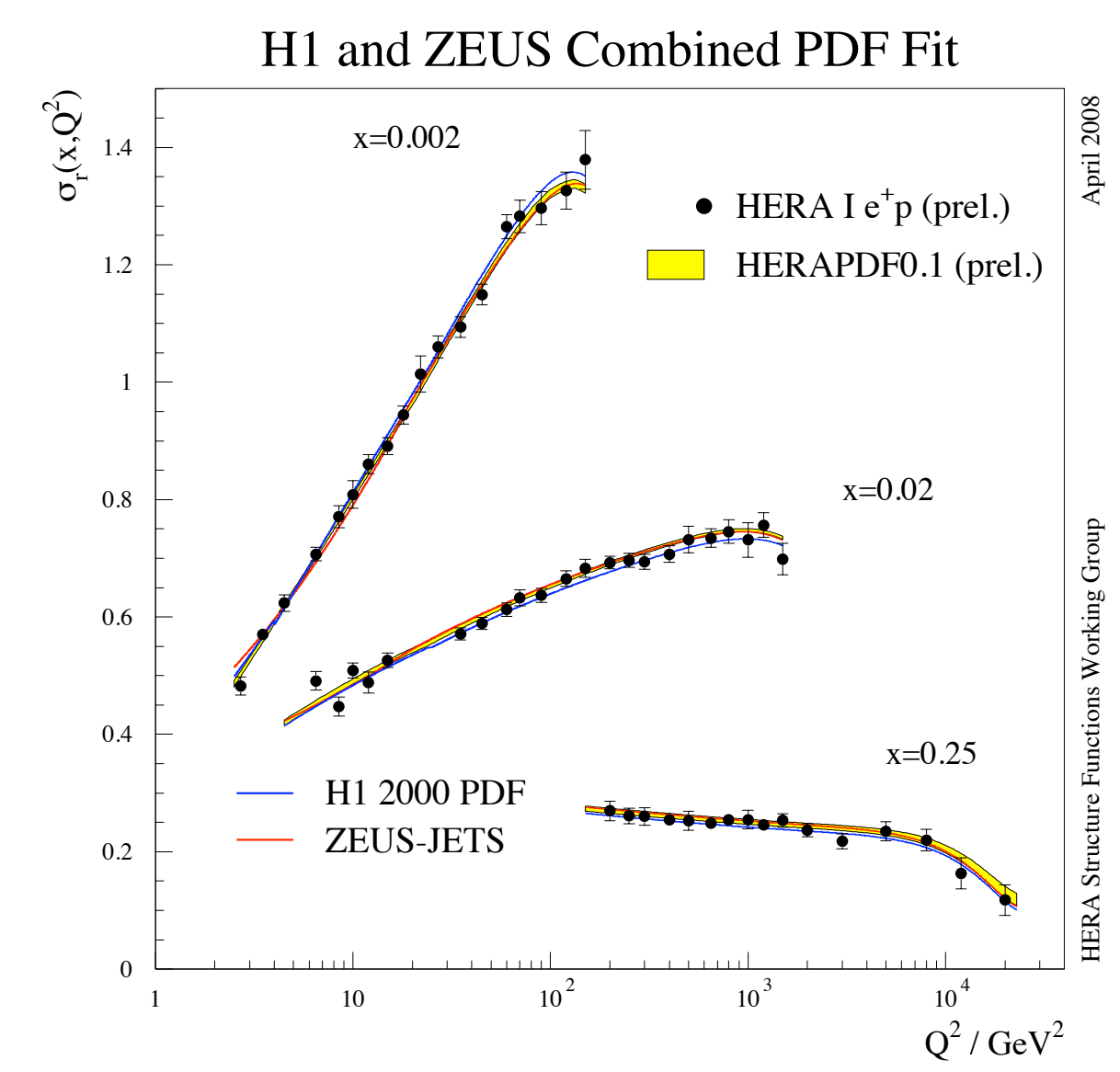
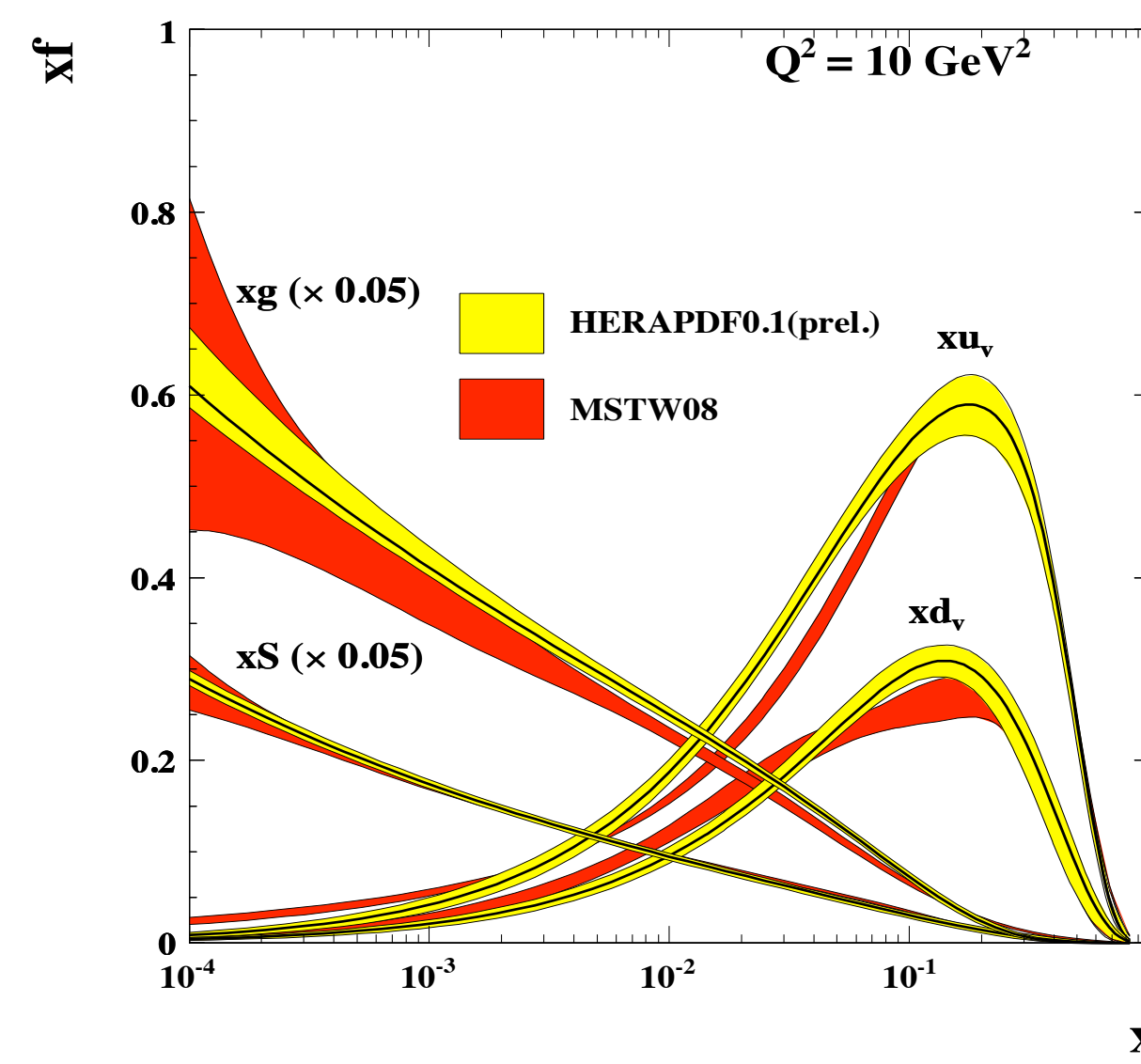


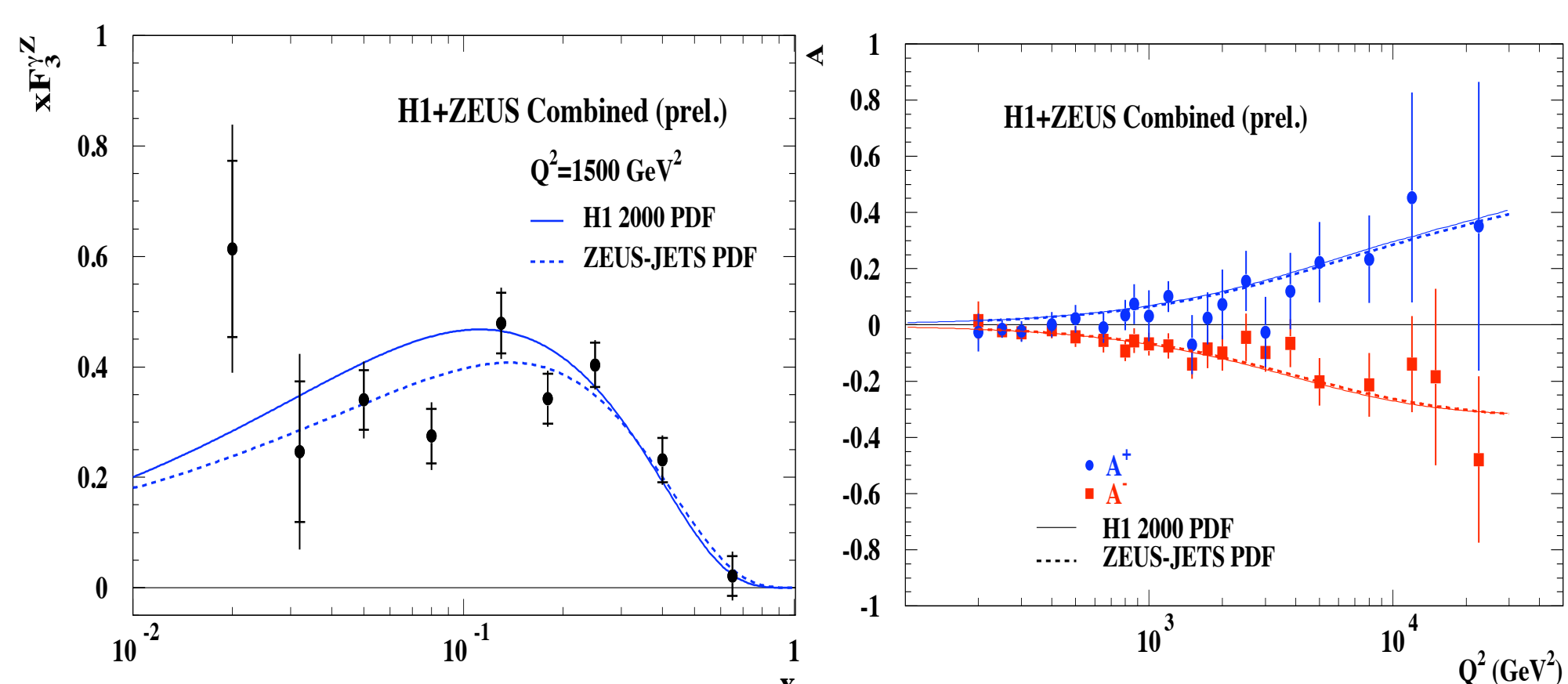
Inclusive Measurements



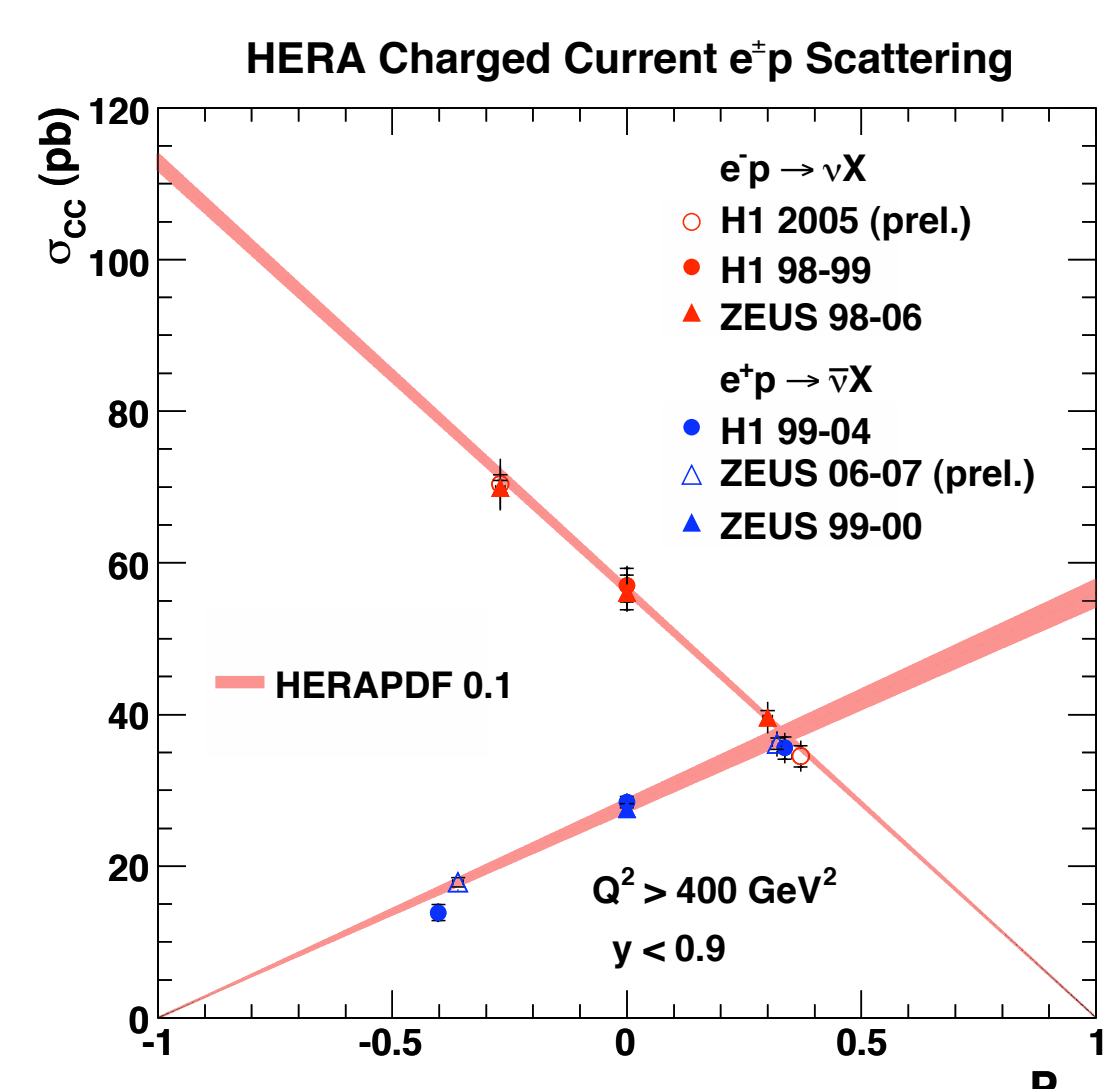
- Averaging of H1 and ZEUS HERA I data allows cross determination of systematic errors



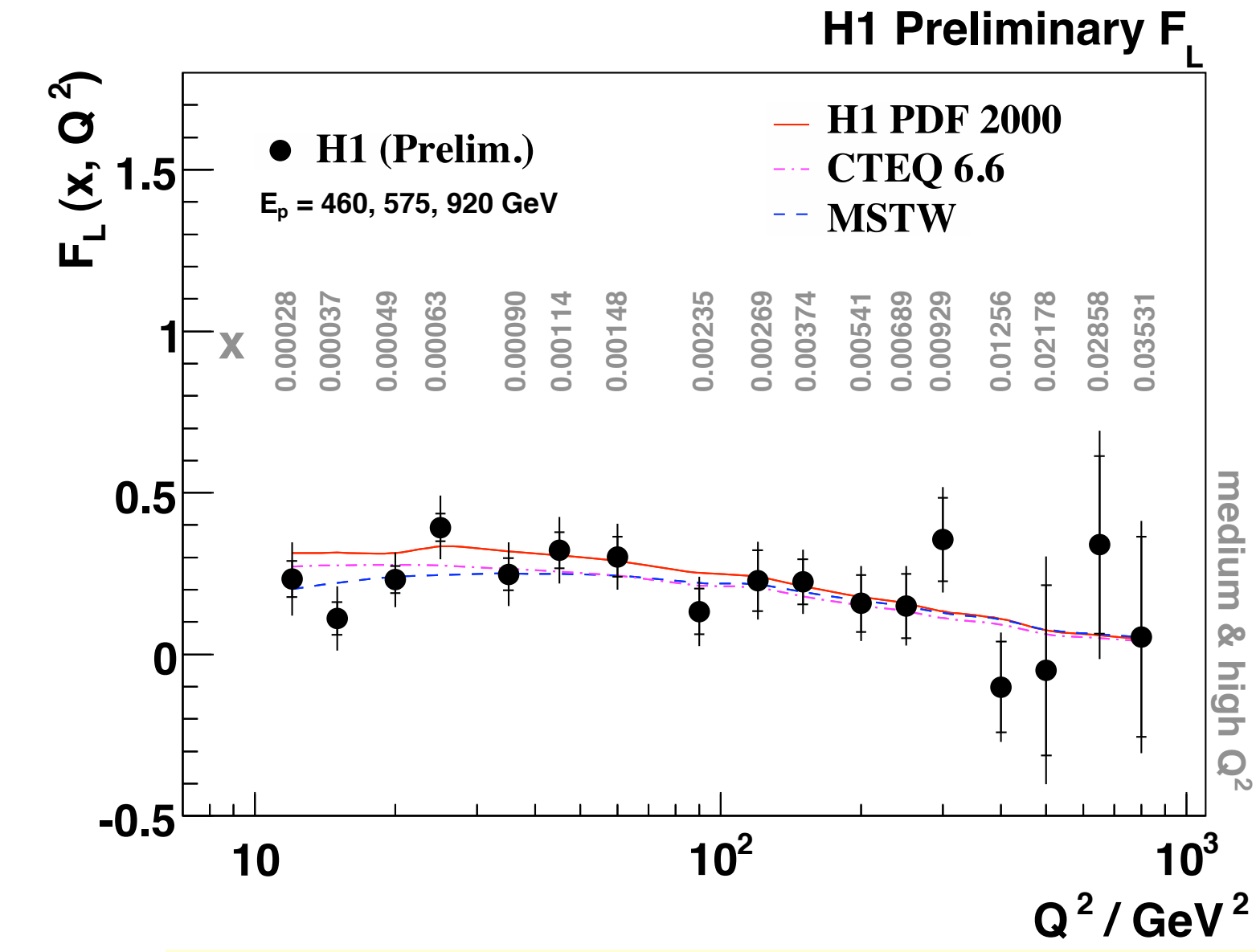
- Unprecedented precision of resulting HERA PDFs



- Most accurate measurement of γZ interference structure function xF_3
- First observation of parity violation in NC e^+p scattering at 10^{-18} m

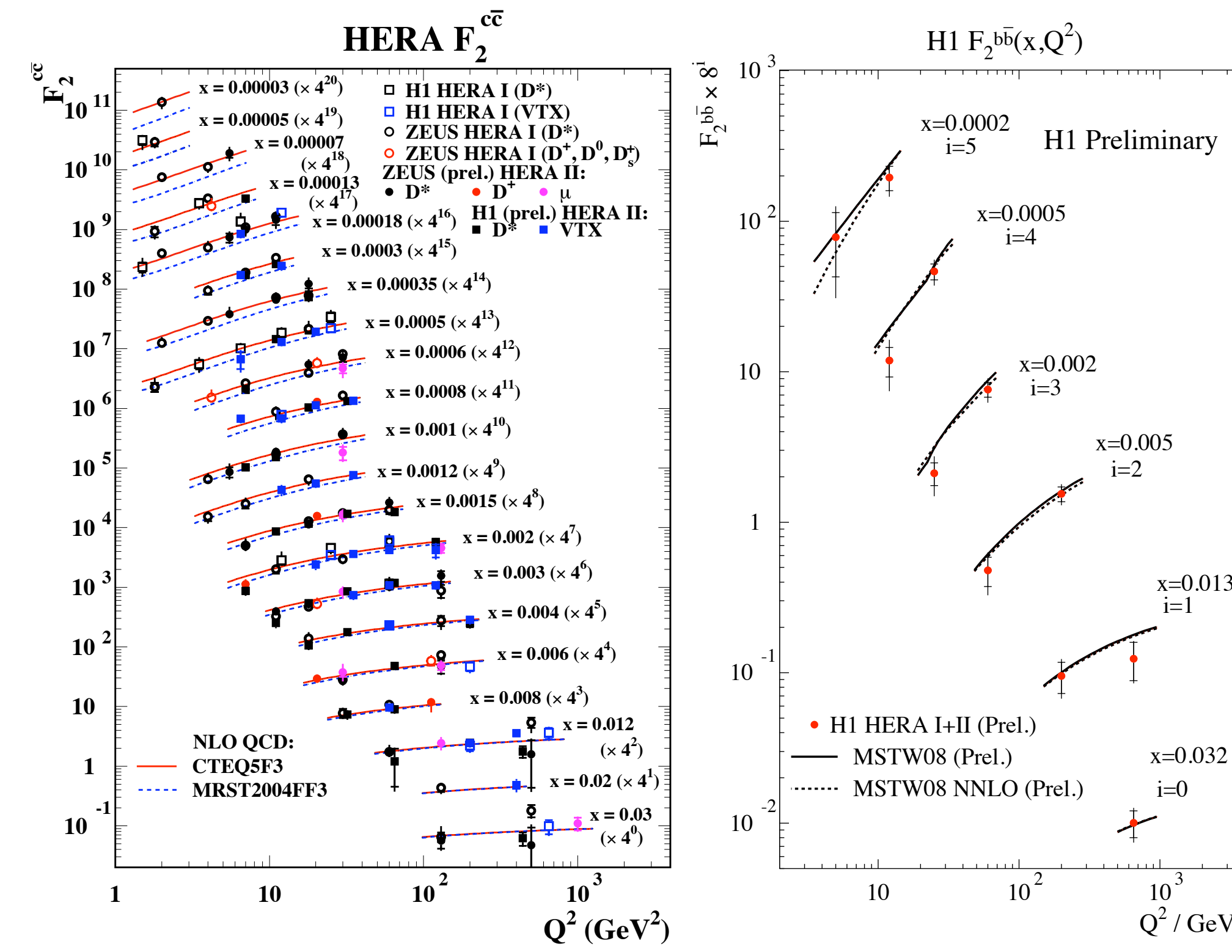


- Tests of chiral structure of charged current interaction in region of large and space-like Q^2
- Results confirm absence of right handed currents

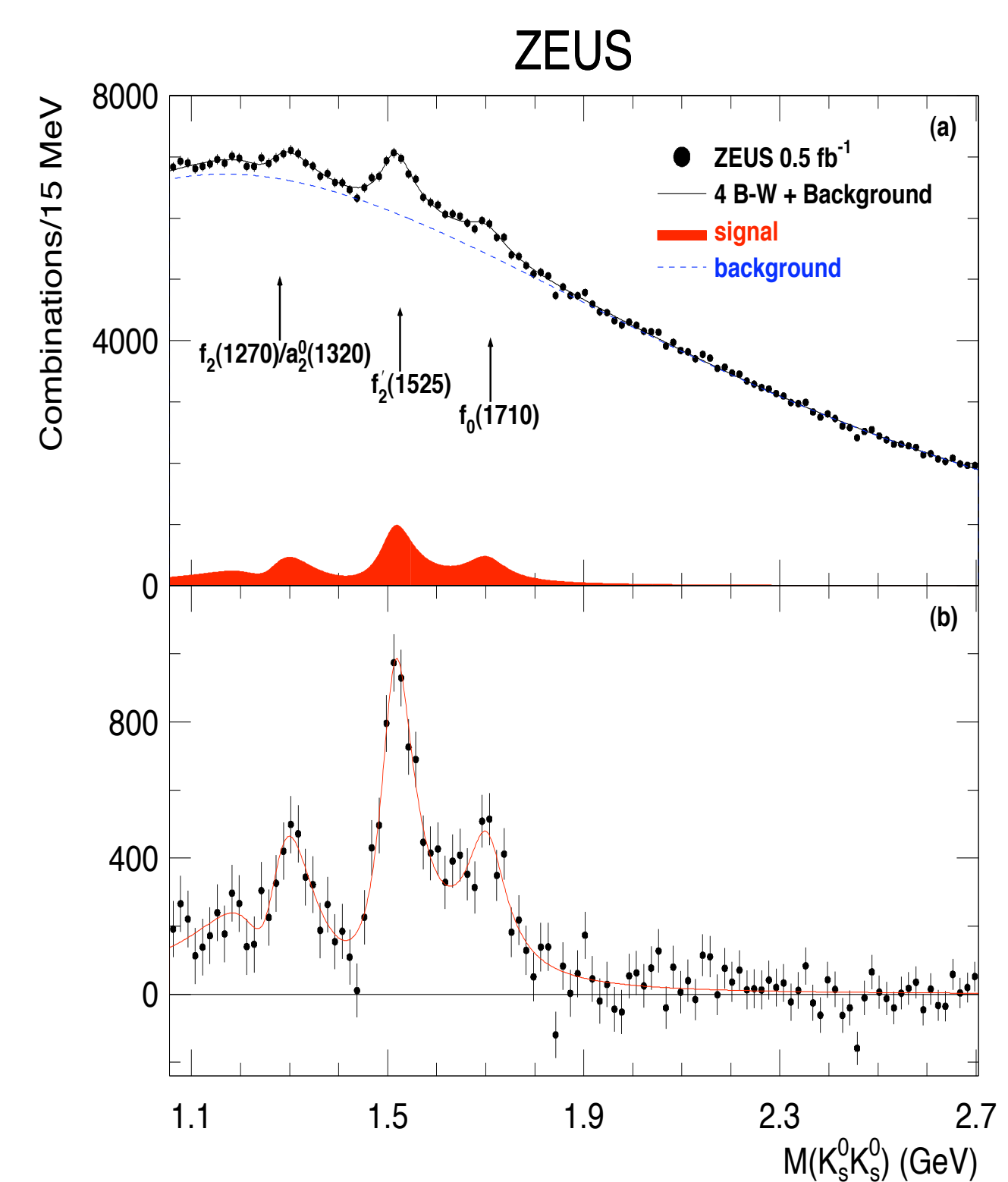


- First measurement of longitudinal structure function F_L at low x
- DGLAP prediction confirmed

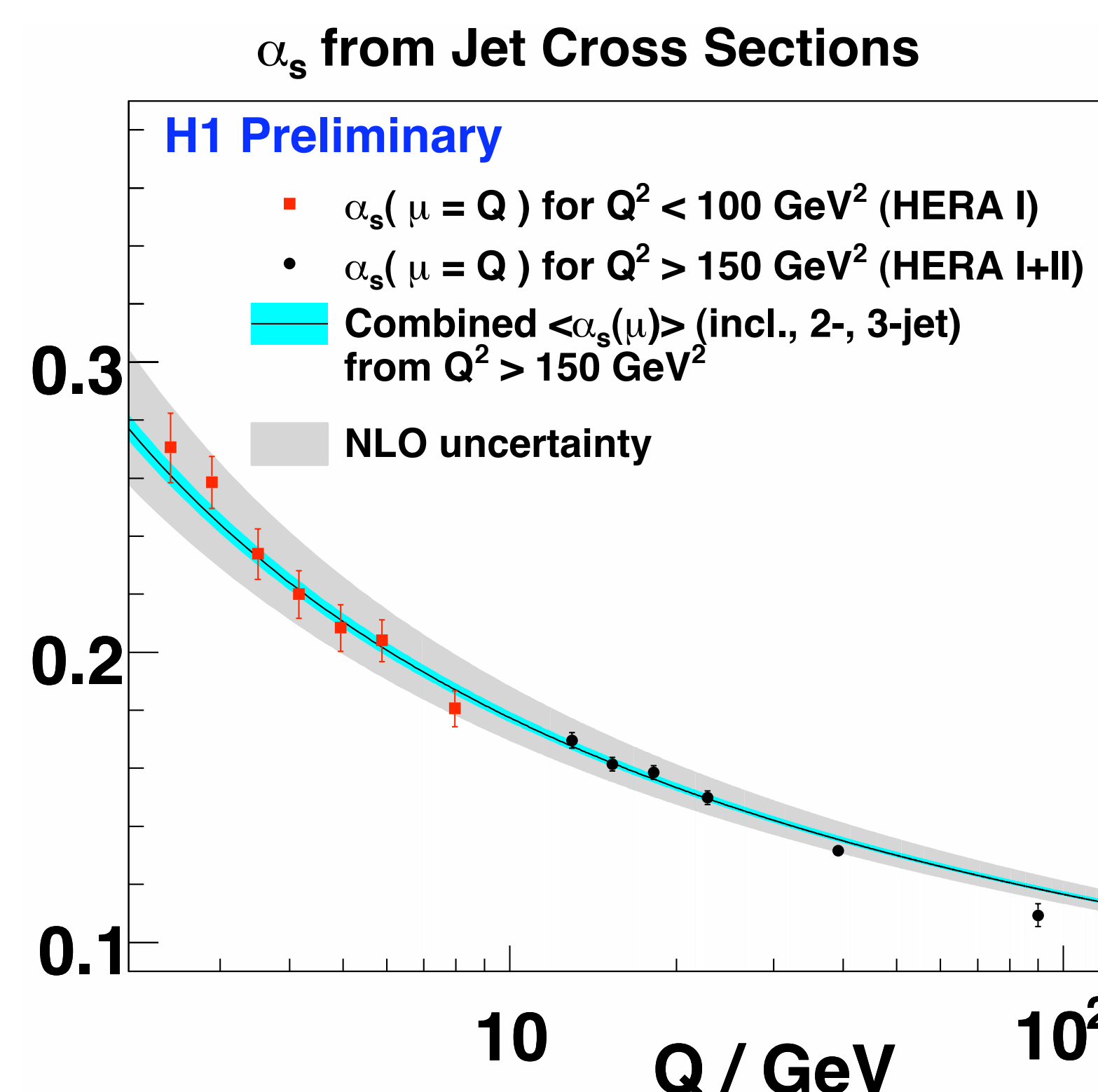
Hadronic Final State



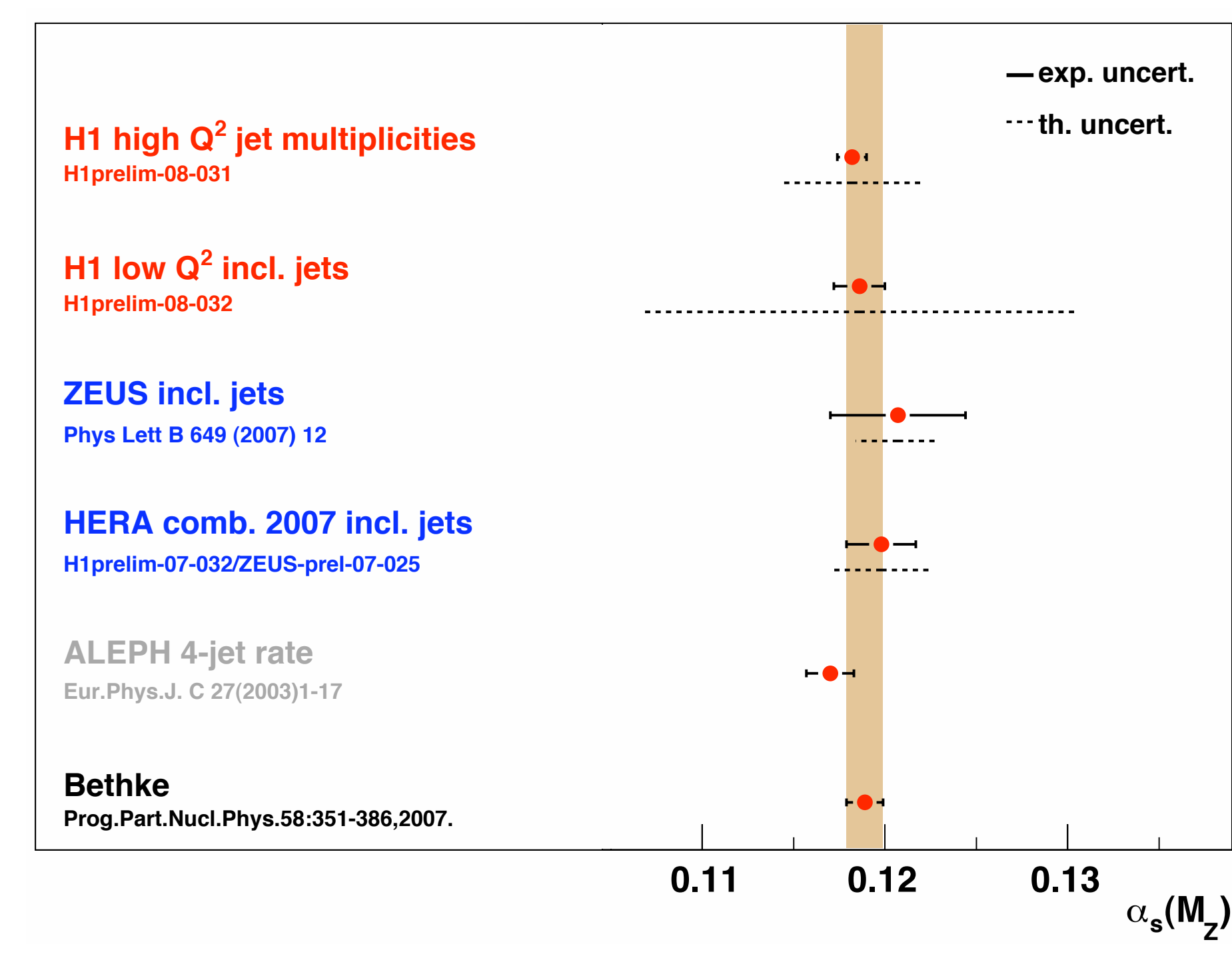
- Consistent results for F_2^{cc} from variety of methods
- Combined results will be used as input to global PDF fits
- First measurement of F_2^{bb} agrees with QCD predictions



- Structures observed in $K^0, \bar{K}^0$ mass spectrum
- Significance for $f_0(1710)$ at 5 sigma
- Mass consistent with being glueball candidate

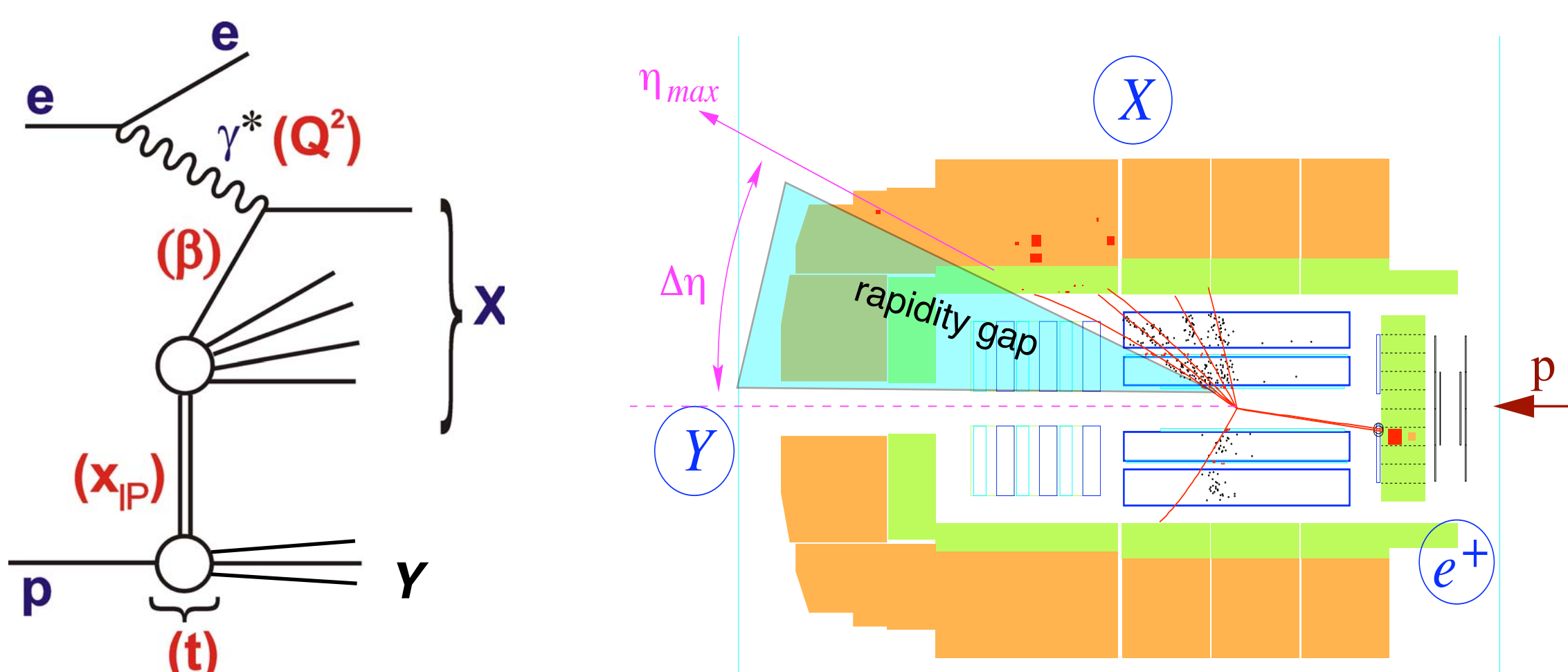


- Multijet cross section sensitive to α_s
- Wide range of scales covered
- Running of α_s in single experiment

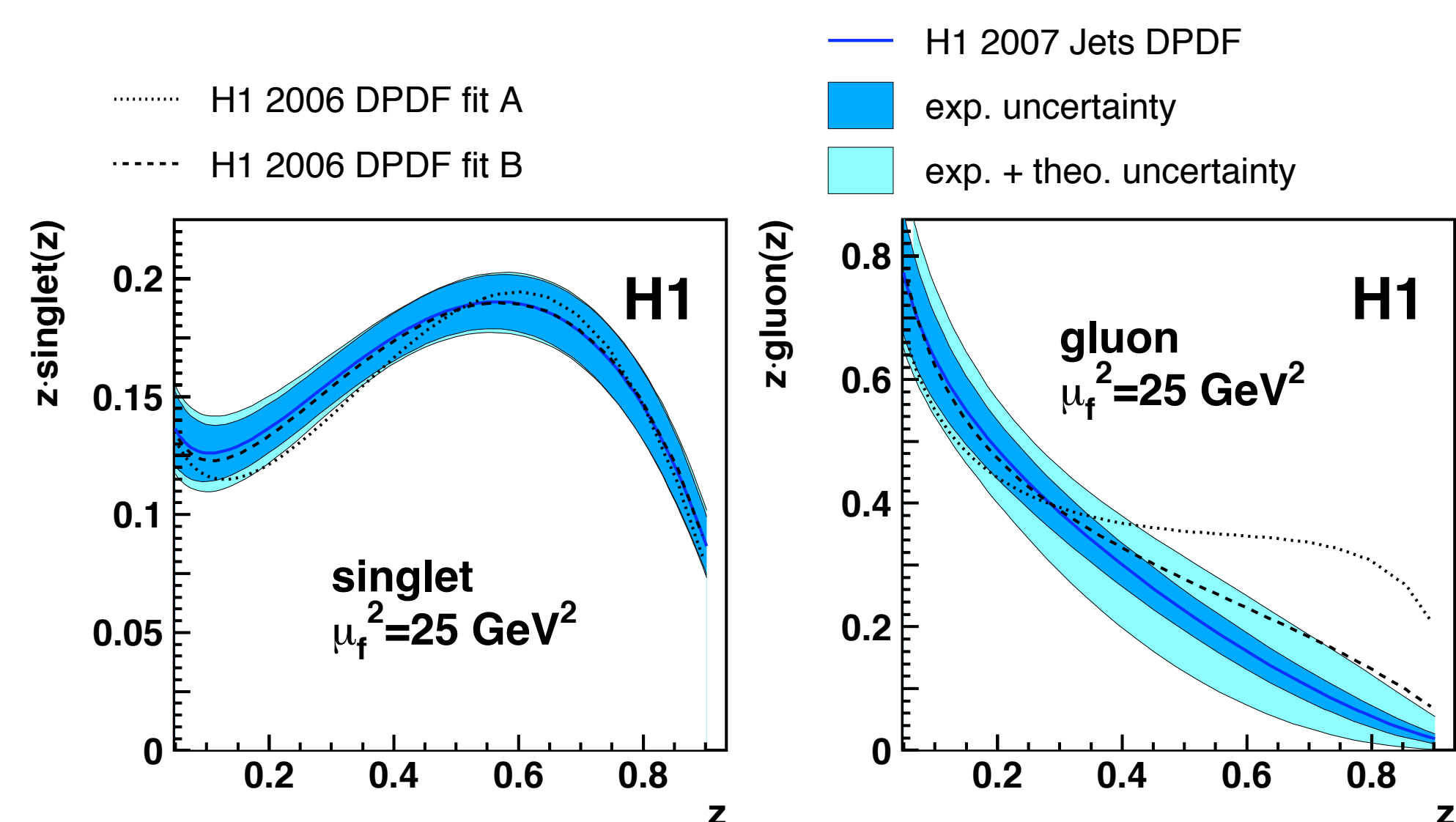
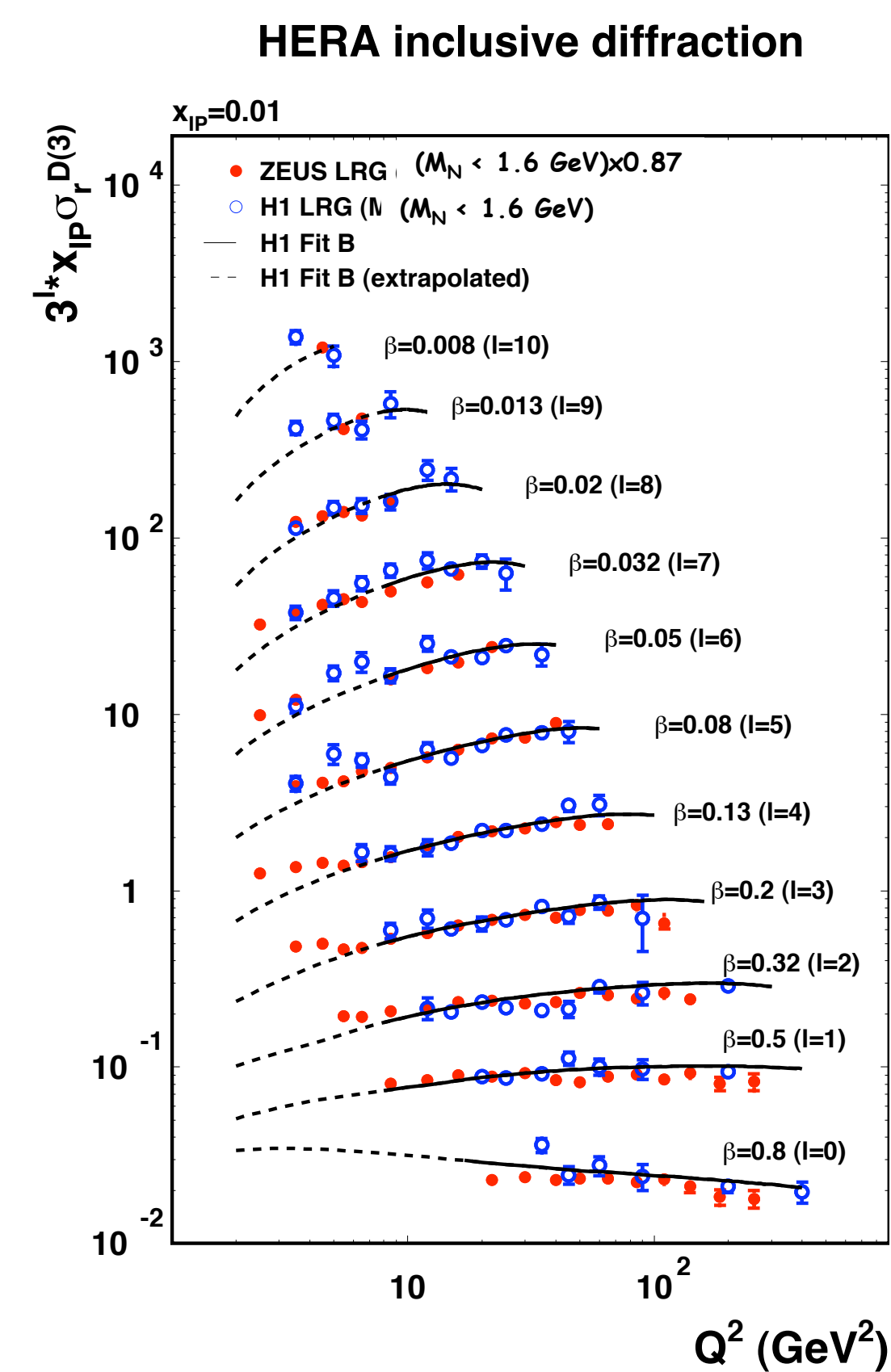


- Very small experimental errors from HERA measurements
- Theoretical scale uncertainties dominate - need for NNLO

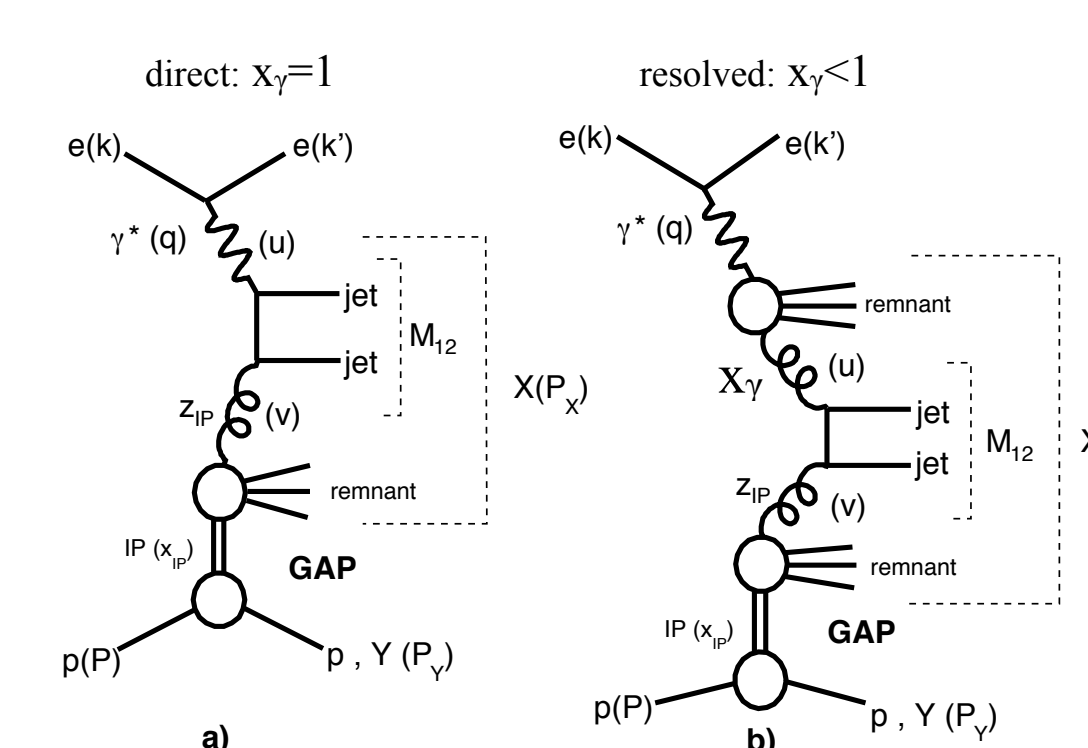
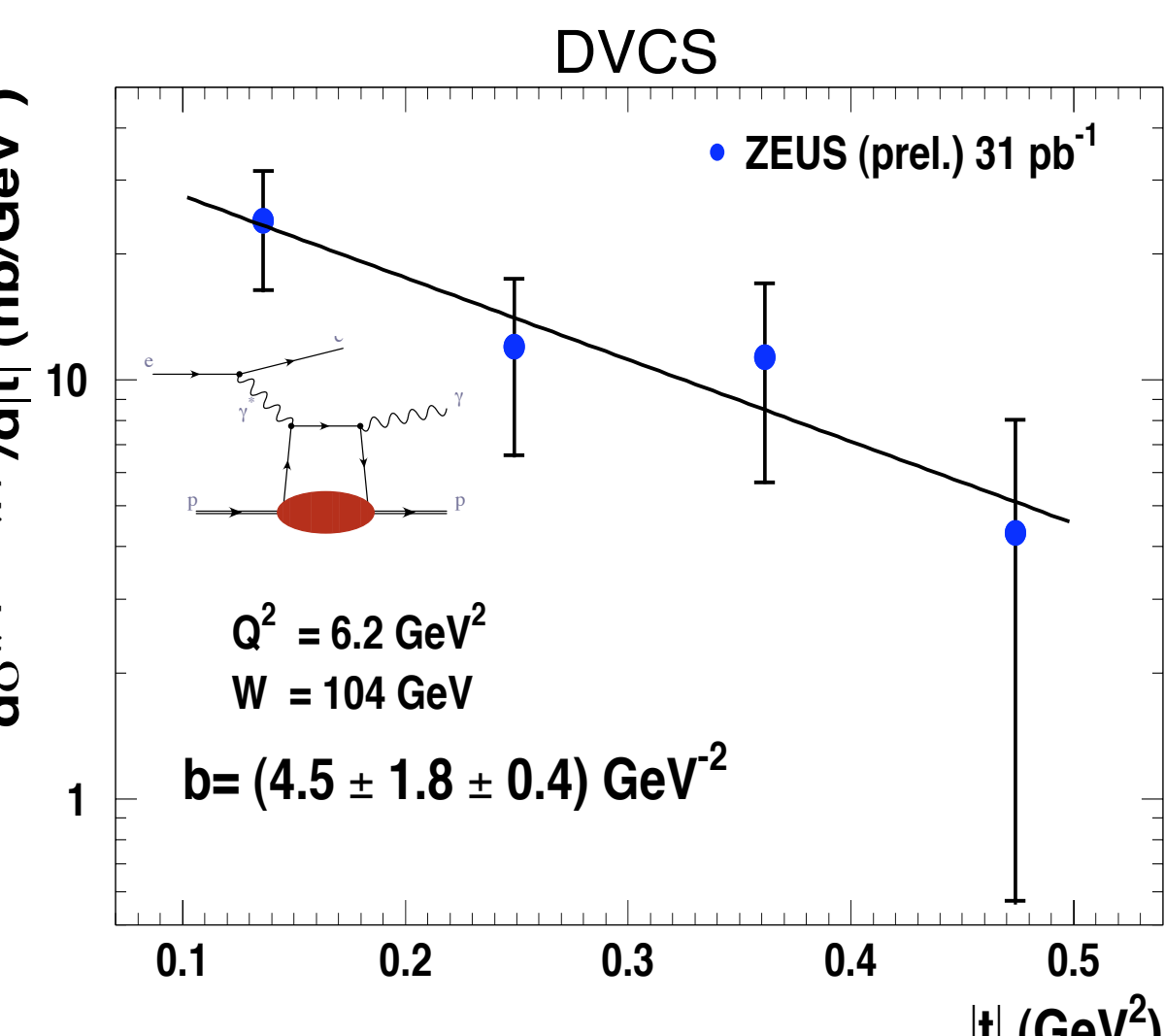
Diffraction



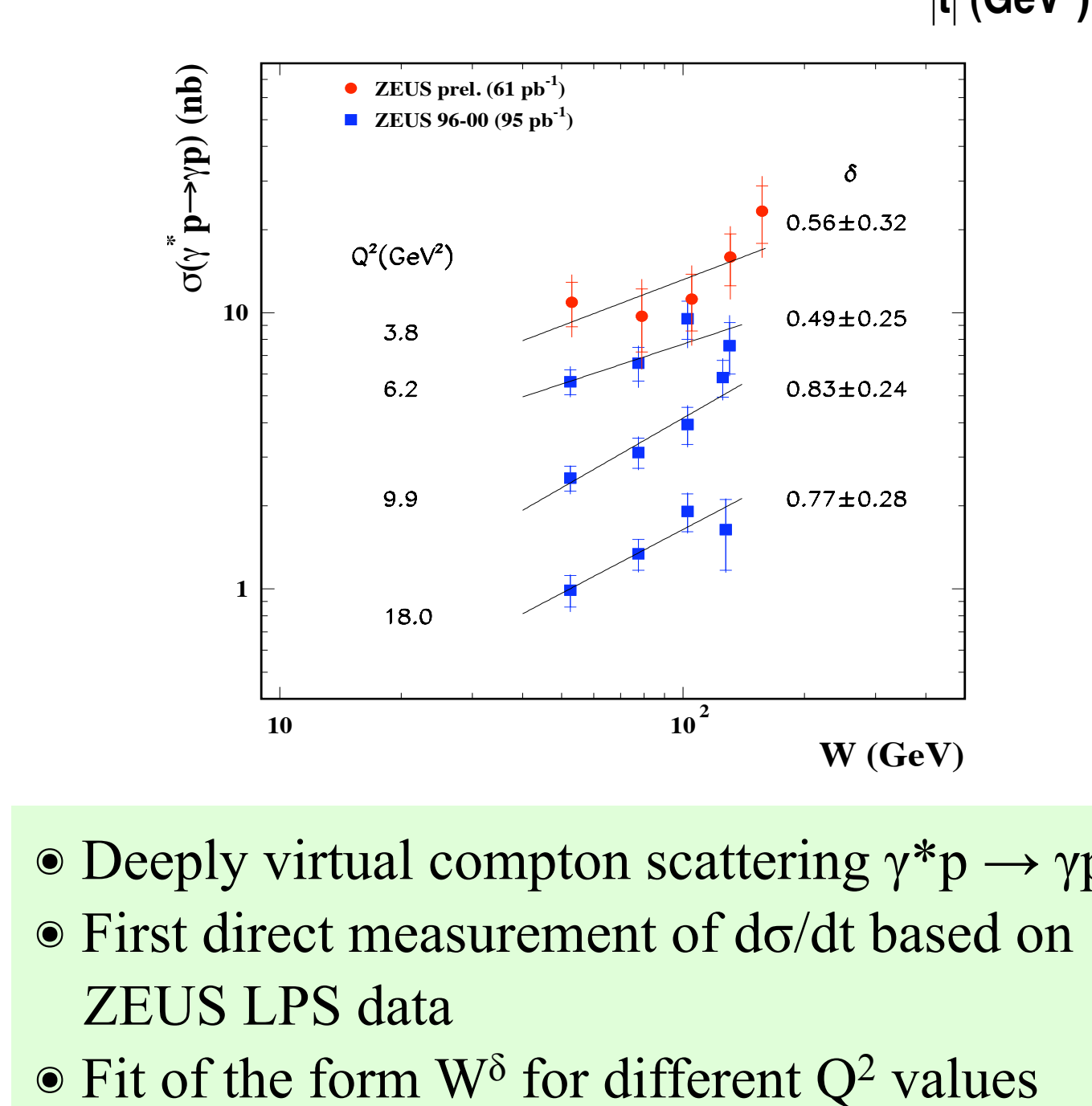
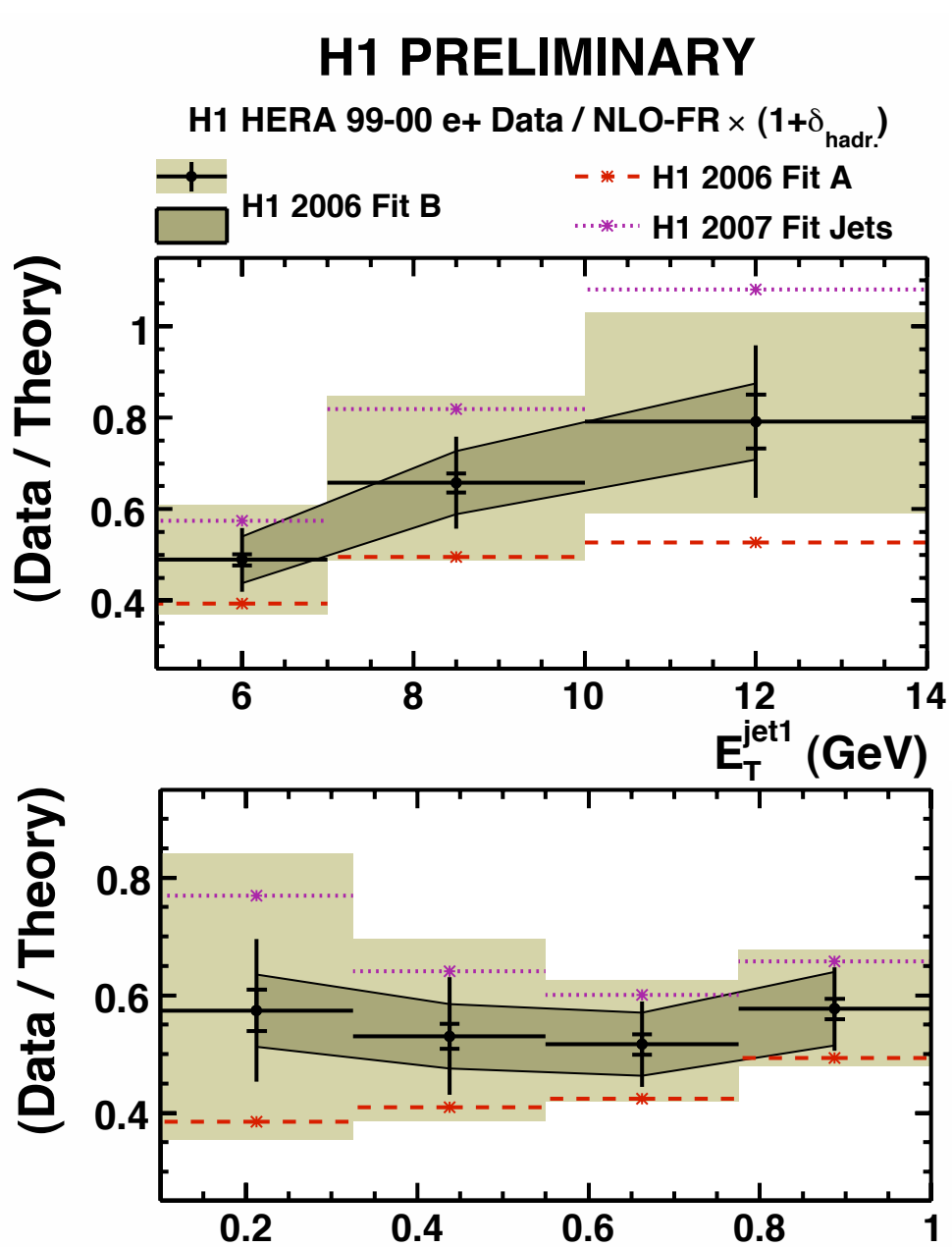
- A large fraction of high energy hadronic interactions is diffractive
- HERA analyses mainly based on rapidity gap selection (LRG)
- Inclusive diffractive cross section results of H1 and ZEUS agree
- Work on combining all data for future global DPDF fit in progress



- Combined NLO QCD fit to diffractive inclusive and di-jet data
- First reliable diffractive gluon density at large momentum fraction z

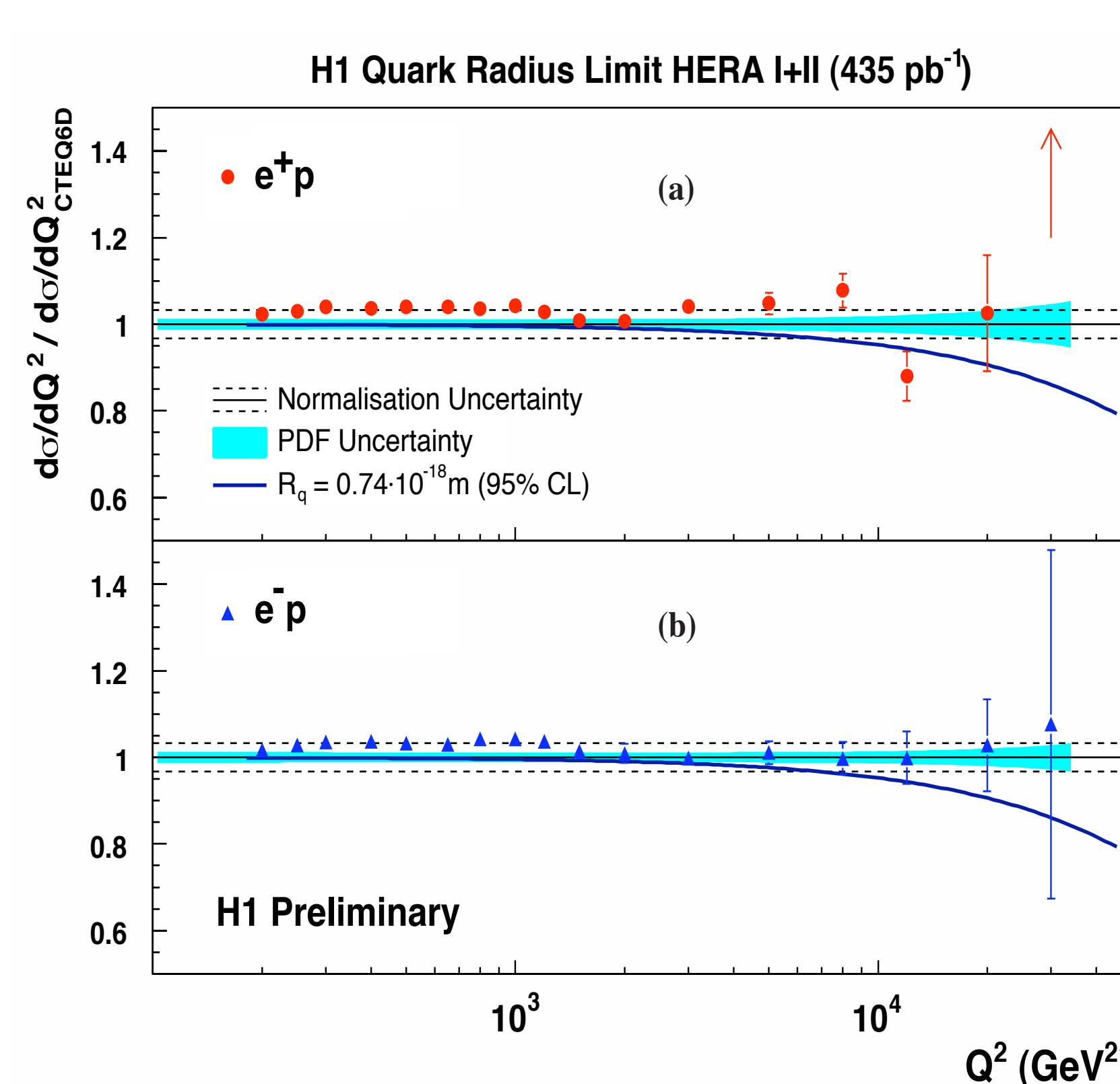


- Suppression of diffractive di-jet cross section relative to NLO calculation
- Suppression independent of x_T
- Suggestion of E_T^{jet} -dependence

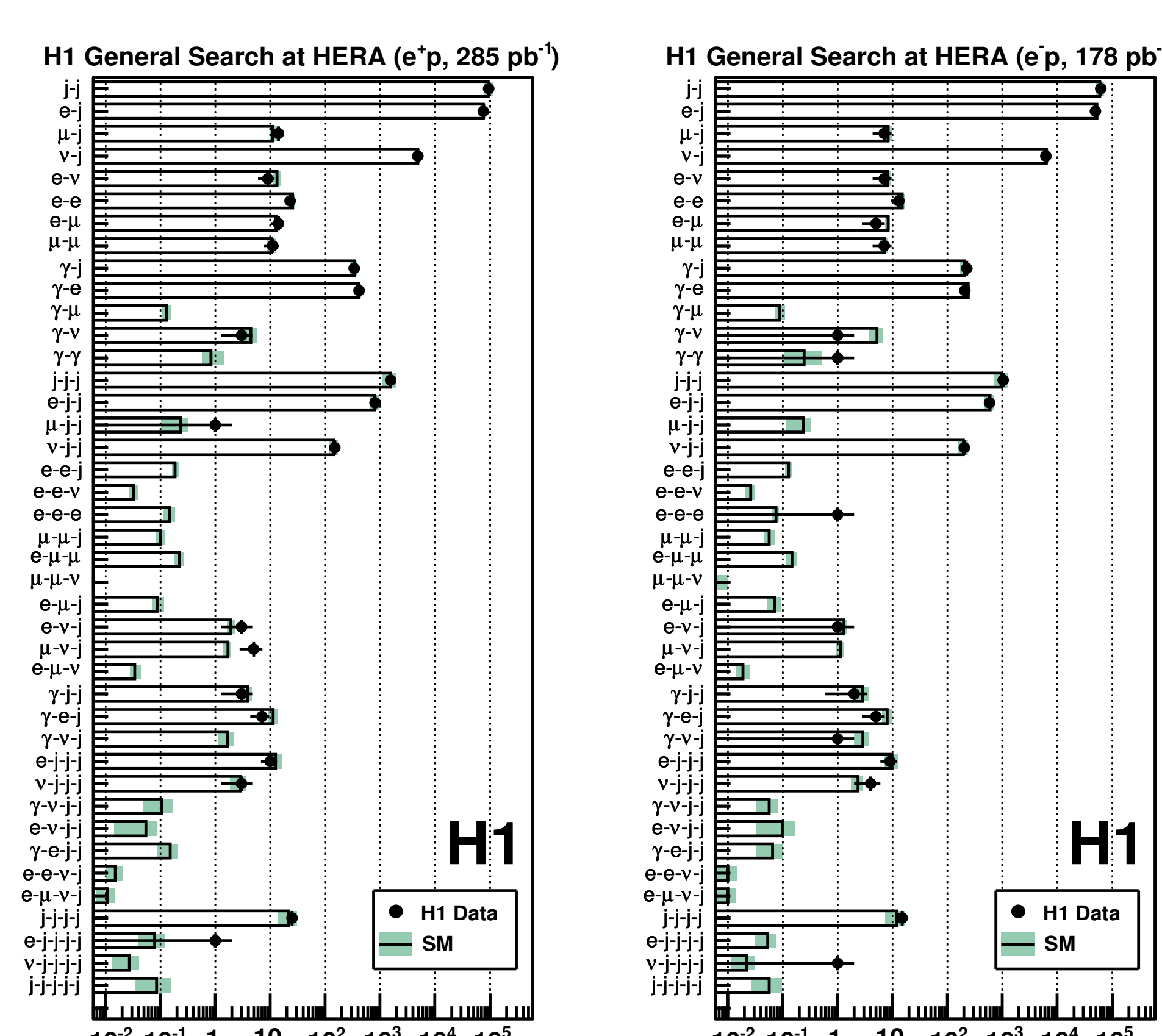


- Deeply virtual compton scattering $\gamma^* p \rightarrow \gamma p$
- First direct measurement of $d\sigma/dt$ based on ZEUS LPS data
- Fit of the form W^{δ} for different Q^2 values

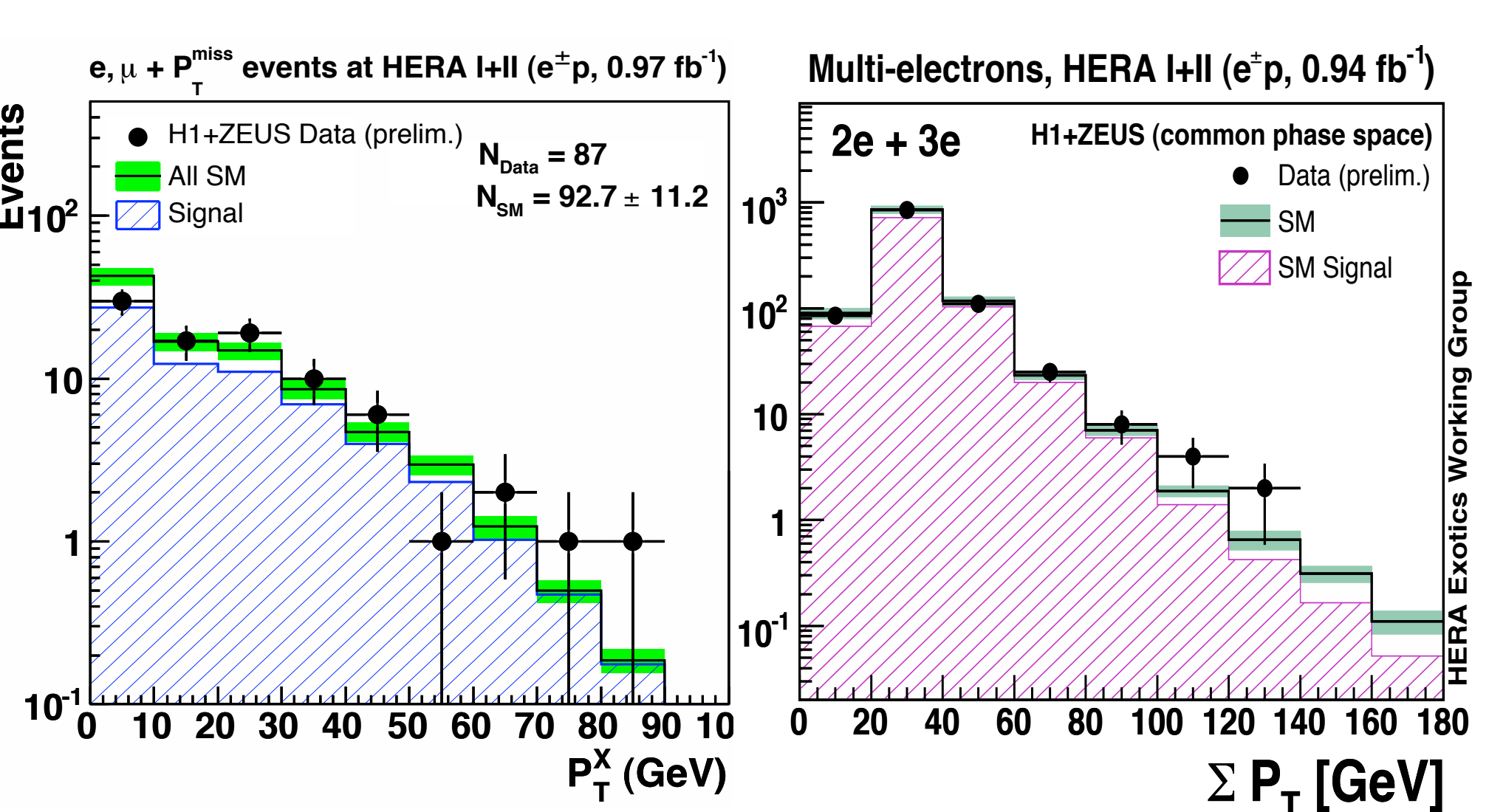
Rare Processes and Searches



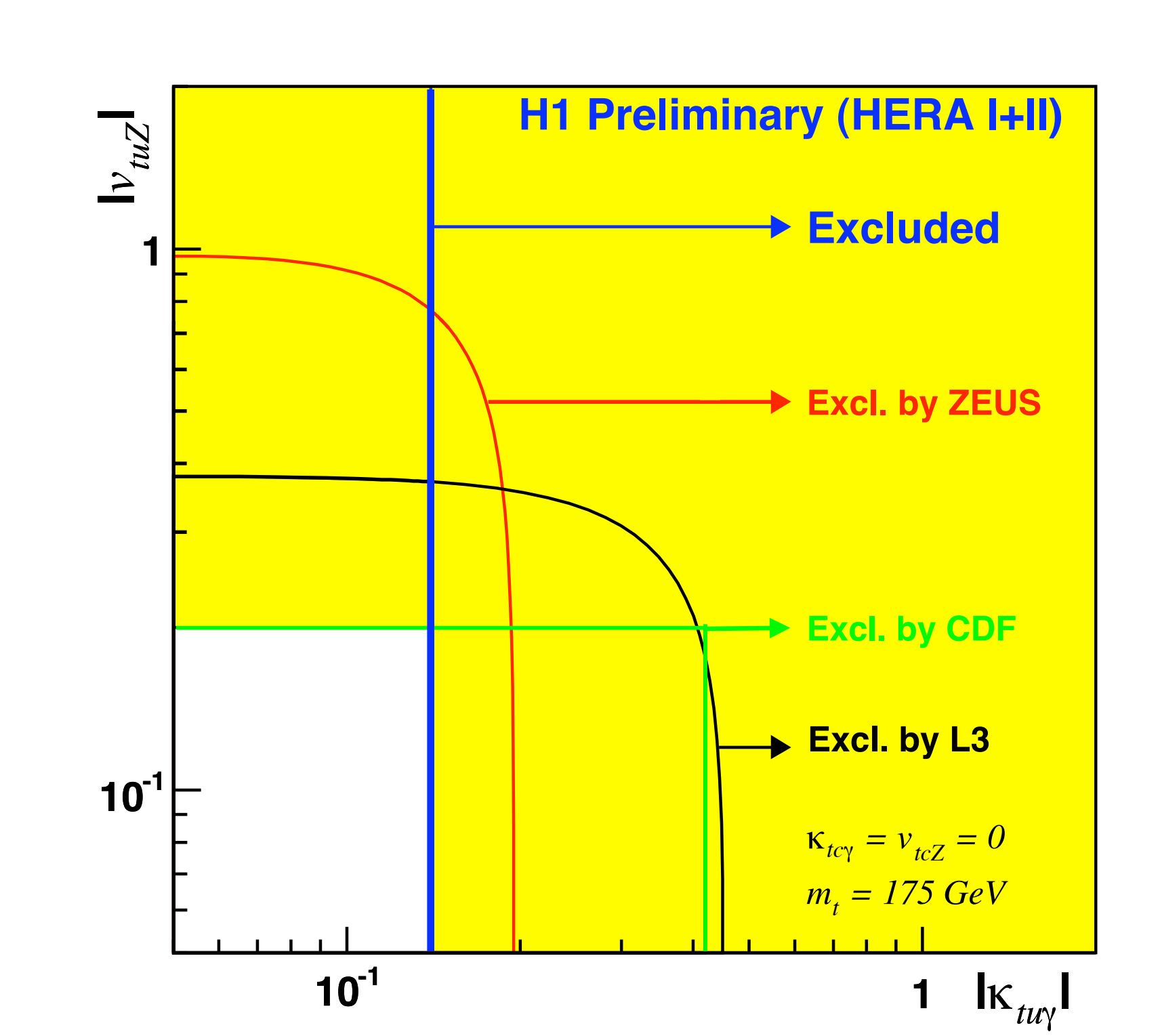
- Finite quark radius R_q would modify NC cross section $d\sigma/dQ^2$
- Stringent 95% CL derived from HERA data
 - ZEUS $R_q < 0.67 \cdot 10^{-18}$ m
 - H1 $R_q < 0.74 \cdot 10^{-18}$ m



- Comprehensive analysis of all event topologies involving objects with $p_T > 20$ GeV
- Good agreement with SM predictions in all channels



- New phenomena are likely to first show up at high p_T
- Previously observed excess of isolated lepton events with missing p_T not confirmed in combined data sets of H1 and ZEUS corresponding to luminosity of $\sim 1 \text{ fb}^{-1}$
- Furthermore no evidence for excess at high p_T in combined multi-electron sample



- Search for anomalous top production in FCNC process
- Stringent 95% CL upper limit on coupling $\kappa_{tW} < 0.14$