High Q^2 jet multiplicity

Incl. jet normalized to DIS NC cross section (H1)

HERA I - 65.4 pb^{-1}

HERA II - 320 pb^{-1}

reduced jet phase space:

$-0.8 < \eta^{jet}_{lab} < 2$

NLO pQCD (FastNLO):

$\mu_F = Q; \quad \mu_R = E_T;$

experimental uncertainties *(~6%)*:

- jet energy scale (calibration) *~4%*

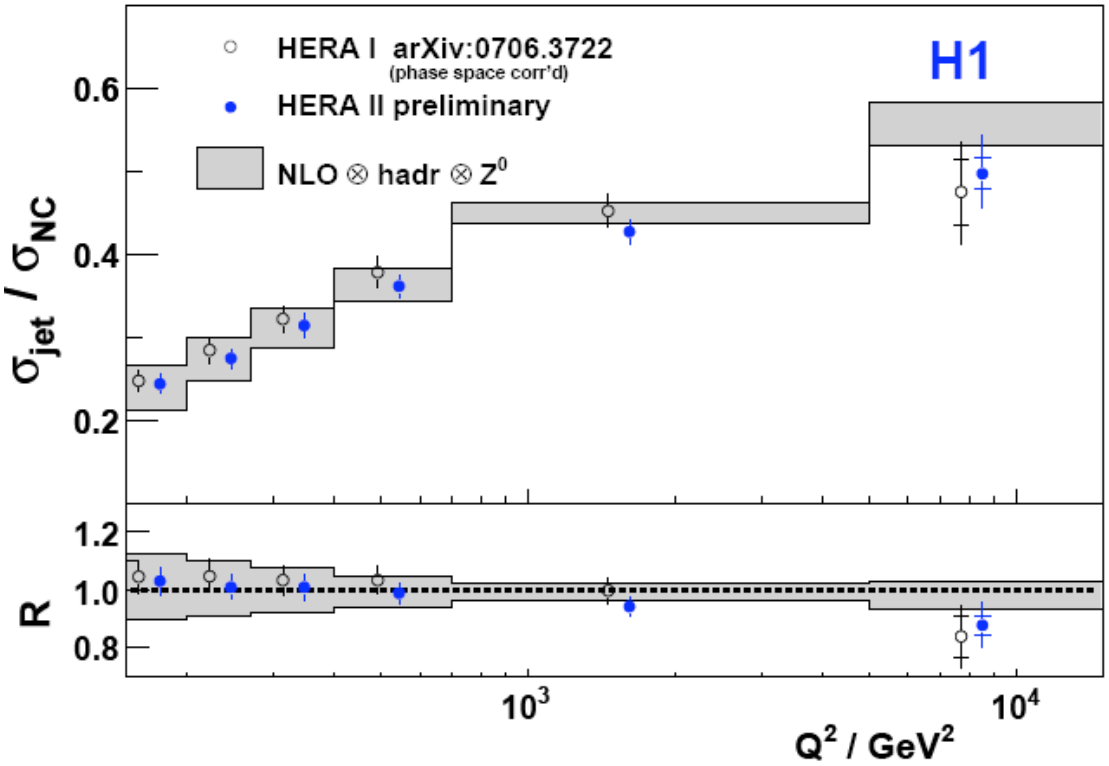
- data correction model dependence *~2-3%*

theory uncertainties *(~5-10%)*:

- renormalization scale dependence (missing higher orders)

- PDF dependence

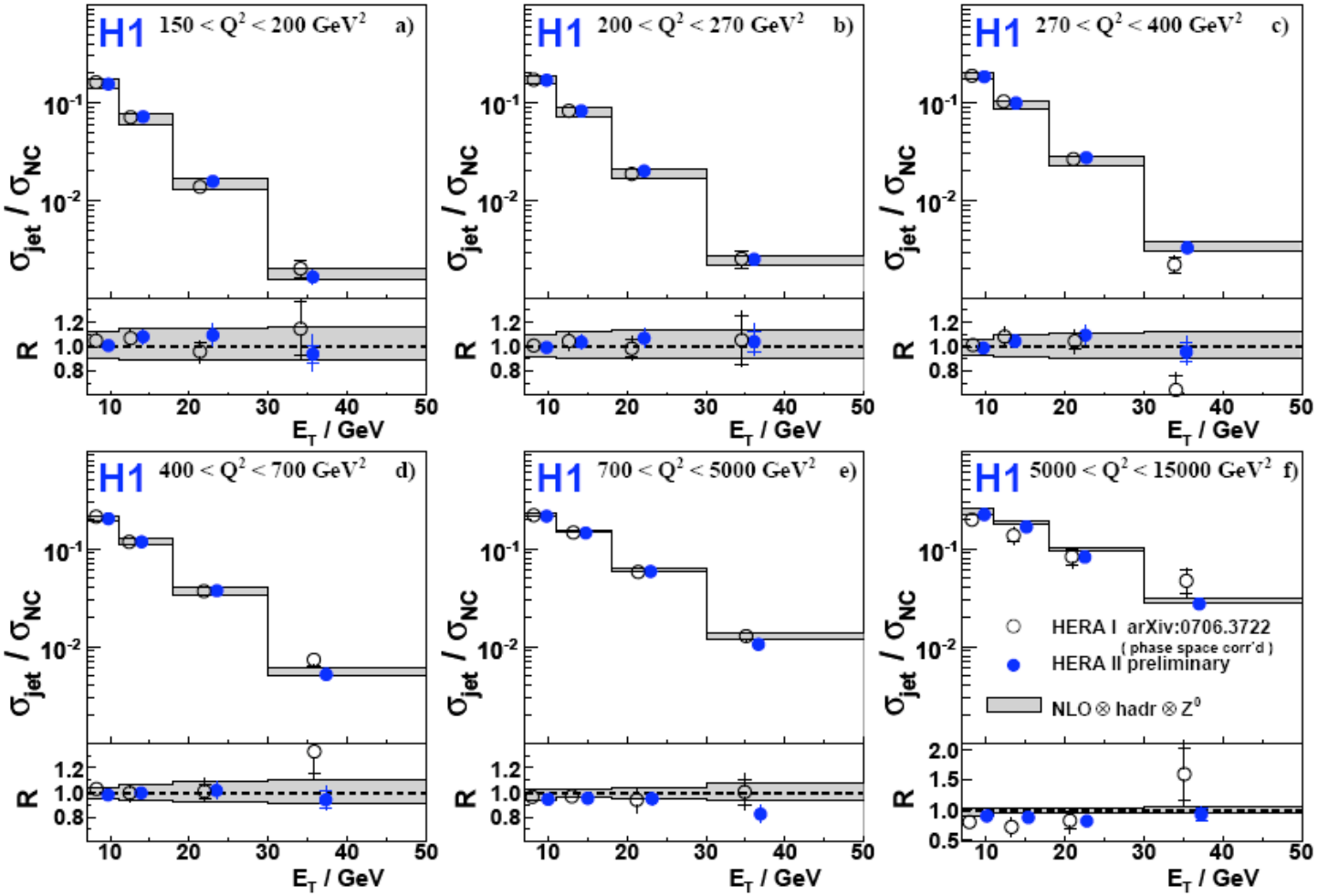
Partial cancellation of exp. syst. uncertainties:
~7% → 6% on multiplicities
=> ~ 40% reduction of experimental uncertainties on α_S



Good agreement with NLO QCD prediction

High Q2 jet multiplicity

Incl. jet normalized to DIS NC cross section (H1)



Significant errors improvement at high Q2 and E_T in HERA II compared to HERA I