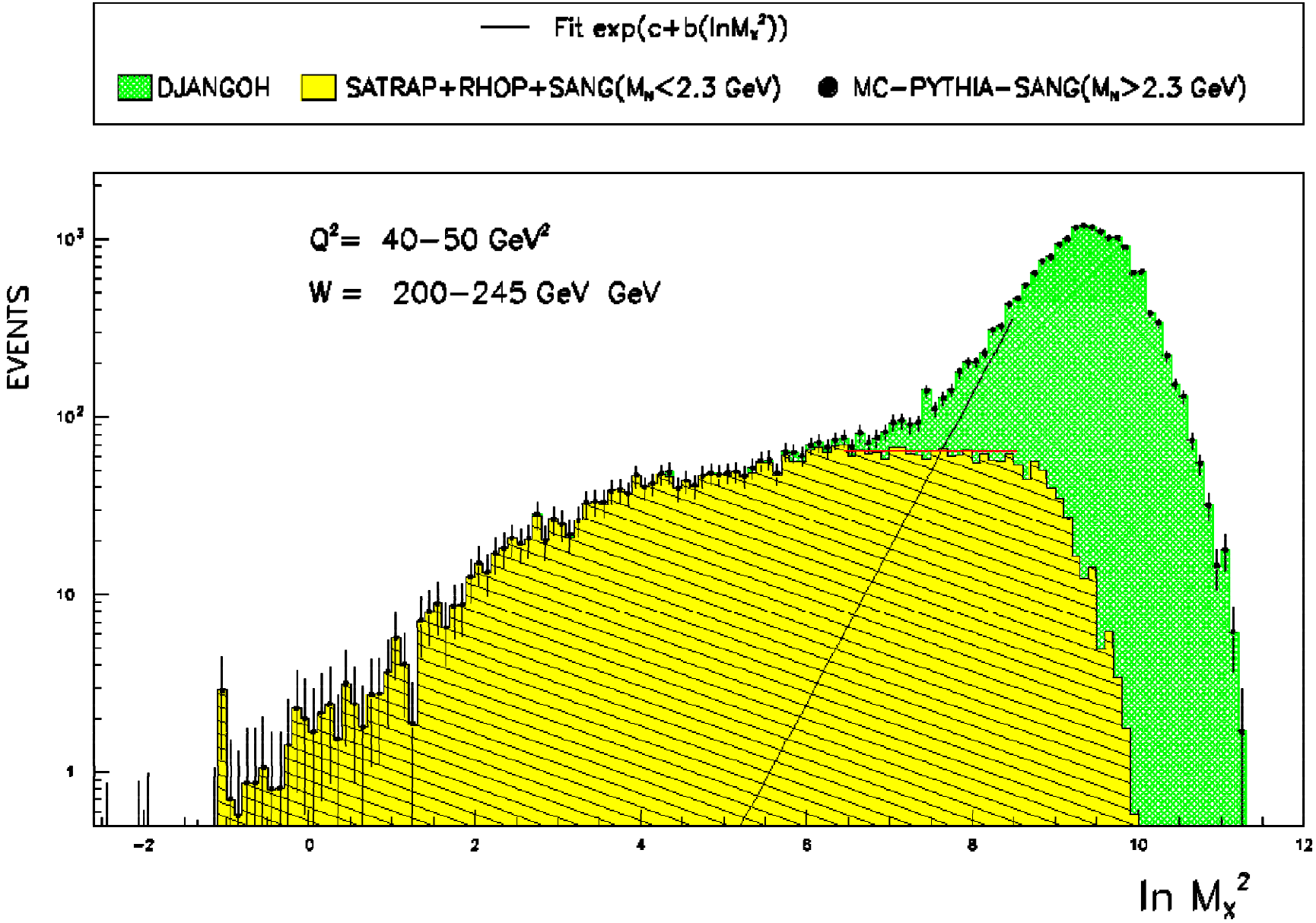
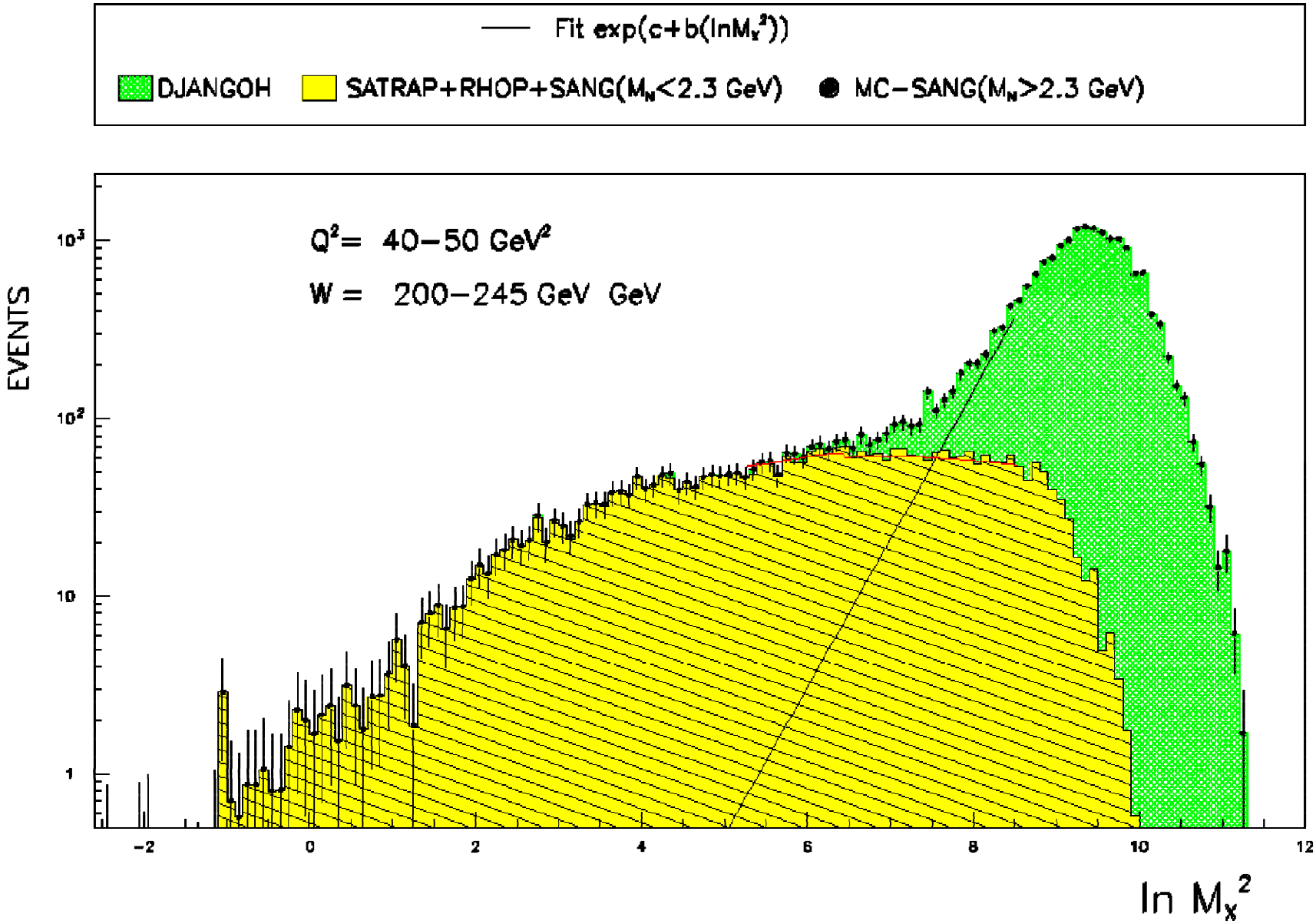
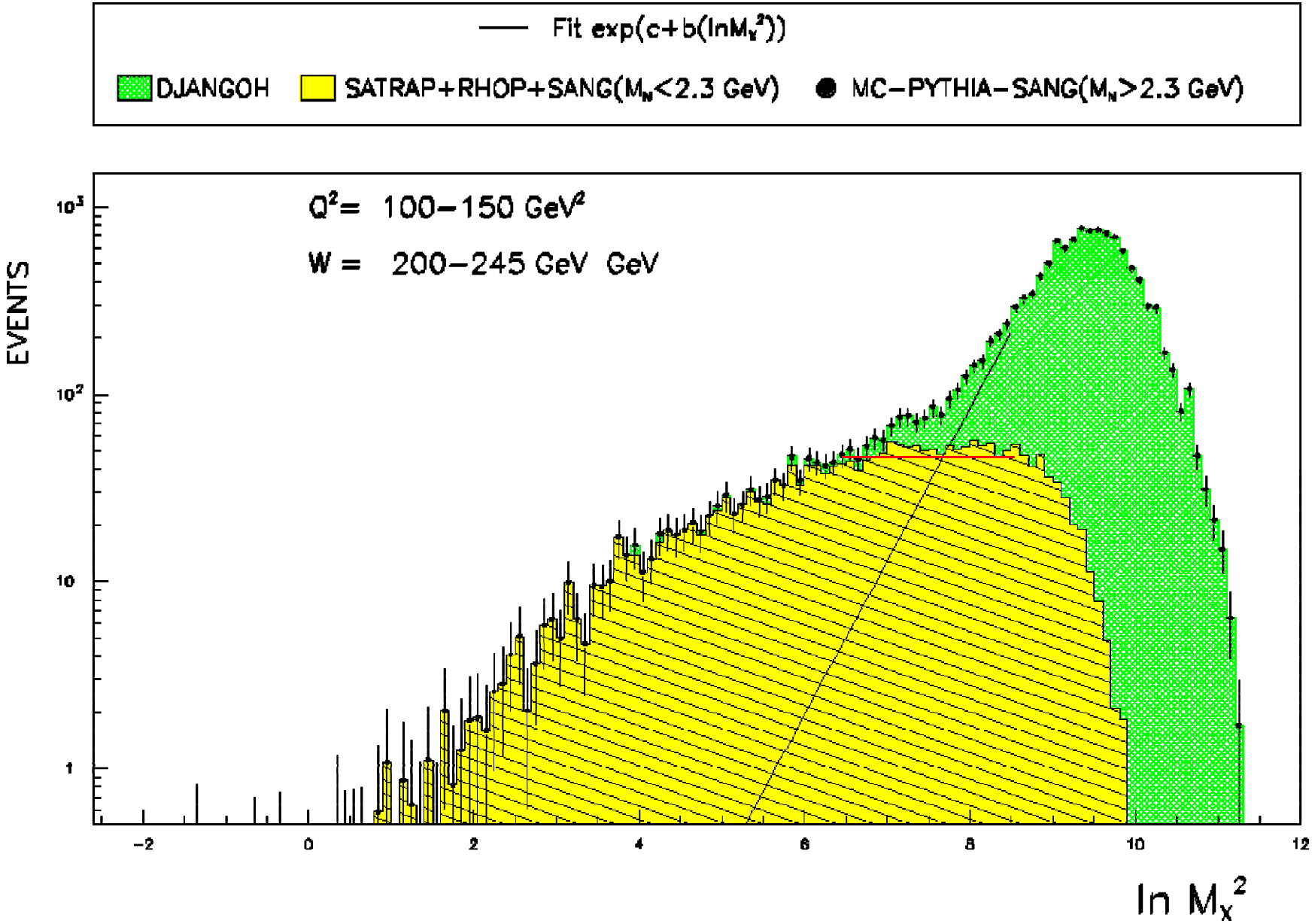
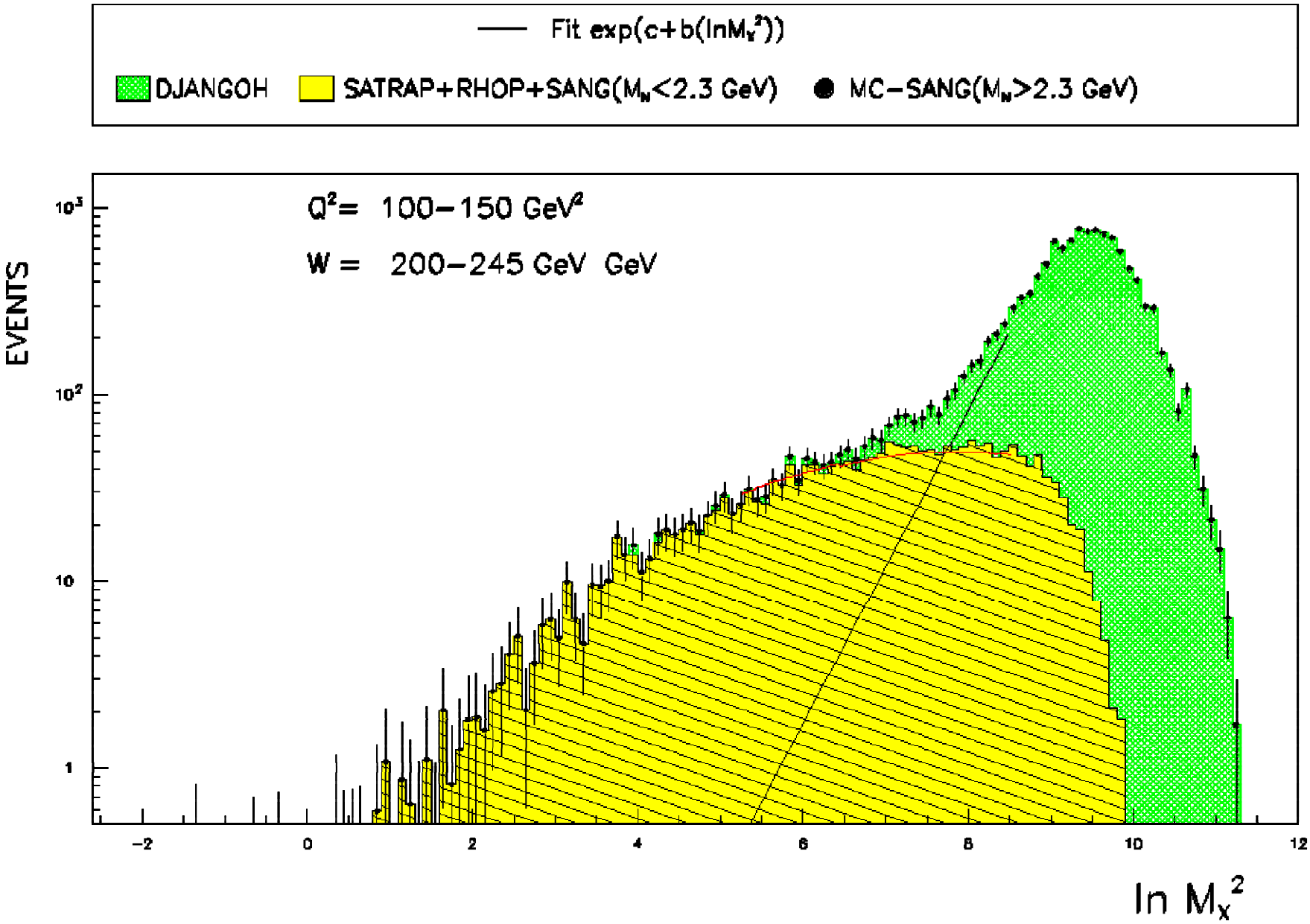
# Additional Material


Fit exp(c+b(lnM$_X^2$))
DJANGOH
SATRAP+RHOP+SANG(M$_N$<2.3 GeV)
MC−PYTHIA−SANG(M$_N$>2.3 GeV)
Q$^2$= 40−50 GeV$^2$
W = 200−245 GeV GeV
EVENTS
10$^3$
10$^2$
10
1
−2
0
2
4
6
8
10
12
ln M$_X^2$

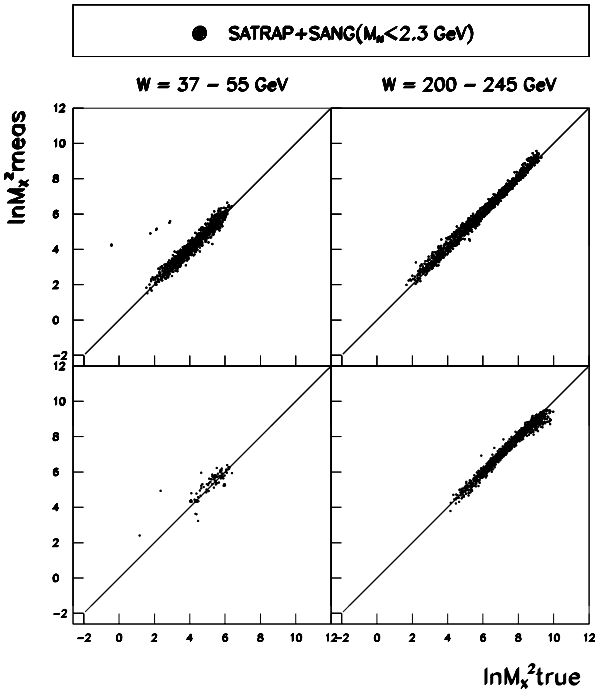

Fit exp(c+b(lnM$_X^2$))
DJANGOH
SATRAP+RHOP+SANG(M$_N$<2.3 GeV)
MC−SANG(M$_N$>2.3 GeV)
Q$^2$= 40−50 GeV$^2$
W = 200−245 GeV GeV
EVENTS
10$^3$
10$^2$
10
1
−2
0
2
4
6
8
10
12
ln M$_X^2$

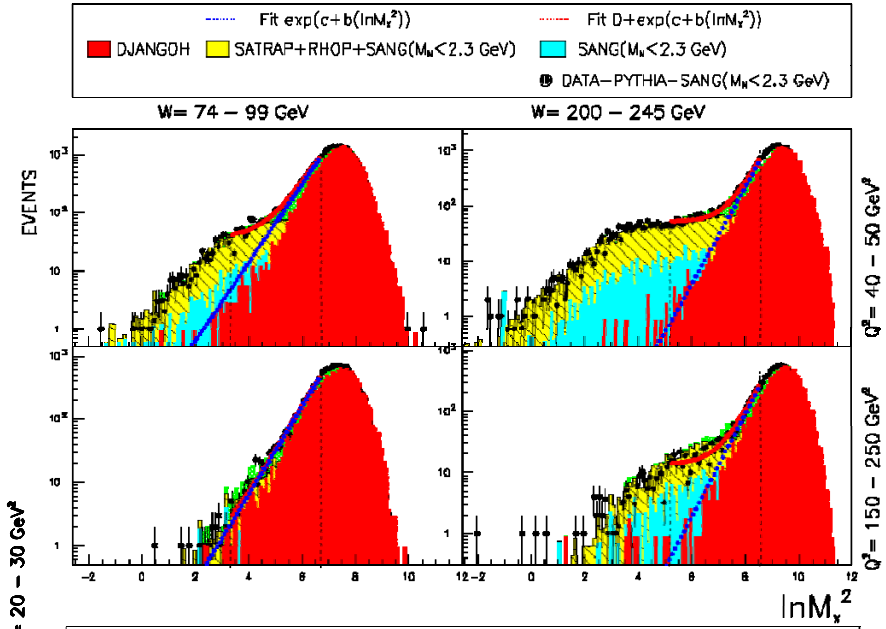

Fit exp(c+b(lnM_X^2))
DJANGOH
SATRAP+RHOP+SANG(M_N<2.3 GeV)
MC−PYTHIA−SANG(M_N>2.3 GeV)
Q²= 100−150 GeV²
W = 200−245 GeV GeV
EVENTS
10³
10²
10
1
−2
0
2
4
6
8
10
12
ln M_X²


Fit exp(c+b(lnM_X^2))
DJANGOH
SATRAP+RHOP+SANG(M_N<2.3 GeV)
MC−SANG(M_N>2.3 GeV)
Q²= 100−150 GeV²
W = 200−245 GeV GeV
EVENTS
10³
10²
10
1
−2
0
2
4
6
8
10
12
ln M_X²

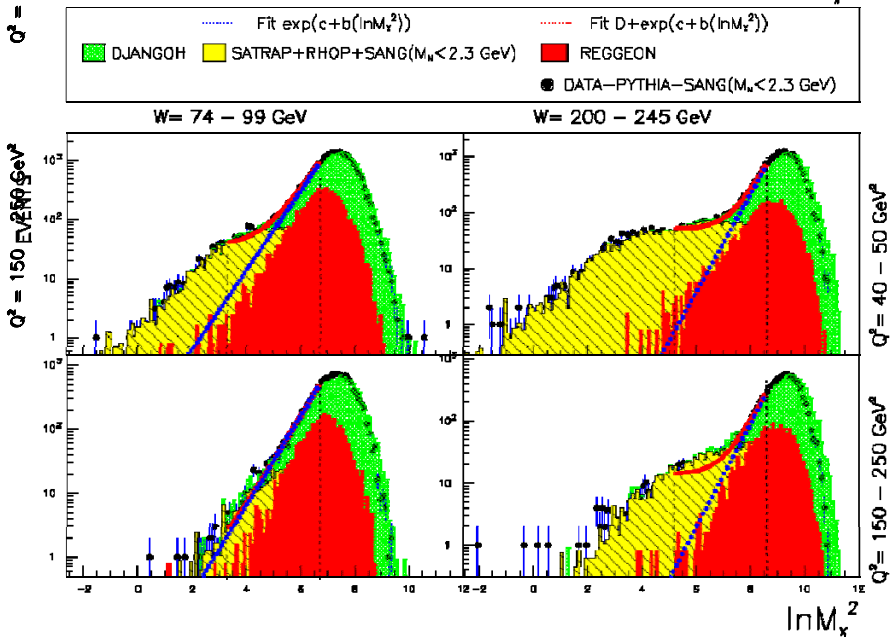
# The ZEUS $M_X$-Analysis II

Demonstration that $M_X$ can be measured reliably



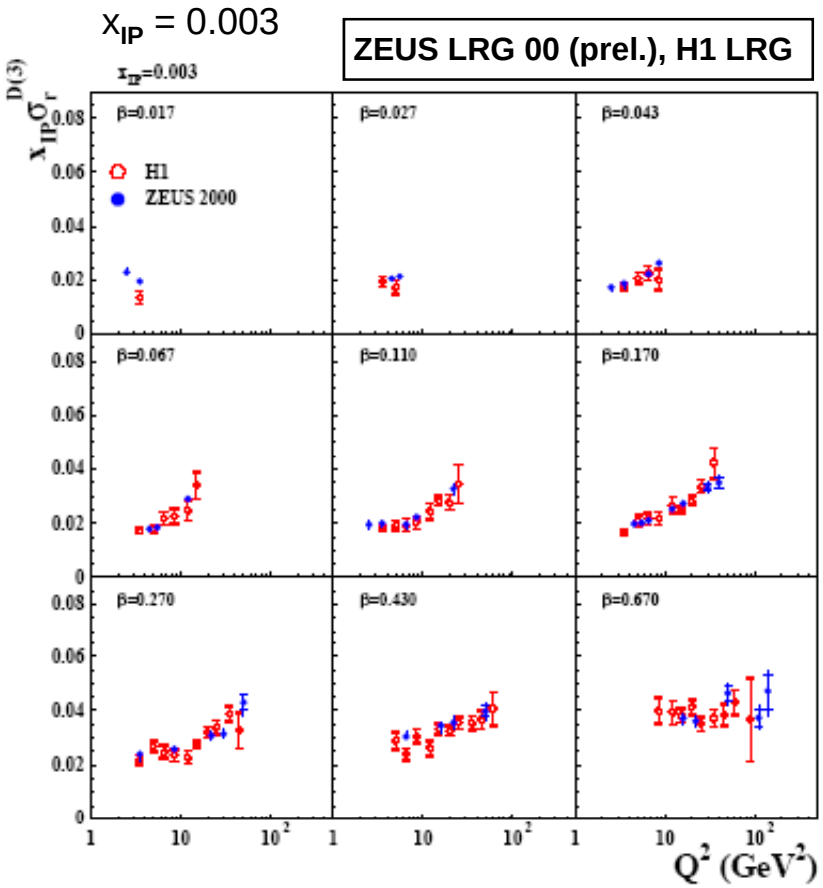



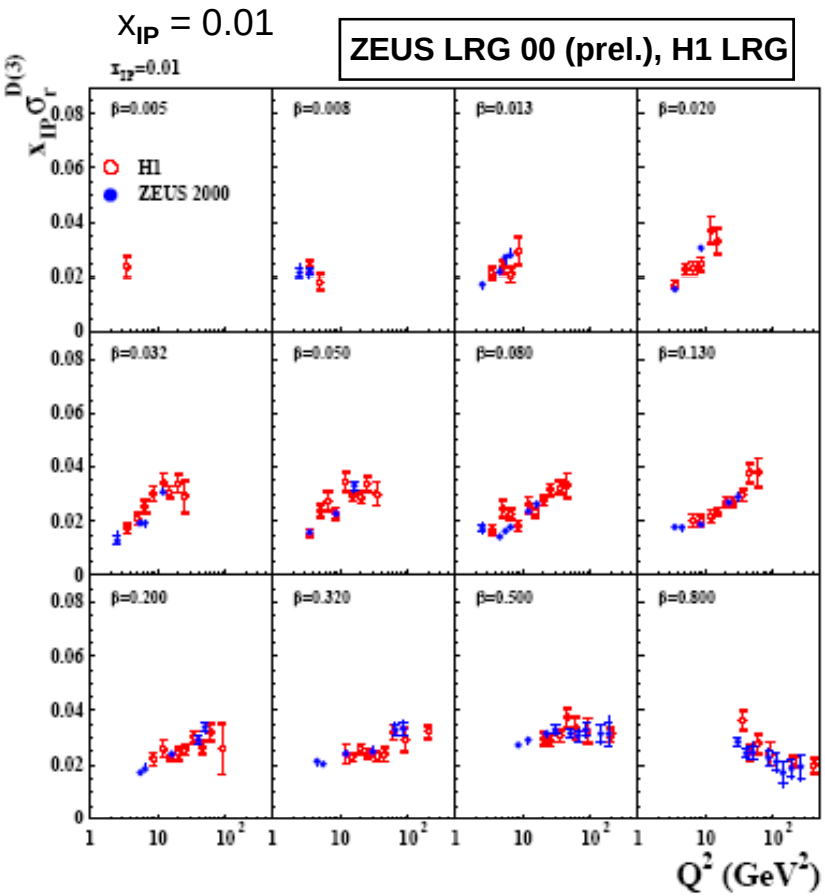

Nondiffractive contribution from DJANGOH has logarithmic slope




Nondiffractive contribution from REGGEON exchange has logarithmic slope

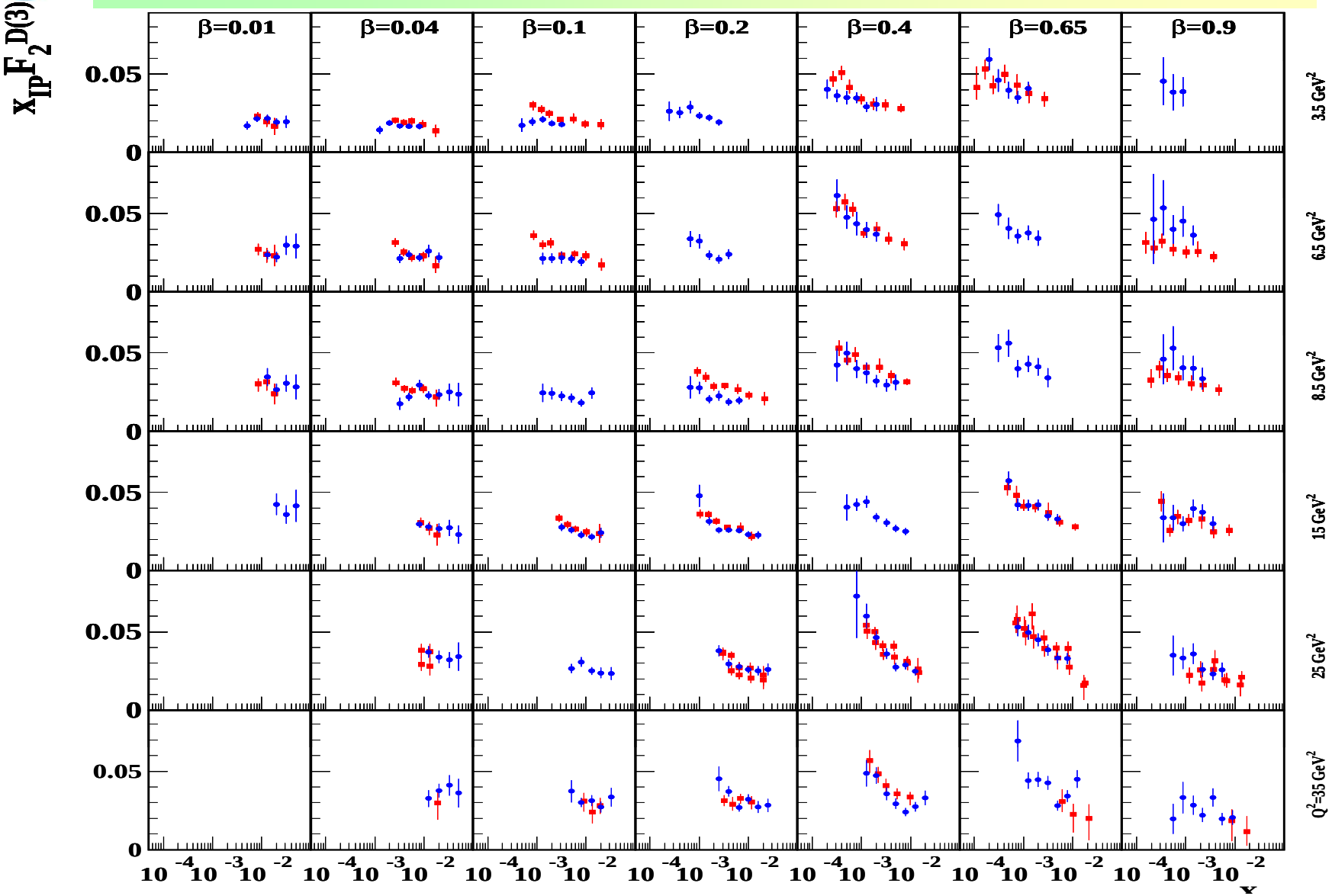
# Comparison of Results from ZEUS LRG 00 with H1 LRG



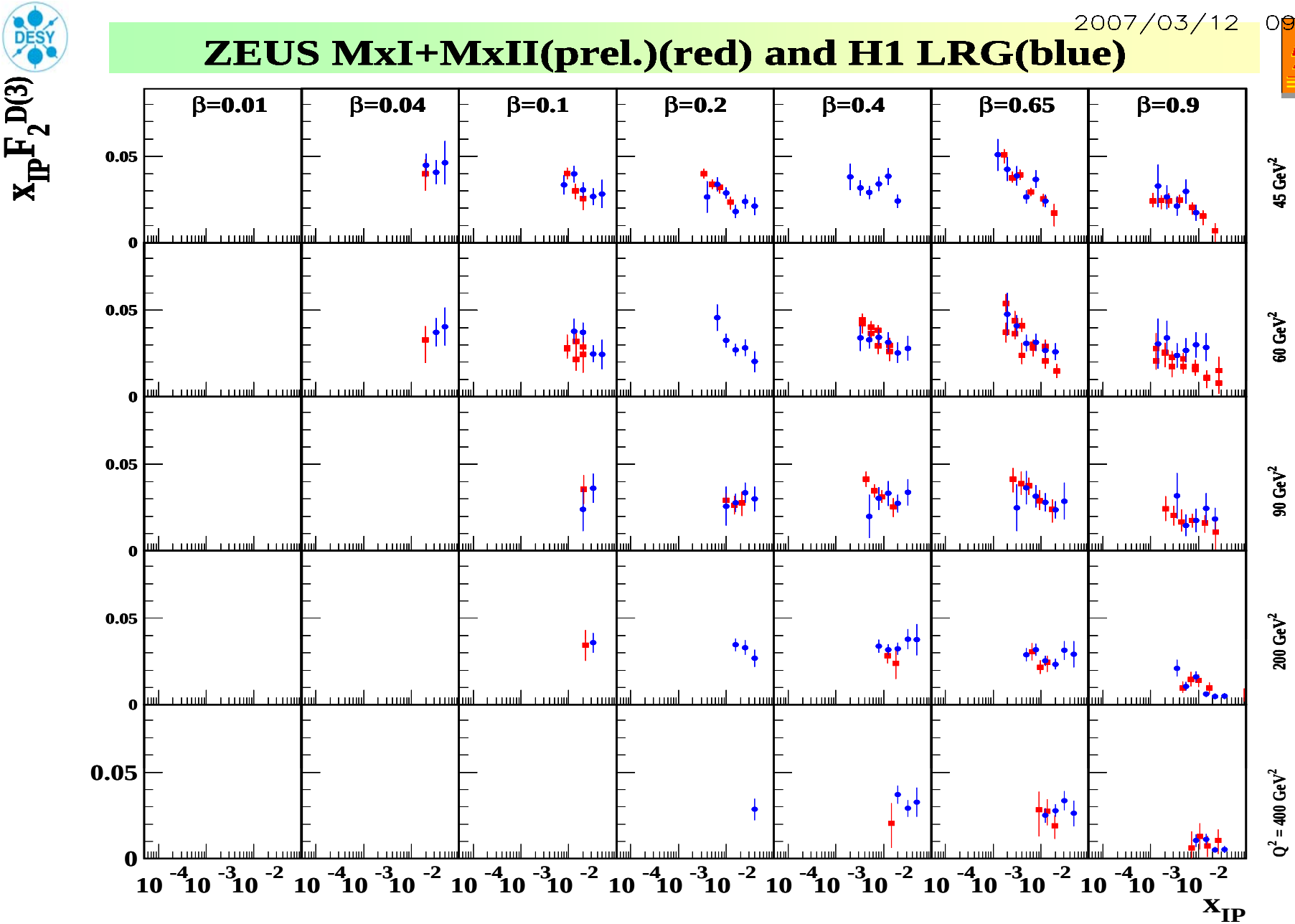

The ZEUS LRG 00 data are normalized to the H1 LRG data

# ZEUS MxI+MxII(prel.)(red) and H1 LRG(blue)

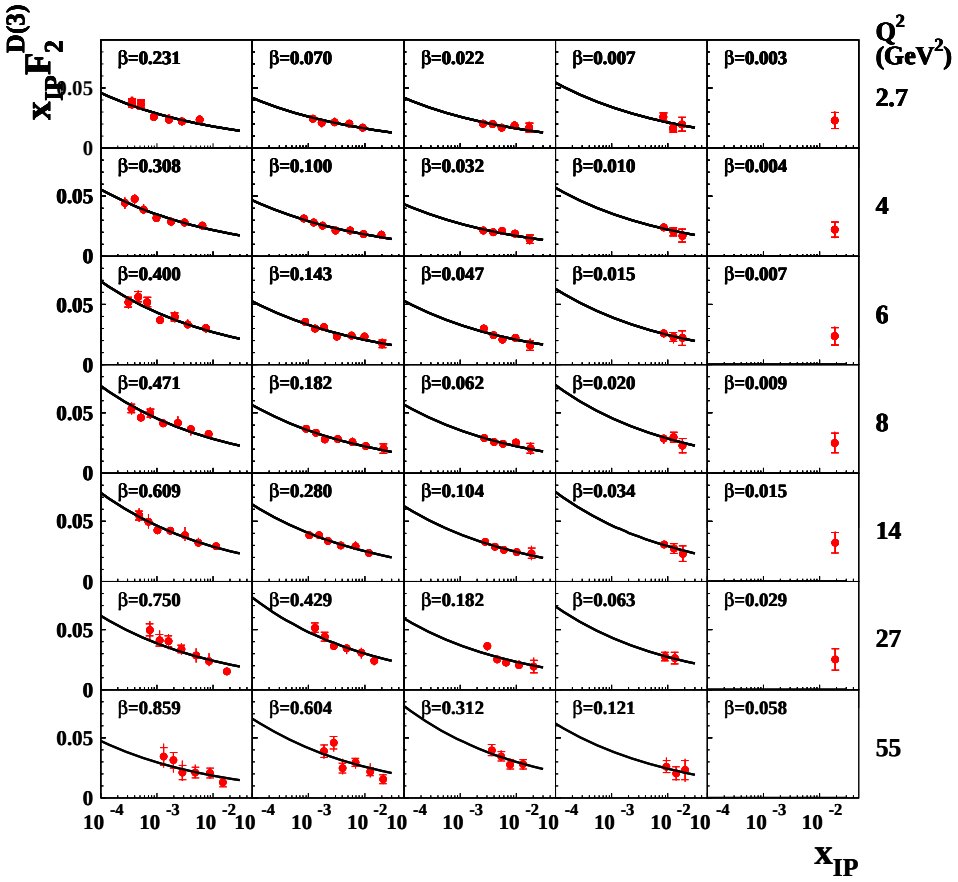


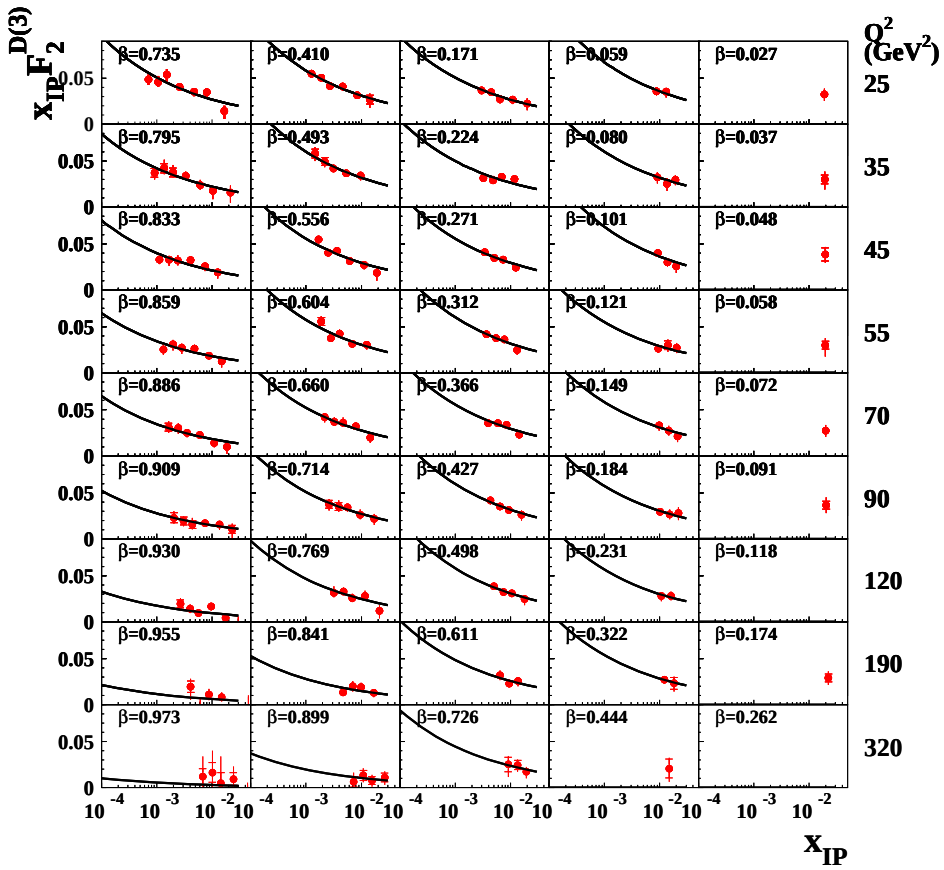

ZEUS points transported to H1 binning with BEKW-fit, only if correction <1.3

# ZEUS MxI+MxII(prel.)(red) and H1 LRG(blue)



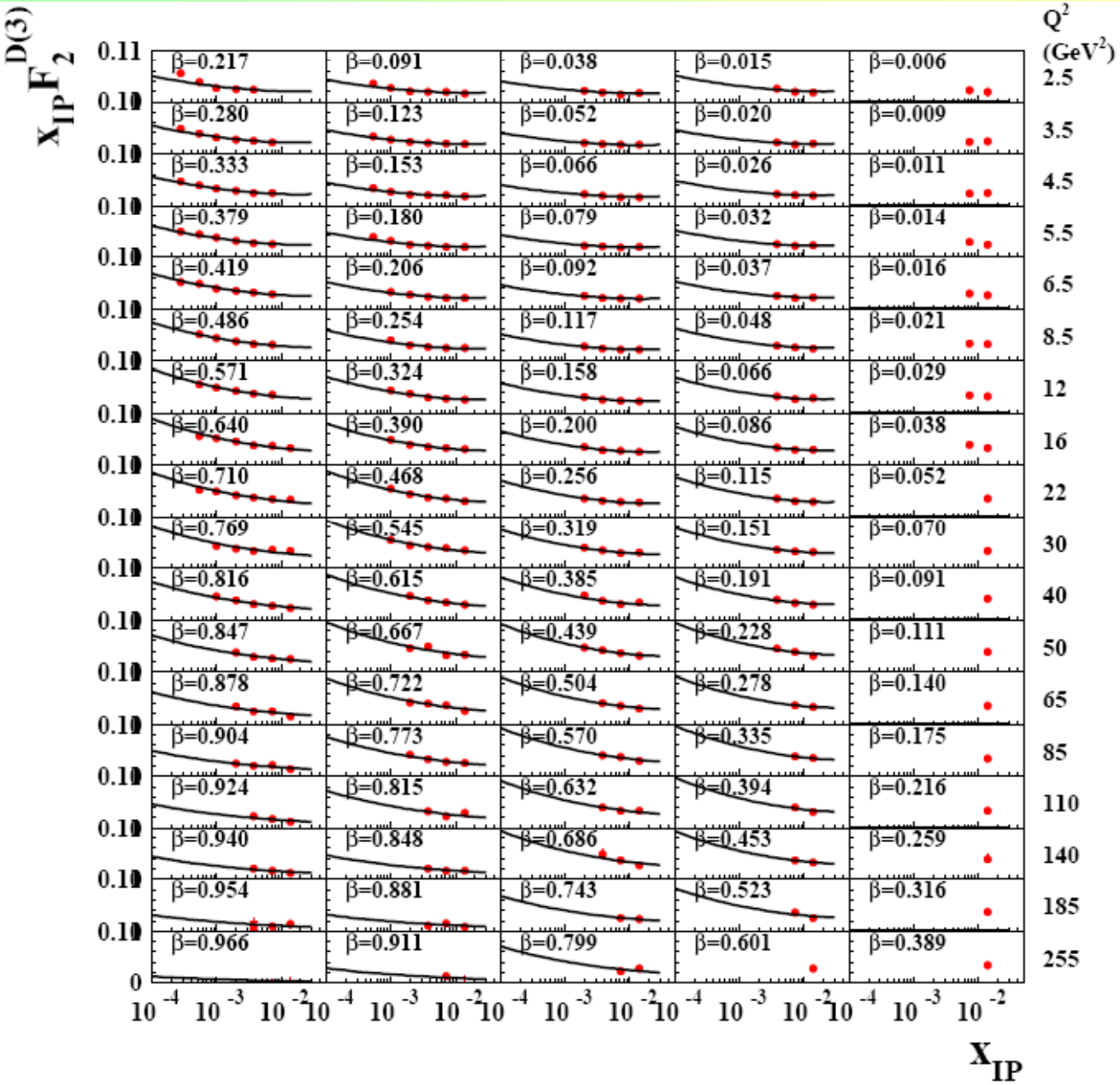
# Regge-Fit to LRG compared with $M_X$-Data



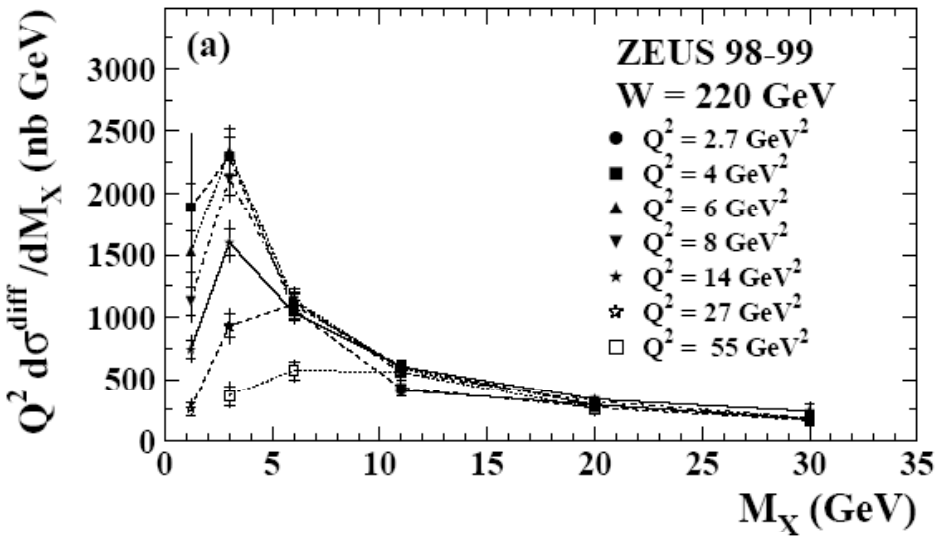

The fit curve is the Pomeron contribution from the Regge-Fit to the LRG data

# Regge-Fit to LRG Data



# $M_X$ - dependence of the diffractive cross-section at constant W

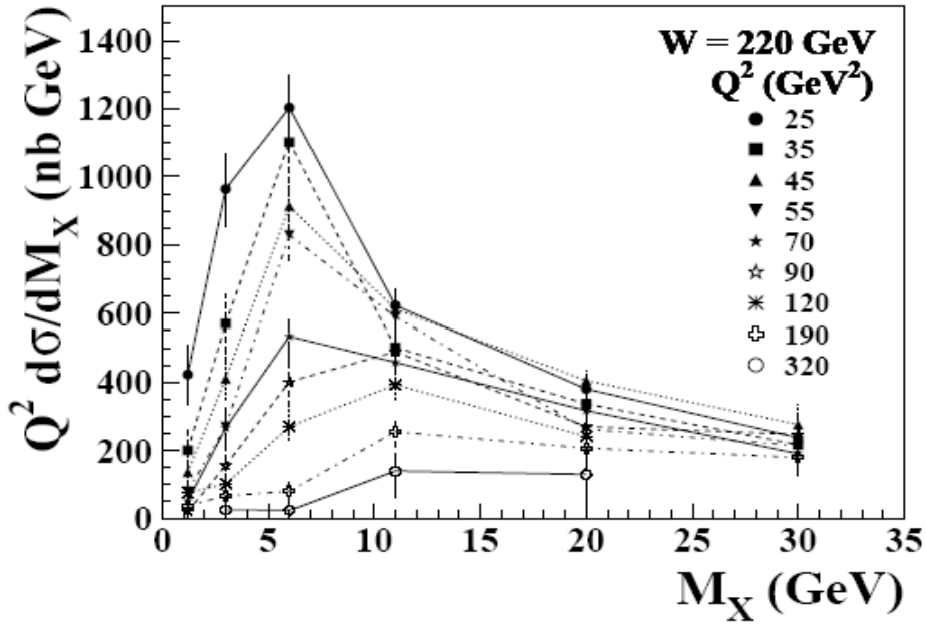
**ZEUS Mx 89-99**




$Q^2 d\sigma/dM_X$ shows a rapid variation with $Q^2$ at low $M_X$ .

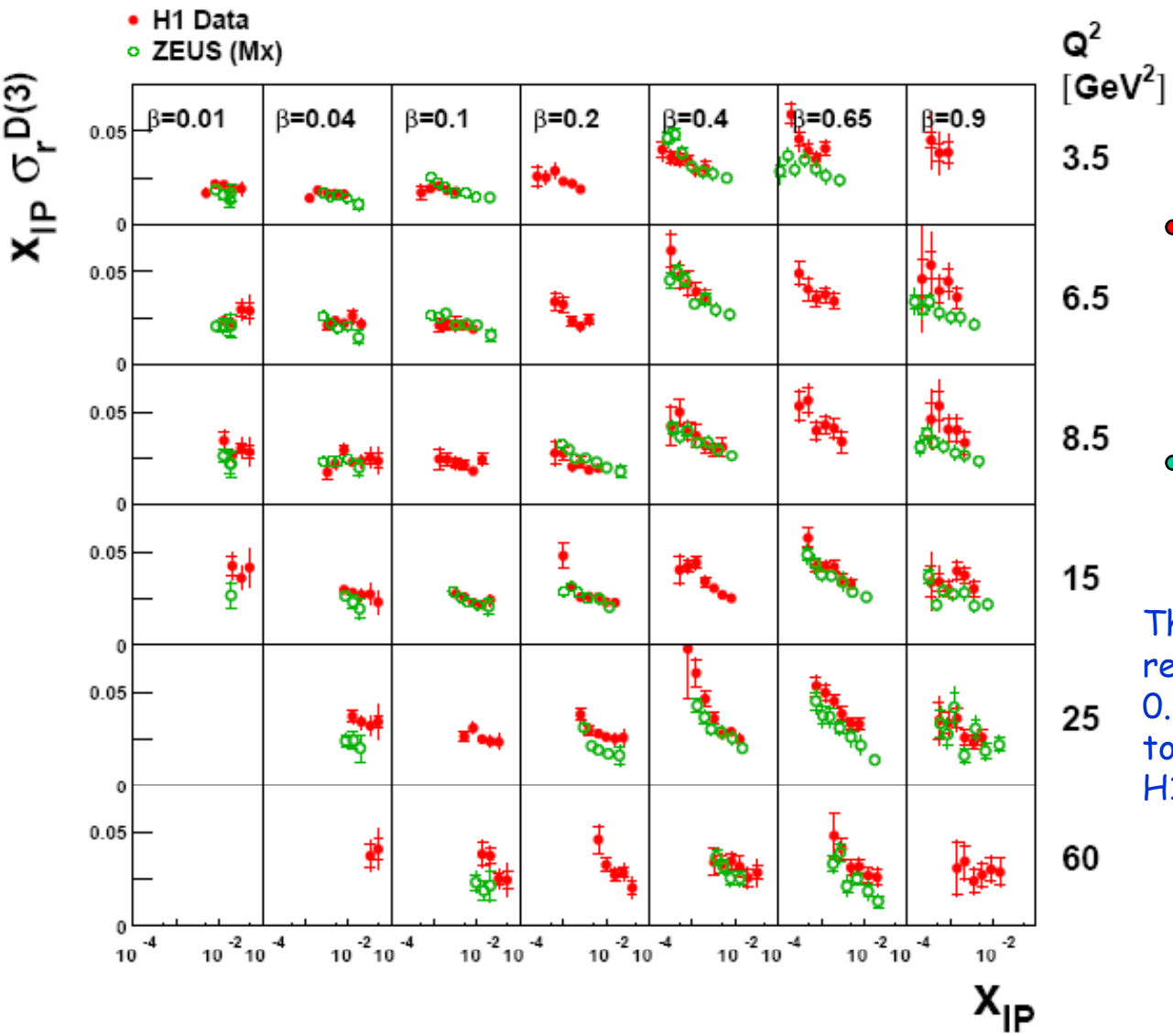
$Q^2 d\sigma/dM_X$ tends towards a common value at higher $M_X$ .

**ZEUS Mx 00 (prel.)**




This kind of scaling behaviour is reached only at higher $M_X$ for higher $Q^2$ when $M_X^2$ becomes of the order of $Q^2$ .

# Comparison of $M_X$ – Results from H1 and ZEUS




- H1 $M_X$ data 2006
- ZEUS $M_X$ I data 2005

The ZEUS data have been renormalized by a factor 0.86 so that they correspond to $M_N$=1.6 GeV as for the H1 data