# MEASUREMENT OF THE MUON CHARGE ASYMMETRY IN INCLUSIVE *W* PRODUCTION AT 7 TEV

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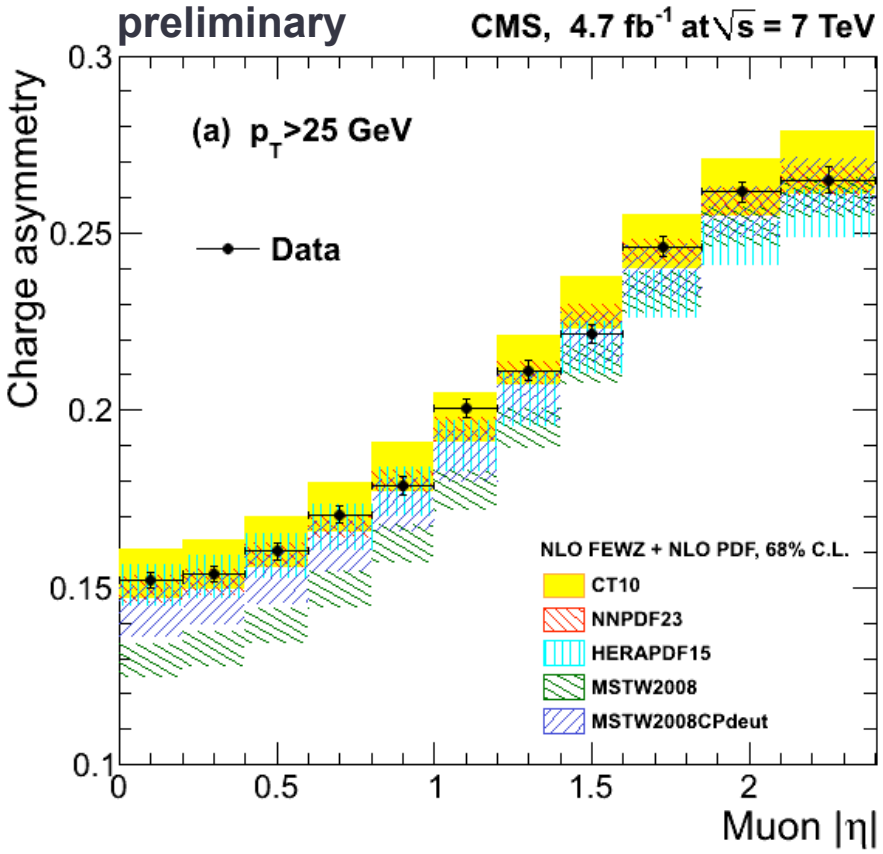
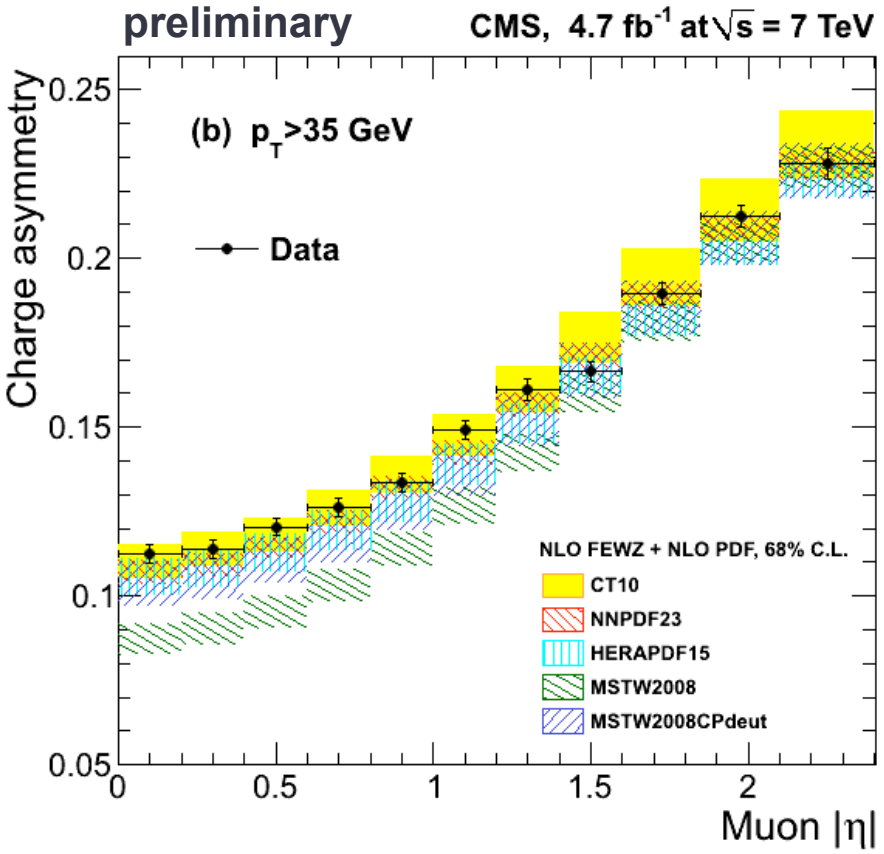
# Comparison with theoretical predictions

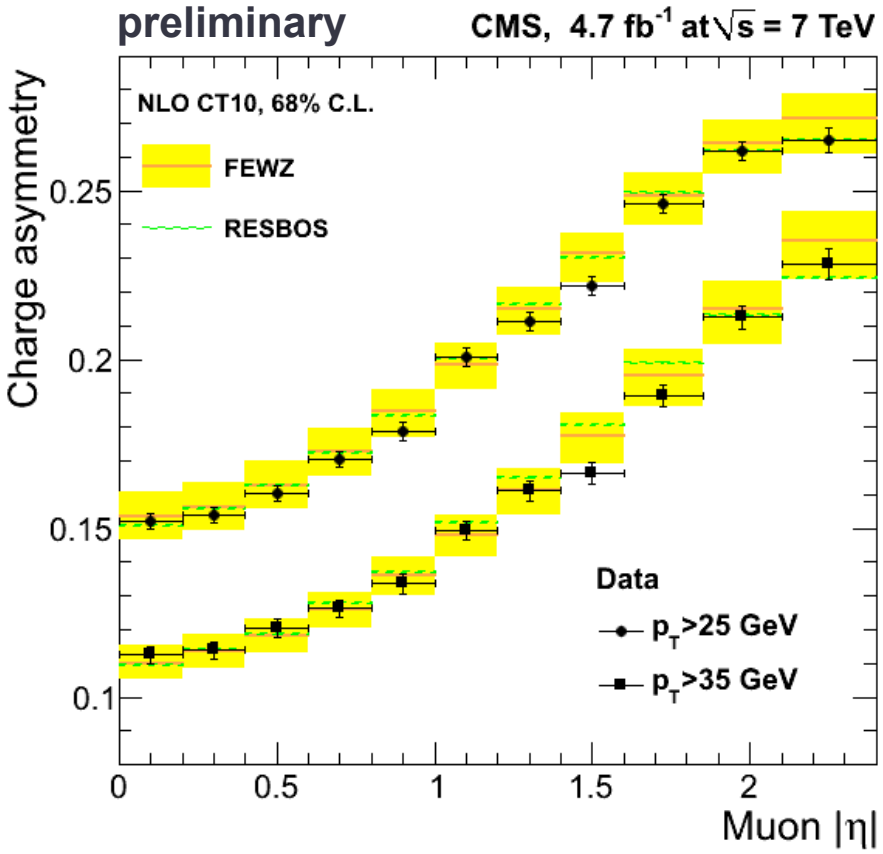


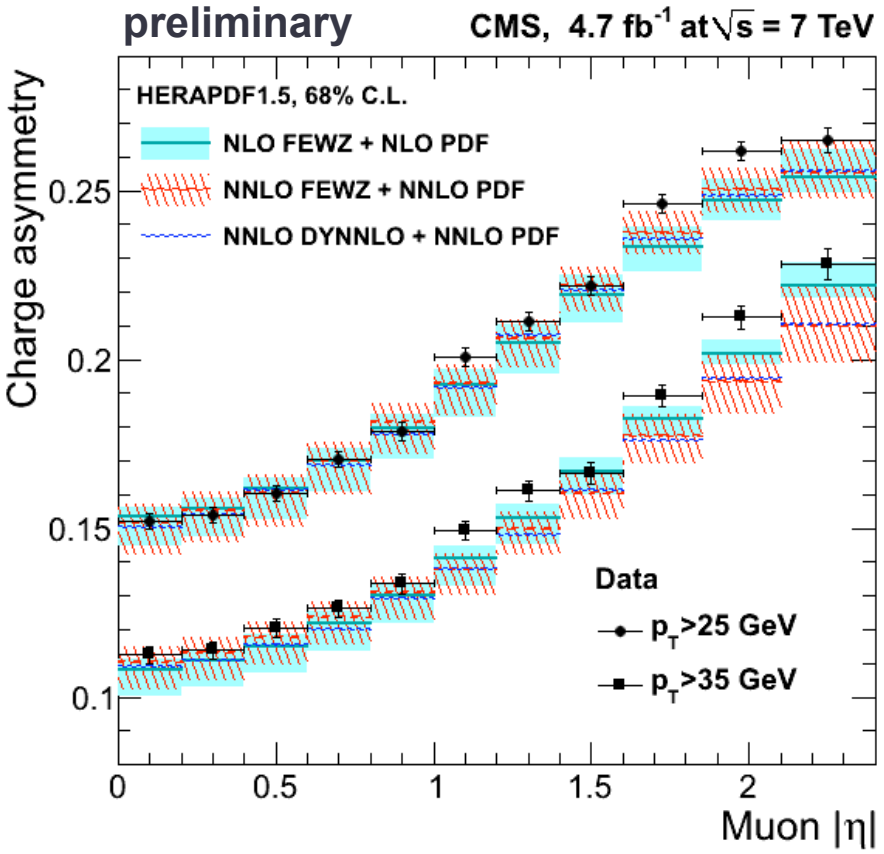


# RESBOS VS FEWZ and NLO vs NNLO





# Impact of W asymmetry data on PDF's

W muon charge asymmetry:
sensitive to ***u*** and ***d*** quarks:

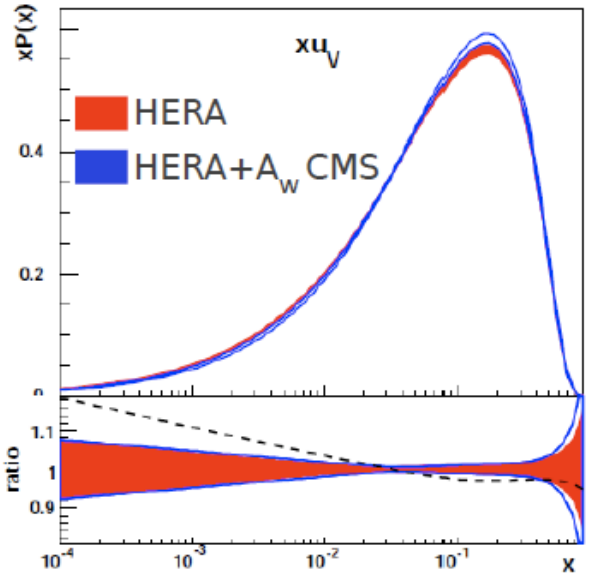
$$A_W = \frac{W^+ - W^-}{W^+ + W^-} \approx \frac{u_v - d_v}{u_v + d_v + 2u_{sea}}$$

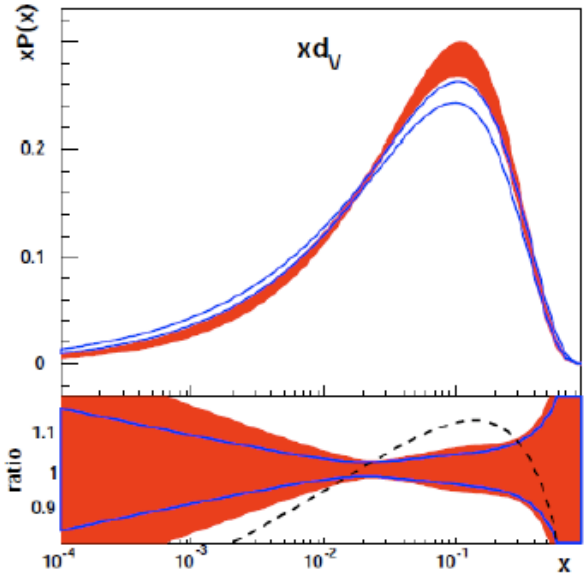
## QCD PDF fit (NLO) with $A_W$ CMS data using HERAFitter

$Q^2$=10 GeV$^2$

Total $\chi^2$ = 600/590 ndp

$\chi^2$ = 23/11 ndp (CMS data)




bands represent experimental uncertainties only

→ significant reduction of the uncertainty on $d_v$
→ data also has some sensitivity to *s* quark density
→ will help to understand *d/u* at low *x* which is currently not very well known