

$$|f_{LV} V_{tb}| = \sqrt{\frac{\sigma_{\text{meas}}}{\sigma_{\text{theo}}}} \text{ from single top quark production}$$

σ_{theo} : NLO+NNLL MSTW2008nnlo
PRD 83 (2011) 091503, PRD 82 (2010) 054018,
PRD 81 (2010) 054028

$\Delta\sigma_{\text{theo}}$: scale \oplus PDF
 $m_{\text{top}} = 172.5 \text{ GeV}$



t-channel:

ATLAS+CMS 7+8 TeV^{1,3}
JHEP 05 (2019) 088
CMS 13 TeV²
PLB 800 (2019) 135042 (35.9 fb⁻¹)
ATLAS 13 TeV²
JHEP 04 (2017) 086 (3.2 fb⁻¹)

tW:

ATLAS+CMS 7+8 TeV^{1,3}
JHEP 05 (2019) 088
ATLAS 13 TeV²
JHEP 01 (2018) 63 (3.2 fb⁻¹)
CMS 13 TeV
JHEP 10 (2018) 117 (35.9 fb⁻¹)

s-channel:

ATLAS+CMS 8 TeV^{1,3}
JHEP 05 (2019) 088

all channels:

ATLAS+CMS 7+8 TeV^{1,3}
JHEP 05 (2019) 088

$|f_{LV} V_{tb}| \pm (\text{meas}) \pm (\text{theo})$

$1.020 \pm 0.040 \pm 0.020$

$0.98 \pm 0.07 \pm 0.02$

$1.07 \pm 0.09 \pm 0.02$

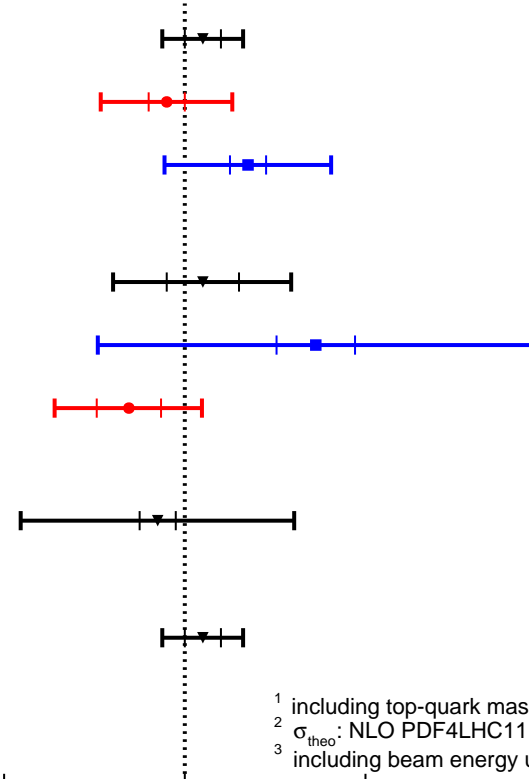
$1.020 \pm 0.090 \pm 0.040$

$1.14 \pm 0.24 \pm 0.04$

$0.94 \pm 0.07 \pm 0.04$

$0.970 \pm 0.150 \pm 0.020$

$1.020 \pm 0.040 \pm 0.020$



¹ including top-quark mass uncertainty
² σ_{theo} : NLO PDF4LHC11 (NPPS205 (2010) 10, CPC191 (2015) 74)
³ including beam energy uncertainty

0.4 0.6 0.8 1 1.2 1.4 1.6 1.8

$|f_{LV} V_{tb}|$