

Physics interpretation of top couplings

Example RS-Model (Richard, arxiv: 1403.2893)

$$\frac{dR_Z}{R_Z} = \left(\frac{M_Z}{0.4M_{KK}} \right)^2 \left[1 + \frac{3 \left(1 - \frac{4}{3} \sin^2 \theta' \right)}{\sin^2 \theta' \cos^2 \theta'} \right] F(c_{tR}) + \frac{s}{s - M_{KK}^2} Q(e) Q(c_{tR})$$

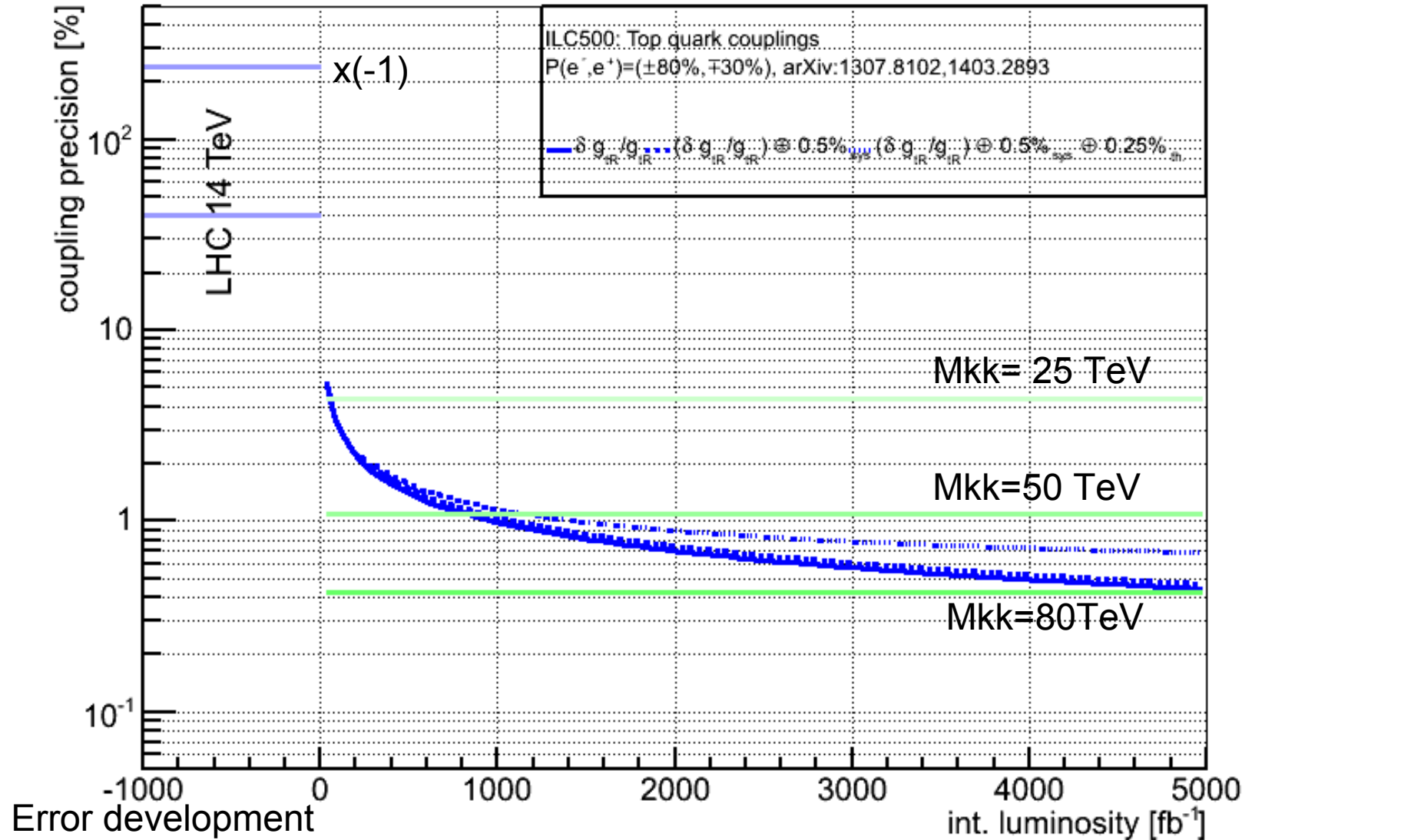
$$\frac{dL_Z}{L_Z} = \left(\frac{M_Z}{0.4M_{KK}} \right)^2 \left[1 - \frac{1}{4 \cos^2 \theta'} \right] F(c_{tL}) + \frac{s}{s - M_{KK}^2} Q(e) Q(c_{tL})$$

$$\frac{dR_\gamma}{R_\gamma} = \frac{s}{s - M_{\gamma KK}^2} Q(e) Q(c_{tR})$$

$$\frac{dL_\gamma}{L_\gamma} = \frac{s}{s - M_{\gamma KK}^2} Q(e) Q(c_{tL})$$

Precision on couplings

RS Parameters: $\sin\theta' = 0.1$, $F(\text{ctr}) = -6.9$, $Q(\text{ctr}) = -0.8 \cdot F(\text{ctr}) + 0.2$



$$\left(\frac{\delta g_R}{g_R}\right) \sqrt{500/L} \quad \frac{500}{L} \left[\left(\frac{\delta g_R}{g_R}\right)^2 \oplus (0.5\%)_{sys.}^2 \right] \quad \frac{500}{L} \left[\left(\frac{\delta g_R}{g_R}\right)^2 \oplus (0.5\%)_{sys.}^2 \right] \oplus (0.5\%)_{th.}^2$$

Comments and outlook

- Handle with care!!!!

 - Currently only one model!!

- Direct scaling of sys. Error with Lumi maybe too optimistic

- Theory can become rapidly the limiting factor

- Scale reach in terms of EFT in preparation but roughly $\Lambda_{ILC} \sim \sqrt{\delta_{ILC}/\delta_{LHC}}\Lambda_{LHC}$
(See e.g. arxiv:1405.1004)