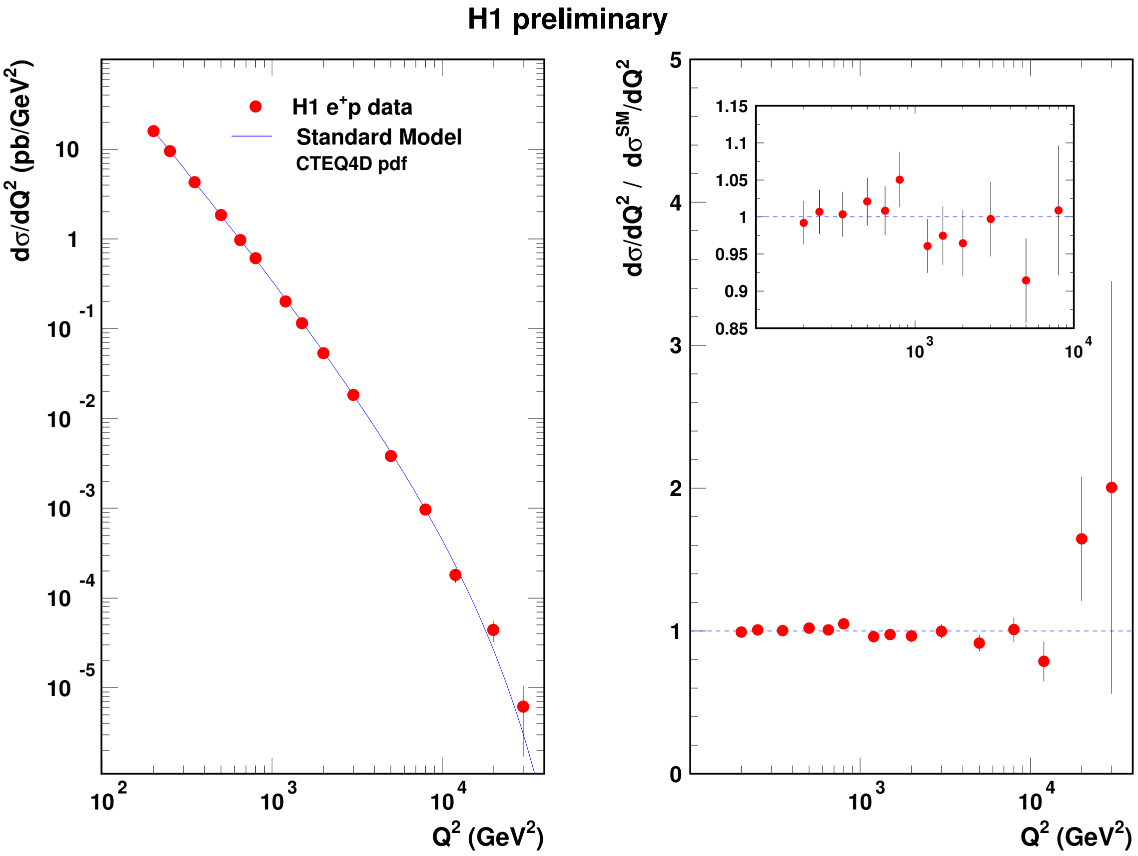

Figure 1: Differential NC cross section $\mathrm{d}\sigma(e^+p \to e^+X)/\mathrm{d}Q^2$. H1 data (•) are compared with the Standard Model expectation (—) using the CTEQ4D parton distributions. The errors represent statistics and uncorrelated experimental systematics. The overall normalisation uncertainty of 1.8% is not included into the error bars.

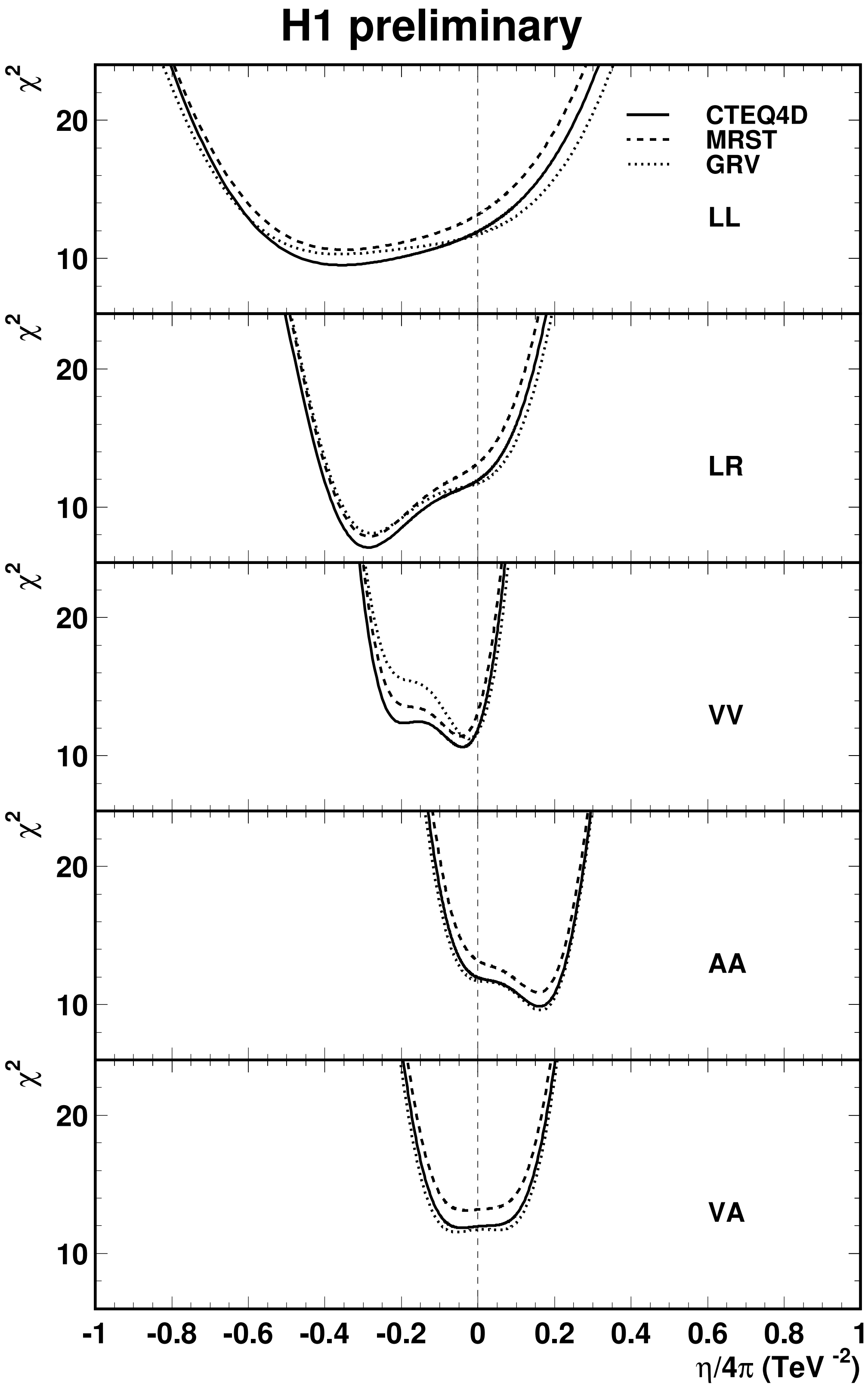

Figure 2: Distributions of χ^2 versus $\eta/4\,\pi$ from fits to various compositeness models using CTEQ4D, MRST and GRV 94 parton distributions. The LL and RR models and the LR and RL models are almost indistinguishable in deep inelastic e^+p scattering. All fits include the full error propagation.

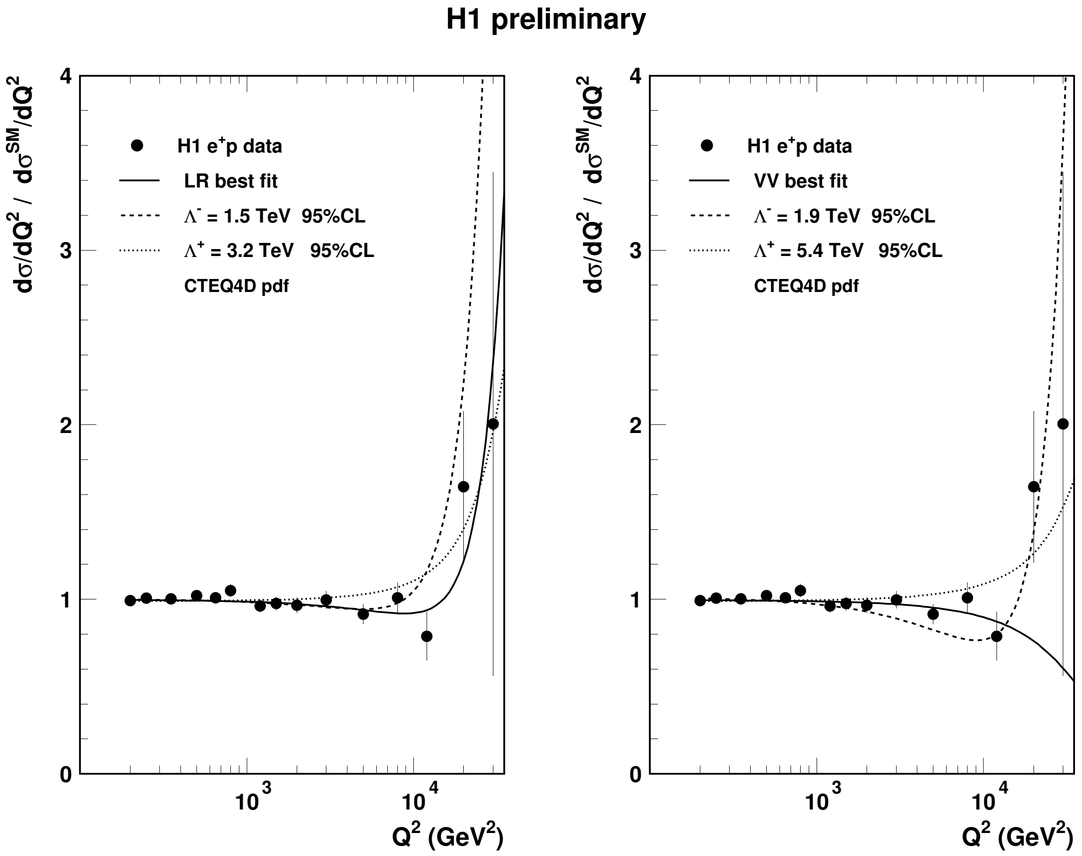

Figure 3: NC cross section $\mathrm{d}\sigma/\mathrm{d}Q^2$ normalised to the Standard Model expectation using CTEQ4D parton distributions. H1 data (•) are compared with fits to the LR (left) and VV (right) model (—) and with the 95% cl contributions of Λ^+ $(\cdots)$ and Λ^- $(--)$. The errors represent statistics and uncorrelated experimental systematics. The fitted normalisation is taken into account in the plots.

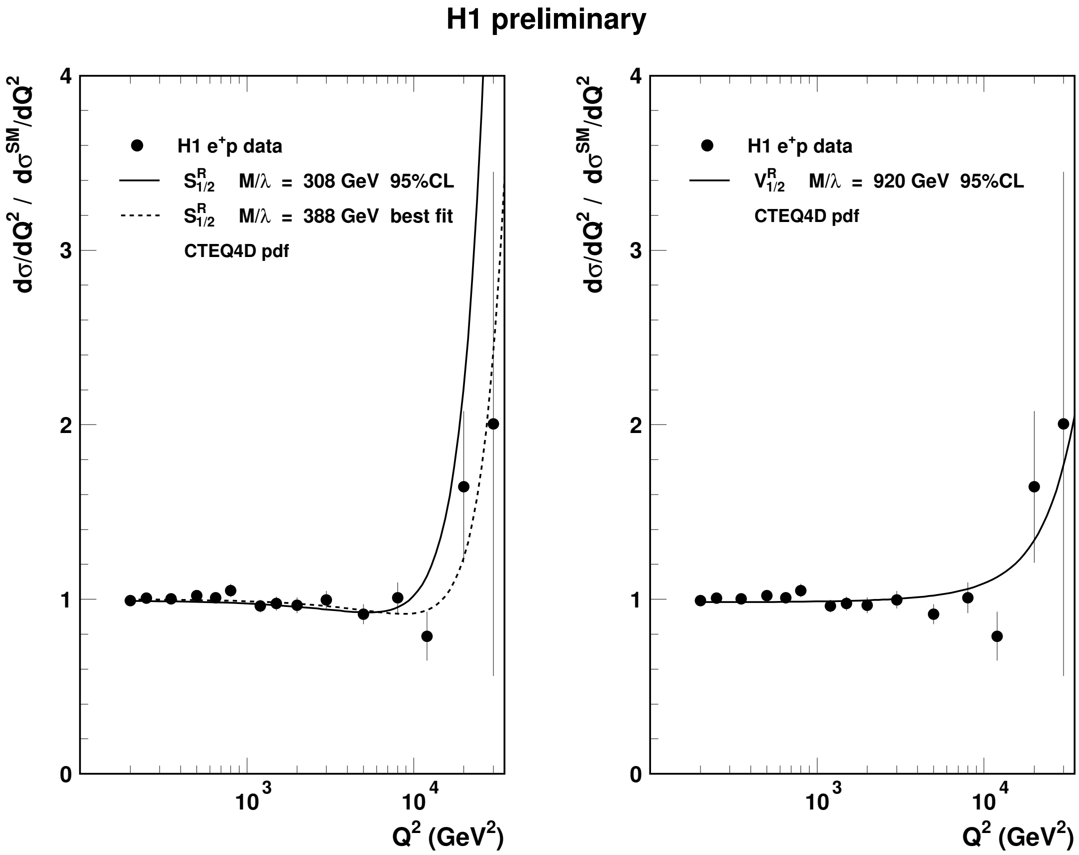

Figure 4: NC cross section $\mathrm{d}\sigma/\mathrm{d}Q^2$ normalised to the Standard Model expectation using CTEQ4D parton distributions. H1 data ($\bullet$) are compared with 95% cl contributions (—) of the leptoquarks $S^R_{1/2}$ (left) and $V^R_{1/2}$ (right). Also shown is a best fit ($--$) to the scalar leptoquark $S^R_{1/2}$ with $M_{LQ}/\lambda = 388$ GeV. The errors represent statistics and uncorrelated experimental systematics without the overall normalisation uncertainty of 1.5%. The fitted normalisation is taken into account in the plots.

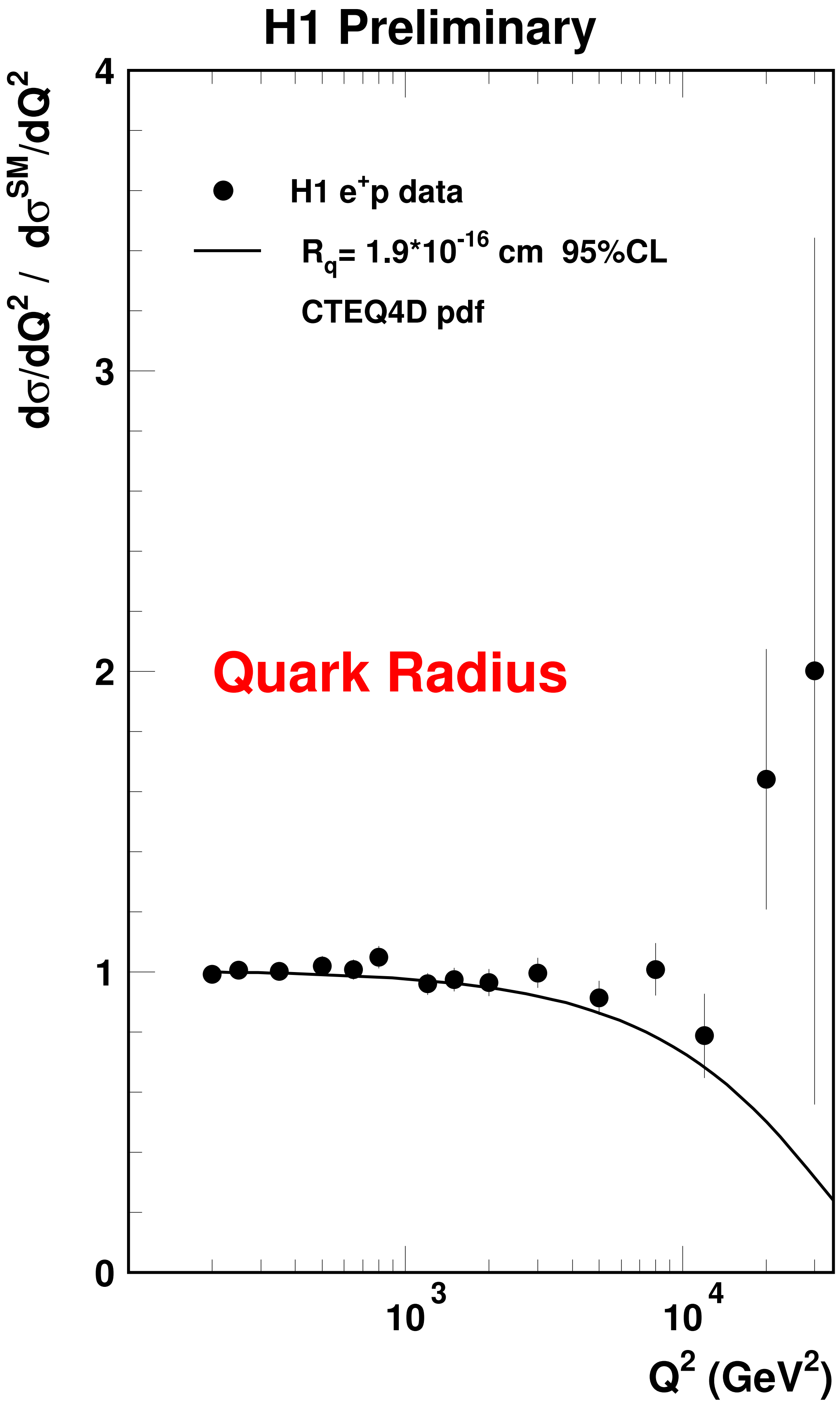

Figure 5: NC cross section $d\sigma/dQ^2$ normalised to the Standard Model expectation using CTEQ4D parton distributions. H1 data (•) are compared to the curve (—) showing the effect of a form factor with a quark radius $R_q = 1.9^{-16}$ cm (95 % confidence level). The errors represent statistics and uncorrelated experimental systematics without the overall normalisation uncertainty of 1.5%. The fitted normalisation is taken into account in the plots.

H1 preliminary

coupling	$\eta/4\pi$ [TeV^{-2}]	Λ^+ [TeV]	Λ^- [TeV]
LL	$-0.356\ ^{+0.217+0.006}_{-0.145-0.005}$	2.3	1.2
LR	$-0.287\ ^{+0.069+0.009}_{-0.054-0.000}$	3.0	1.5
RL	$-0.264\ ^{+0.071+0.004}_{-0.055-0.000}$	3.0	1.5
RR	$-0.376\ ^{+0.205+0.010}_{-0.140-0.006}$	2.3	1.2
$VV= LL+LR+RL+RR$	$-0.041\ ^{+0.036+0.018}_{-0.053-0.004}$	5.0	1.9
$AA= LL-LR-RL+RR$	$0.161\ ^{+0.040+0.002}_{-0.061-0.003}$	2.0	3.4
$VA= LL-LR+RL-RR$	$-0.043\ ^{+0.143+0.011}_{-0.058-0.013}$	2.6	2.6
$LL+RR$	$-0.331\ ^{+0.150+0.004}_{-0.096-0.013}$	3.1	1.3
$LR+RL$	$-0.224\ ^{+0.051+0.009}_{-0.036-0.000}$	4.1	1.8

Table 1: Fit results for various chiral structures of the parameter $\eta/4\pi$ using the CTEQ4D parton distributions with the 68% cl intervals (first error) and the variations with respect to the MRST and GRV parton parametrisations (second error). In the case CTEQ4D provides best (worst) limit, the corresponding positive (negative) error is quoted as zero. For the 95% cl lower limits on compositeness scale parameters $\Lambda^\pm$, the most conservative values are taken with respect to the different parton parametrisations.

H1 preliminary

leptoquark	coupling to u quark [GeV^{-2}]	coupling to d quark [GeV^{-2}]	F	M_{LQ}/λ [GeV]
S_0^L	$\eta_{LL}^u = +\frac{1}{2}\ (\lambda/M_{LQ})^2$		2	598
S_0^R	$\eta_{RR}^u = +\frac{1}{2}\ (\lambda/M_{LQ})^2$		2	554
$\tilde{S}_0^R$		$\eta_{RR}^d = +\frac{1}{2}\ (\lambda/M_{LQ})^2$	2	202
$S_{1/2}^L$	$\eta_{LR}^u = -\frac{1}{2}\ (\lambda/M_{LQ})^2$		0	294
$S_{1/2}^R$	$\eta_{RL}^u = -\frac{1}{2}\ (\lambda/M_{LQ})^2$	$\eta_{RL}^d = -\frac{1}{2}\ (\lambda/M_{LQ})^2$	0	308
$\tilde{S}_{1/2}^L$		$\eta_{LR}^d = -\frac{1}{2}\ (\lambda/M_{LQ})^2$	0	416
S_1^L	$\eta_{LL}^u = +\frac{1}{2}\ (\lambda/M_{LQ})^2$	$\eta_{LL}^d = +1\ (\lambda/M_{LQ})^2$	2	385
V_0^L		$\eta_{LL}^d = -1\ (\lambda/M_{LQ})^2$	0	655
V_0^R		$\eta_{RR}^d = -1\ (\lambda/M_{LQ})^2$	0	547
$\tilde{V}_0^R$	$\eta_{RR}^u = -1\ (\lambda/M_{LQ})^2$		0	299
$V_{1/2}^L$		$\eta_{LR}^d = +1\ (\lambda/M_{LQ})^2$	2	345
$V_{1/2}^R$	$\eta_{RL}^u = +1\ (\lambda/M_{LQ})^2$	$\eta_{RL}^d = +1\ (\lambda/M_{LQ})^2$	2	859
$\tilde{V}_{1/2}^L$	$\eta_{LR}^u = +1\ (\lambda/M_{LQ})^2$		2	952
V_1^L	$\eta_{LL}^u = -2\ (\lambda/M_{LQ})^2$	$\eta_{LL}^d = -1\ (\lambda/M_{LQ})^2$	0	400

Table 2: Coupling coefficients η_{if}^q, fermion number F and 95% cl lower limits on M_{LQ}/λ for scalar (S) and vector (V) leptoquarks, taking the most conservative values from a variation of different parton distributions. The notation indicates the lepton chirality L, R and weak isospin $I = 0,\ 1/2,\ 1$. $\tilde{S}$ and $\tilde{V}$ differ by two units of hypercharge from S and V. Note that limits on the coupling λ are only meaningful for leptoquark masses $M_{LQ} > \sqrt{s}$.