Table 5: New or modified particle codes or names.

Renamed:	
7	b'
8	t'
17	τ'
18	ν'_τ
25	h^0
35	H^0
Moved:	
100443	ψ'
100553	Υ'
4000001	d^*
4000002	u^*
4000011	e^*
4000012	ν^*_{e}

Technicolor:	
51	π^0_{tc}
52	π^+_{tc}
53	$\pi'^{\,0}_{\mathrm{tc}}$
54	ρ^0_{tc}
55	ρ^+_{tc}
56	ω^0_{tc}
LR-symmetric:	
61	H^{++}_L
62	H^{++}_R
63	W^+_R
64	$\nu_{R\mathrm{e}}$
65	$\nu_{R\mu}$
66	$\nu_{R\tau}$

SUSY:	
1000001	$\tilde{\mathrm{d}}_L$
1000002	$\tilde{\mathrm{u}}_L$
1000003	$\tilde{\mathrm{s}}_L$
1000004	$\tilde{\mathrm{c}}_L$
1000005	$\tilde{\mathrm{b}}_1$
1000006	$\tilde{\mathrm{t}}_1$
1000011	$\tilde{\mathrm{e}}_L$
1000012	$\tilde{\nu}_{\mathrm{e}L}$
1000013	$\tilde{\mu}_L$
1000014	$\tilde{\nu}_{\mu L}$
1000015	$\tilde{\tau}_1$
1000016	$\tilde{\nu}_{\tau L}$
1000021	$\tilde{\mathrm{g}}$
1000022	$\tilde{\chi}^0_1$
1000023	$\tilde{\chi}^0_2$
1000024	$\tilde{\chi}^+_1$

SUSY:	
2000001	$\tilde{\mathrm{d}}_R$
2000002	$\tilde{\mathrm{u}}_R$
2000003	$\tilde{\mathrm{s}}_R$
2000004	$\tilde{\mathrm{c}}_R$
2000005	$\tilde{\mathrm{b}}_2$
2000006	$\tilde{\mathrm{t}}_2$
2000011	$\tilde{\mathrm{e}}_R$
2000012	$\tilde{\nu}_{\mathrm{e}R}$
2000013	$\tilde{\mu}_R$
2000014	$\tilde{\nu}_{\mu R}$
2000015	$\tilde{\tau}_2$
2000016	$\tilde{\nu}_{\tau R}$
1000025	$\tilde{\chi}^0_3$
1000035	$\tilde{\chi}^0_4$
1000037	$\tilde{\chi}^+_2$
1000039	$\tilde{\mathrm{G}}$

3.2 Particle codes and data

A number of new particle codes `KF` have been introduced, or modified, see Table 5. Mostly this is based on the PDG-agreed conventions [45, 46], but some not yet standardized codes appear in the 'empty' range 41–80. Furthermore, the fourth generation fermions and neutral scalar Higgs states have been renamed. The two fermion spartners are labelled left and right, except in the third generation, where an expected larger mixing makes the two mass eigenstates a better choice of classification.

The top hadrons are gone. It is now known that top is too short-lived to form hadronic bound states, so a reasonable description is instead to have the top quarks decay before hadronization is considered. The same is now assumed about a hypothetical fourth generation. Should the need ever arise in the future to consider a new long-lived coloured object, an effective description of a hadron as a small string with an ordinary colour-matching flavour at the other end should be sufficient. One such example would be leptoquark-hadrons [47].

Bottom hadrons are now defined individually, e.g. the previous common decay scheme is gone in favour of individual branching ratios for each hadron. On the other hand, given the sketchy knowledge of many branching ratios, the default description is still fairly standardized.

Decay data is mainly based on the 1996 PDG edition [48], but with many 'educated guesses' to fill in missing information.

Since running fermion masses are used in an increasing number of processes, e.g. for Higgs couplings, a function `PYMRUN(KF,Q2)` has been introduced to give the mass as a function of Q^2 scale.