PROPERTIES OF ELEMENTARY PARTICLES (D5)

Particle Name	Symbol	Antiparticle	Invariant Mass m_0 [MeV/c²] (Uncertainty)	Electric Charge Q [e]	Type and Sub-type / Generation	Spin S	Mean Life τ [per eV] (Uncertainty)
Up Quark	u	Antiup ($\bar{u}$)	$2.160\,000\,000\,000^{+0.49}_{-0.26}$	$+\frac{2}{3}$	Quark: Up-type, Gen. I	$\frac{1}{2}$	-
Down Quark	d	Antidown ($\bar{d}$)	$4.670\,000\,000\,000^{+0.48}_{-0.17}$	$-\frac{1}{3}$	Quark: Down-type, Gen. I	$\frac{1}{2}$	-
Charm Quark	c	Anticharm ($\bar{c}$)	1 270.000 000 000 000 ± 20	$+\frac{2}{3}$	Quark: Up-type, Gen. II	$\frac{1}{2}$	-
Strange Quark	s	Antistrange ($\bar{s}$)	$93.400\,000\,000\,000^{+8.6}_{-3.4}$	$-\frac{1}{3}$	Quark: Down-type, Gen. II	$\frac{1}{2}$	-
Top Quark	t	Antitop ($\bar{t}$)	172 690.000 000 000 000 ± 300	$+\frac{2}{3}$	Quark: Up-type, Gen. III	$\frac{1}{2}$	-
Bottom Quark	b	Antibottom ($\bar{b}$)	$4\,180.000\,000\,000\,000^{+30}_{-20}$	$-\frac{1}{3}$	Quark: Down-type, Gen. III	$\frac{1}{2}$	-
Electron	e	Positron (e^+)	0.510 998 950 000 ± 0.000 000 000 15	-1	Lepton: Charged, Gen. I	$\frac{1}{2}$	$> 6.6 \times 10^{28}$ a
Electron Neutrino	ν_e	Electron Antineutrino ($\bar{\nu}_e$)	< 0.000 001 100 000	$< 4 \times 10^{-35}$	Lepton: Neutral, Gen. I	$\frac{1}{2}$	> 300 s
Muon	μ	Antimuon (μ^+)	105.658 375 500 000 ± 0.000 002 3	-1	Lepton: Charged, Gen. II	$\frac{1}{2}$	$(2.196\,981\,1 \pm 0.000\,002\,2) \times 10^{-6}$ s
Muon Neutrino	ν_μ	Muon Antineutrino ($\bar{\nu}_\mu$)	< 0.190 000 000 000	$< 4 \times 10^{-35}$	Lepton: Neutral, Gen. II	$\frac{1}{2}$	> 300 s
Tau (Tauon)	τ	Antitau (τ^+)	1 776.860 000 000 000 ± 0.12	-1	Lepton: Charged, Gen. III	$\frac{1}{2}$	$(290.3 \pm 0.5) \times 10^{-15}$ s
Tau Neutrino	ν_τ	Tau Antineutrino ($\bar{\nu}_\tau$)	< 18.200 000 000 000	$< 4 \times 10^{-35}$	Lepton: Neutral, Gen. III	$\frac{1}{2}$	> 300 s
Photon	γ	-	$< 1 \times 10^{-24}$	$< 1 \times 10^{-46}$	Boson: Gauge	1	-
Gluon	g	-	0 (Theoretical)	0	Boson: Gauge	1	-

Particle Name	Symbol	Antiparticle	Invariant Mass m_0 [MeV/c^2] (Uncertainty)	Electric Charge Q [e]	Type and Sub-type / Generation	Spin S	Mean Life τ [per eV] (Uncertainty)
W+	W^+	-	80 377.000 000 000 000 ± 12	1	Boson: Gauge	1	-
W-	W^-	-	80 377. 000 000 000 000 ± 12	-1	Boson: Gauge	1	-
Z	Z	-	91 187.600 000 000 000 ± 2.1	0	Boson: Gauge	1	-
Higgs	H^0	-	125 250.000 000 000 000 ± 170	0	Boson: Scalar	0	1.6×10^{-22} s

Notes:

- Uncertainty: Provided in Standard Uncertainty Form ($1 \pm \sigma$) and Combined Standard Uncertainty Form ($1^{+\sigma}_{-\sigma}$)

Units:

- MeV/c^2: Megaelectronvolts/Speed of Light^2 (Mass)
- *e*: Elementary Charge
- a: Year
- s: Second

Sources:

- Particle Name [1]
- Symbol [1]
- Invariant Mass, m_0 [1]
- Electric Charge, Q [1]
- Type and Sub-type/Generation [1]
- Spin, S [1]
- Mean Life, τ [1] [2]