STANDARD MODEL OF ELEMENTARY PARTICLES (D4)

Elementary Fermions Elementary Antifermions

Quarks

I	II	III	I	II	III
2.16 MeV ⅔ ½ **u** Up	1.27 GeV ⅔ ½ **c** Charm	172.69 GeV ⅔ ½ **t** Top	2.16 MeV −⅔ ½ $\bar{\mathbf{u}}$ Antiup	1.27 GeV −⅔ ½ $\bar{\mathbf{c}}$ Anticharm	172.69 GeV −⅔ ½ $\bar{\mathbf{t}}$ Antitop
4.67 MeV −⅓ ½ **d** Down	93.4 MeV −⅓ ½ **s** Strange	4.18 GeV −⅓ ½ **b** Bottom	4.67 MeV ⅓ ½ $\bar{\mathbf{d}}$ Antidown	93.4 MeV ⅓ ½ $\bar{\mathbf{s}}$ Antistrange	4.18 GeV ⅓ ½ $\bar{\mathbf{b}}$ Antibottom

Leptons

I	II	III	I	II	III
0.51 MeV −1 ½ $\mathbf{e^-}$ Electron	105.66 MeV −1 ½ $\boldsymbol{\mu^-}$ Muon	1.78 GeV −1 ½ $\boldsymbol{\tau^-}$ Tau	0.51 MeV 1 ½ $\mathbf{e^+}$ Positron	105.66 MeV 1 ½ $\boldsymbol{\mu^+}$ Antimuon	1.78 GeV 1 ½ $\boldsymbol{\tau^+}$ Antitau
< 1.10 eV > 0 ½ $\boldsymbol{\nu_e}$ Electron Neutrino	< 0.19 MeV > 0 ½ $\boldsymbol{\nu_\mu}$ Muon Neutrino	< 18.20 MeV > 0 ½ $\boldsymbol{\nu_\tau}$ Tau Neutrino	< 1.10 eV > 0 ½ $\bar{\boldsymbol{\nu}}_{\mathbf{e}}$ Electron Antineutrino	< 0.19 MeV > 0 ½ $\bar{\boldsymbol{\nu}}_{\boldsymbol{\mu}}$ Muon Antineutrino	< 18.20 MeV > 0 ½ $\bar{\boldsymbol{\nu}}_{\boldsymbol{\tau}}$ Tau Antineutrino

Elementary Bosons

Gauge Bosons

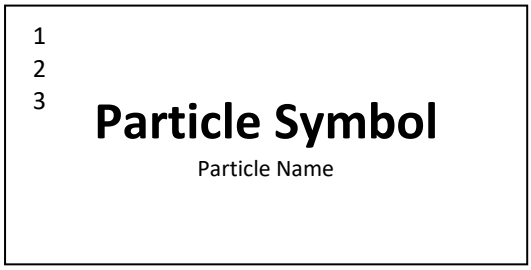
0.00 eV 0 1 **g** Gluon
> 0.00 eV > 0 1 $\boldsymbol{\gamma}$ Photon
91.19 GeV 0 1 **Z** Z^0 Boson
80.38 GeV 1 1 $\mathbf{W^+}$ W^+ Boson
80.38 GeV −1 1 $\mathbf{W^-}$ W^- Boson

Scalar Bosons

125.25 GeV 0 0 **H** Higgs

Key:

Elementary Particle Representation:



1 Invariant Mass, m_0, in GeV/c^2, MeV/c^2 and eV/c^2 (Units Simplified on Diagram)
2 Electric Charge, *Q*, in *e*
3 Spin, *S*

Units:

- eV: Electronvolt
- *e*: Elementary Charge

Sources:

- Invariant Mass, 1 [1]
- Electric Charge, 2 [1]
- Spin, 3 [1]
- Particle Symbol [1]
- Particle Name [1]