

# The Standard Model of Elementary Particles

QUARKS

I

**Up**

$\approx 2.2$  MeV  
 $+\frac{2}{3}$   
 $\frac{1}{2}$



II

**Charm**

$\approx 1.28$  GeV  
 $+\frac{2}{3}$   
 $\frac{1}{2}$



III

**Top**

$\approx 173.1$  GeV  
 $+\frac{2}{3}$   
 $\frac{1}{2}$



**Gluon**

0  
 0  
 1



**Higgs Boson**

$\approx 125.11$  GeV  
 0  
 0



**Down**

$\approx 4.7$  MeV  
 $-\frac{1}{3}$   
 $\frac{1}{2}$



**Strange**

$\approx 96$  MeV  
 $-\frac{1}{3}$   
 $\frac{1}{2}$



**Bottom**

$\approx 4.18$  GeV  
 $-\frac{1}{3}$   
 $\frac{1}{2}$



**Photon**

0  
 0  
 1



**Electron**

$\approx 0.511$  MeV  
 -1  
 $\frac{1}{2}$



**Muon**

$\approx 105.66$  MeV  
 -1  
 $\frac{1}{2}$



**Tau**

$\approx 1.7768$  GeV  
 -1  
 $\frac{1}{2}$



**Z Boson**

$\approx 91.19$  GeV  
 0  
 1



**Electron  $\nu$**

$< 1.0$  eV  
 0  
 $\frac{1}{2}$



**Muon  $\nu$**

$< 0.17$  MeV  
 0  
 $\frac{1}{2}$



**Tau  $\nu$**

$< 18.2$  MeV  
 0  
 $\frac{1}{2}$



**W Boson**

$\approx 80.360$  GeV  
 $\pm 1$   
 1



LEPTONS

SCALAR BOSONS

GAUGE BOSONS

VECTOR BOSONS