

I

II

III

quarks

leptons

2.16 MeV  
2/3  
1/2  
 $u$   
up

1.27 GeV  
2/3  
1/2  
 $c$   
charm

172.7 GeV  
2/3  
1/2  
 $t$   
top

← mass  
← charge  
← spin  
← colours

strong nuclear force (colour)

4.67 MeV  
-1/3  
1/2  
 $d$   
down

93.4 MeV  
-1/3  
1/2  
 $s$   
strange

4.18 GeV  
-1/3  
1/2  
 $b$   
bottom

0  
0  
1  
 $g$   
gluon

511 keV  
-1  
1/2  
 $e$   
electron

105.7 MeV  
-1  
1/2  
 $\mu$   
muon

1.777 GeV  
-1  
1/2  
 $\tau$   
tau

0  
0  
1  
 $\gamma$   
photon

electromagnetic force (charge)

0  
1/2  
 $\nu_e$   
 $e$  neutrino

0  
1/2  
 $\nu_\mu$   
 $\mu$  neutrino

0  
1/2  
 $\nu_\tau$   
 $\tau$  neutrino

80.4 GeV  
 $W^{\pm 1}$   
W boson

91.2 GeV  
 $Z$   
Z boson

weak nuclear force (weak isospin)

125.3 GeV  
0  
0  
 $H$   
Higgs boson

fermions

bosons