Appendix G

The Standard Model of Particle Physics

G.0.7 The Weak Force

The gauge group of the weak force is $SU(2)$. The gauge bosons which mediate the weak force are denoted $W^+, W^-$, and $Z$. As the range of the weak force is short, these gauge bosons are massive.

G.0.8 The Strong Force

The gauge group of the strong force is $SU(3)$. The gauge bosons which mediate this force are called gluons.

G.0.9 Leptons

Leptons interact via the electromagnetic and weak interaction, but do not participate in the strong interaction.

G.0.10 Higgs Field

In the standard model of particle physics the masses of all the particles are zero. An extra field, the so-called Higgs field, is inserted by hand to give the particles mass.