Defining Particles.

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Abstract

We define particles as pictures.

A pi minus looks as follows:

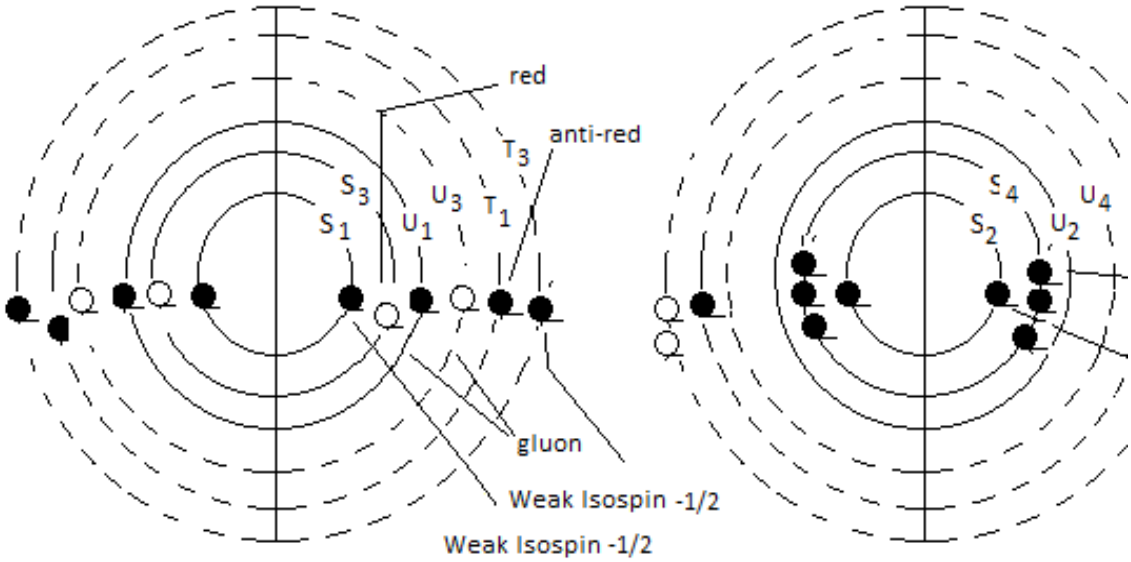

Figure 1.1: Pi-minus.

The solid circles are added spacetime events and the dotted circles are left out spacetime events.

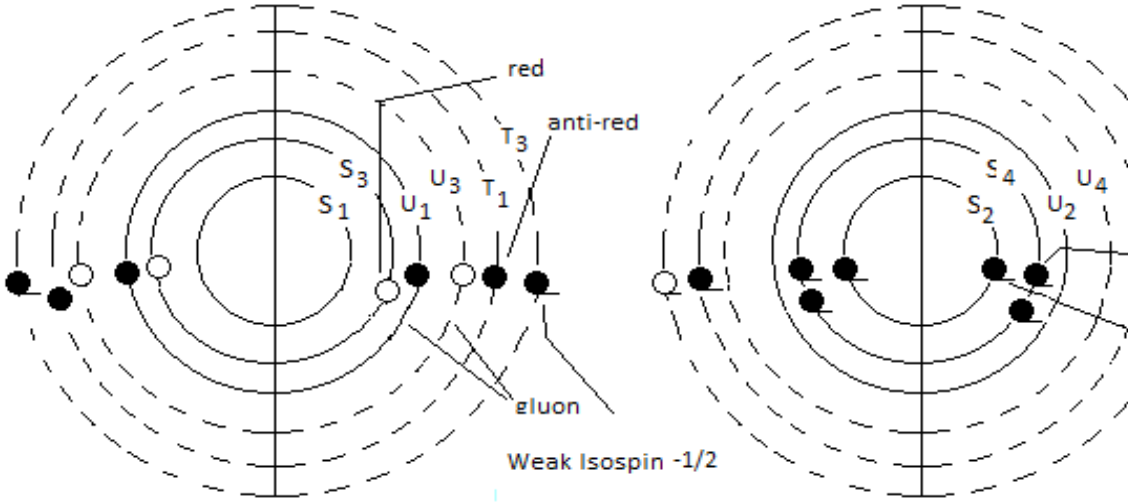

Figure 1.2: Electron.

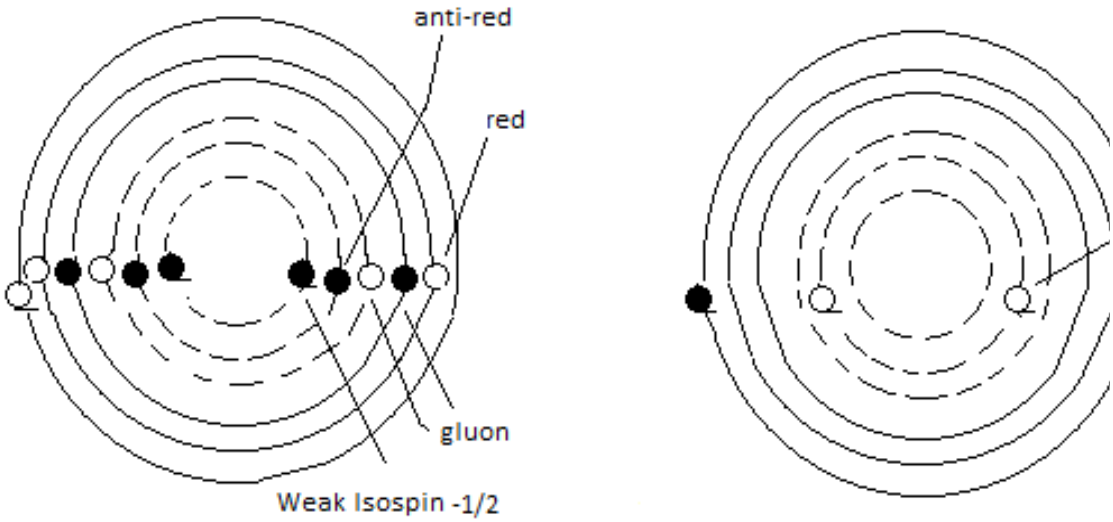

Figure 1.3: Electron Anti-neutrino.

W-minus must make up the deffierence between the electron and electronantineutrino.

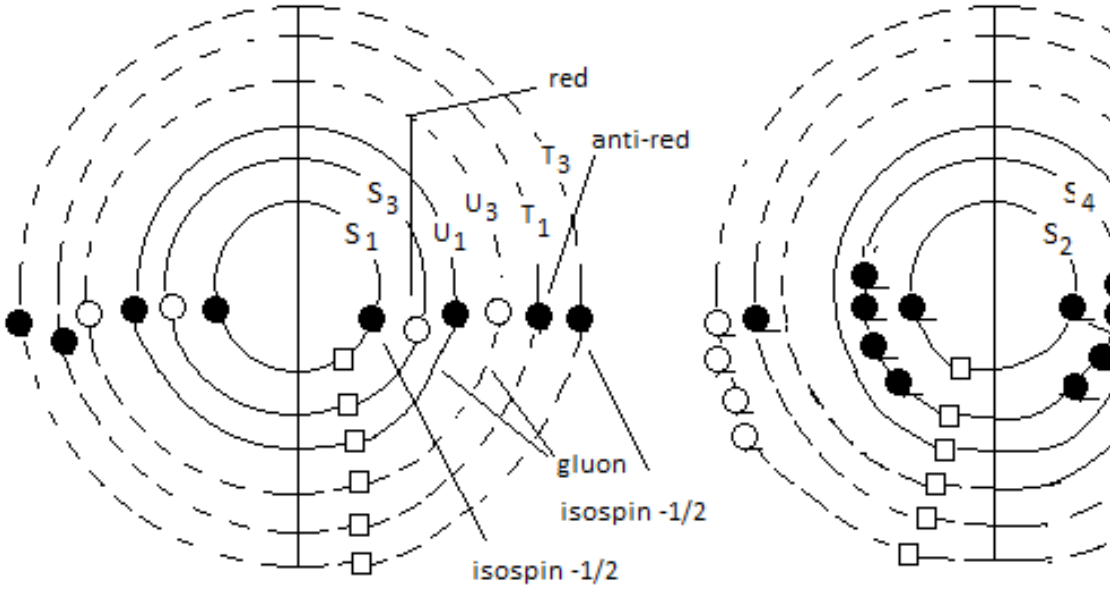

Figure 1.4: W-minus Boson.

It is inconceivable that a down quark can emit this. CI stands for Copy and Invert (an operation specification). This is coded for in the W-minus field and manifests in space as added events.

If mass comes in chunks the ratio of masses would be integers.

There is four issues with this pcture:

1. How does the W-minus encode the fact that one unit of weak isospin must disappear from both the partiles it will decay to?

2. How does the mass convert to kinetic enegy of the product particles?

3. How is it encoded in the W-minus that mass must convert in the product particles?

4. If energy was borrowed from the vacuum it must be paid back when decay happens.

For 2-4 we need an operator to change mass into energy and vice versa.

Since the particles that the W decays to does not come from the vacuum the particle

and antiparticle does not need to have complementary quantum numbers. The W provides the template so the resulting particles must reflect this.

It could be that spacetime sees the blocks as mass but the electromagnetic field sees it as operators.

2. Photons

To provide a mechanism to start a protophoton to go at the velocity of light we need a slight force (any size of force). Since a protophoton is massless we only require a small force to accelerate it to the speed of light in an instant. The protophoton becomes a photon when accelerated to the speed of light.

The forces on a photon must cancell so define a photon as engaging a negative event to the right side at distance d, then the two forces cancell: the two start points of the force vectors overlaps since the photon sees all events and negative events along it's geodesic as at the same position.

When an electron emits a photon it is S_3 that copies, together with the carge on this circle. This must be encoded in the electron, therefore add a square to S_3 of the electron.