Edexcel Physics A-Level

Topic 8.2 - Particle Physics

Flashcards

In the quark-lepton model, what are the four main categories of particles?

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1. Baryons
2. Mesons
3. Leptons
4. Photons

Describe the quark composition of a baryon.

Describe the quark composition of a baryon.

Baryons are made up of three quarks.

Describe the quark composition of a meson.

Describe the quark composition of a meson.

Mesons are made up of a quark and antiquark pair.

Which category of particles are classed as fundamental particles?

Which category of particles are classed as fundamental particles?

Leptons

Give two examples of leptons.

Give two examples of leptons.

1. Electrons
2. Neutrinos

What category of particles do pions belong in?

What category of particles do pions belong in?

Mesons.

Give two examples of baryons.

Give two examples of baryons.

1. Protons
2. Neutrons

What did the symmetry of the quark-lepton model predict the existence of?

What did the symmetry of the quark-lepton model predict the existence of?

The top quark.

What is an antiparticle?

What is an antiparticle?

An antiparticle is one that has the same mass but opposite charge and conservation numbers to its corresponding particle.

What is the antiparticle of a proton?

What is the antiparticle of a proton?

An antiproton.

What is the antiparticle of an electron?

What is the antiparticle of an electron?

A positron.

Name four things that are always conserved in a particle interaction.

Name four things that are always conserved in a particle interaction.

1. Mass/Energy
2. Baryon Number
3. Lepton Number
4. Charge

Describe the conservation of lepton number.

Describe the conservation of lepton number.

The lepton number for each specific type of lepton must be the same before and after an interaction.