

Outline

- 1) About the exam
- 2) Test exam
- 3) Quiz
- 4) Questions

Test exam

Test exam

- Q0: Write down and explain the Standard Model
- Q1: What does quark-lepton symmetry mean for the weak interaction?
- Q2: Draw a Feynman diagram of a K^+ decaying to a μ^+
- Q3: How do you identify high energy photons?

The 12 questions quiz

Why is the strong force strong?

- 1) The vacuum structure is complex
- 2) The gluon is massless
- 3) The coupling constant is large

What is a proton and an anti-proton most likely to annihilate into?

1) Photons

2) Pions

3) Electrons and positrons

The Higgs boson prefers to decay
into

1) 2 photons

2) 2 muons

3) 2 bottom quarks

Why is the weak interaction weak?

- 1) Because the W and Z s are very heavy
- 2) Because the weak coupling is small
- 3) Because the weak charge is weak

When a Kaon decays to a pion it is
a

- 1) Strong process
- 2) Weak process
- 3) EM process

If there is a photon in the final state
of a decay it involves the

- 1) Strong interaction
- 2) Weak interaction
- 3) EM interaction

The Higgs decay to 2 photons was first discovered because

- 1) It is the most likely decay
- 2) The background is easy to handle
- 3) The photon detectors are the best detectors in ATLAS and CMS

Electroweak unification is caused by

1) The Higgs boson

2) The matter anti-matter
asymmetry

3) The mixing of the W_0 and the B
fields

All particles (fermions) in the Standard Model can interact

- 1) Strongly
- 2) Weakly
- 3) Electromagnetic

According to QCD a single quark cannot be observed in nature

- 1) Because it would be infinitely heavy
- 2) Because it is colored
- 3) Because it has a fractional electric charge

The c to d decay is Cabibbo favored

1) Yes

2) No

3) Sometimes

In many Beyond Standard Models

- 1) Charge conservation is violated
- 2) Baryon number conservation is violated
- 3) Energy conservation is violated