

General physics

How do you know which kind of **quark** from electron scattering

Is it certain that some particles have no mass (Uncertainty principle)?

Why can't we collide 2 photons?

How do you produce neutrinos and direct them to Italy?

Better definition of the word 'particle' as matter or field particles?

Better terminology for 'colour'?

What distinguishes particles and fields?

Dimension of the photon? Uncertainty problem?

Relationship between the expansion of the universe and its limit?

How much mass at BB before inflation? What is the origin of the energy at the BB?

LHC Experiments + Higgs

How many experiments can run simultaneously? How many detectors simultaneously?

Calorimeters: how to measure particle energy?

ATLAS: how are selected signals detected above the noise? Data selection process?

What are ALICE and LHCb trying to find out?

How to announce **Higgs**? How many checks? How long after will we know?

Higgs = ether? Higgs = dark matter? Dark energy?

Fermilab - evidence for Higgs?

Will it be feasible to detect directly the daughters of Higgs decay?

Beyond the 'Standard Model'

Are there any tests for string theory?

Is anybody trying to isolate/detect quarks?

Quark substructure? At what energy?

With 7 TeV - how deep probe/distance scale?

If LHC produces black holes, could we experiment on them? Will they destroy CERN?

Can vacuum repel another vacuum? How can that be?

Does negative energy exist? Is this related to dark energy (Wormholes, warp drive)?

What is SUSY? Selectron?

What is CLIC expected to achieve?

Is there an end to number of new particle at higher and higher energies?

Gravity weak because of incomplete cancellation of gravity/antigravity (matter/antimatter)?

Politics/sociology of research

CERN connection to ITER?

How much does the LHC cost? Who pays?

How to justify money spent?

Long time from design to implementation - the 'new product' is already old technology?

Have long term projects pushed other governments to think in longer term?

Many partners involved, how to ensure that final product is what was intended? Bill Gates?

How does a project start? Where do people take their good ideas?

Social life: CERN employees - live locally/juggle family life; salary; duration of contract+employment?

Education

How to define 'Physics'?

How much particle physics should be taught to students? What age (e.g. quarks?) 17-18?

More info on tidal effects of moon, TGV, seismic activity

Is there a good resource on teaching Feynman diagrams?

Geiger-Müller counter in a balloon experiment for school students? Simple? Expensive?

Technology

Is it hard to keep the helium in?

Effects of low temperature on materials (e.g. insulation on wiring)

What can cause loss of superconductivity?

Effects of change in temperature at different points in beam tube?

What kind of detector is used for monitoring the beam position? Camera?

Any research on health effects for local people (e.g. magnetic field, synchrotron radiation)?

Are magnetic fields used for medical purposes?