

# What we think we know about physics today

All physics (we think) can be explained by four forces:

- (1) the strong nuclear force (which holds protons in atomic nuclei, despite their like charges)
- (2) the weak nuclear force (which splits nuclei, causing radioactivity)
- (3) electromagnetism (= electricity + magnetism, studied in Phys 4B)
- (4) gravity (which holds the Universe together, studied in Phys 4A)

The strong and weak forces work only inside nuclei (see Chapter 43).

Electromagnetism and gravity have unlimited range, so we see them in everyday life (see Chapter 33).

Field theory is the science of how these forces are related. Field theory began with the electromagnetic theory of James Clerk Maxwell (1865) (see Chapter 33):

