

THE QUARKS CUP

Exercise 1.1 Place the following particles in the correct position in the table.
(Symbol and Spin number given.)

(a) Neutrino ν (spin 1/2) Does not take part in STRONG INTERACTIONS.

(b) Kaons K^-, K^0, K^+, \bar{K}^0 (all spin 0)

(c) Sigma particles $\Sigma^-, \Sigma^0, \Sigma^+$ (all spin 1/2)

(d) Eta particle η (spin 0)

(e) Electron e (spin 1/2) (Does not take part in Strong Interactions)

(f) Xi particles Ξ^-, Ξ^0 (both spin 1/2)

(g) neutron n (spin 1/2)

(h) proton p (spin 1/2)

(i) muon μ (spin 1/2) (Does not take part in Strong Interactions)

(j) Lambda particle Λ (spin 1/2)

(k) pions π^-, π^0, π^+ (all spin 0)

(l) omega particle Ω (spin 3/2)

Baryons		

Mesons		

Leptons		

Finally, note that the photon (symbol γ) does not fit into any of these classes and is grouped separately. It has spin 1 and is a boson.

Exercise 1.2 follows on the next page ...

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Exercise 1.2 Plot the particles in the correct positions in this Venn diagram.

Note: A particle cannot be a FERMION and a MESON so this region is disallowed. Therefore, this region is shaded in.

Other regions are disallowed similarly, so shade these regions in also.

