# **Hadron Multiplets**

#### Cambridge HEP Graduate Lectures on Flavour Physics

Matt Kenzie

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A few of my github repositories for producing

- Feynman diagrams <a href="https://github.com/matthewkenzie/feynmans">https://github.com/matthewkenzie/feynmans</a> a wrapper for the LATeX <a href="https://axodraw">axodraw</a> package which will produce and then compile some 'tex' code
- Hadron Isospin diagrams <a href="https://github.com/matthewkenzie/hadrons">https://github.com/matthewkenzie/hadrons</a> makes use of <a href="mattplotlib">mattplotlib</a> to draw the diagrams (with many hacks)

### 1 Multiplets with just (u, d, s)

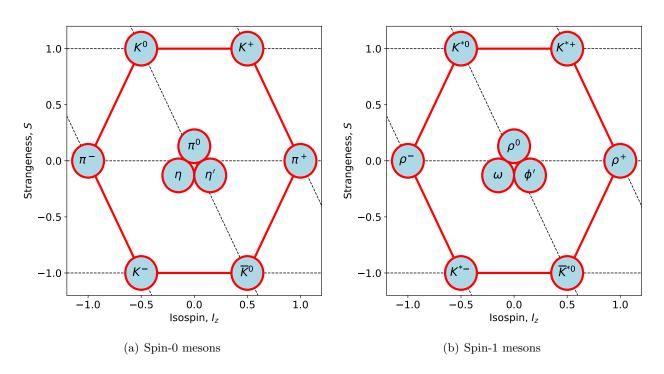


Figure 1: (u, d, s)-combination mesons

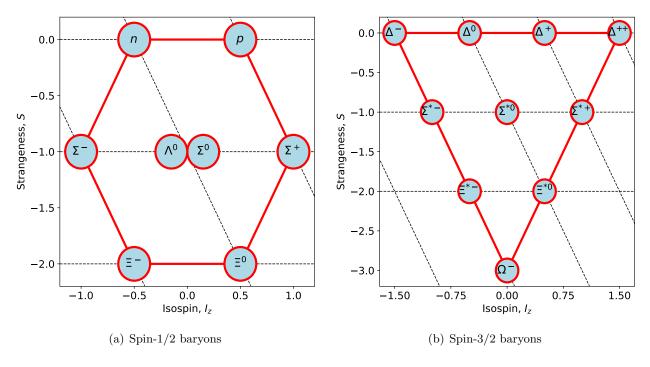


Figure 2: (u, d, s)-combination baryons

## 2 Multiplets with (u,d,s,c)

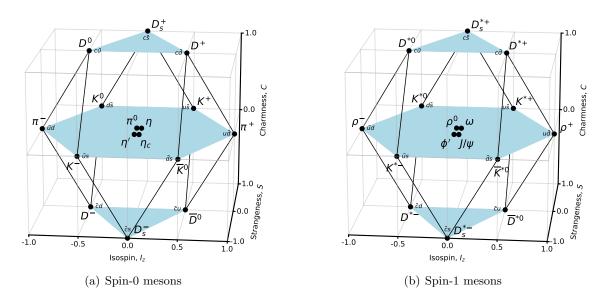


Figure 3: (u, d, s, c)-combination mesons

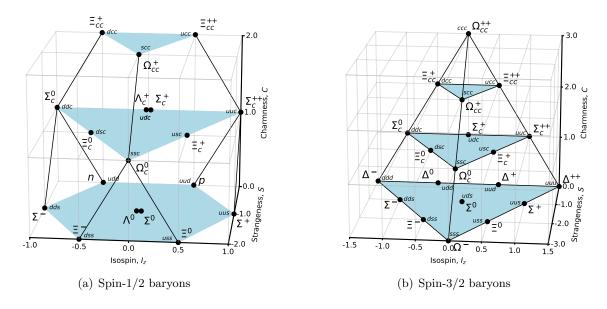


Figure 4: (u, d, s, c)-combination baryons

### **3** Multiplets with (u, d, s, c, b)

If you would like to figure out how plots can be made including a "beauty" or "bottomness" axis then get in touch with me to discuss how we could do this.

### 4 Hadron Naming Scheme

With the recent discovery of pentaquark states and a huge variety of new tetraquark and higher resonance baryon states discovered at LHCb (and elsewhere) there is ongoing discussion in the field to update / clarify the naming scheme of hadrons. For the most recent overview then see the PDG review on the Naming Scheme for Hadrons.