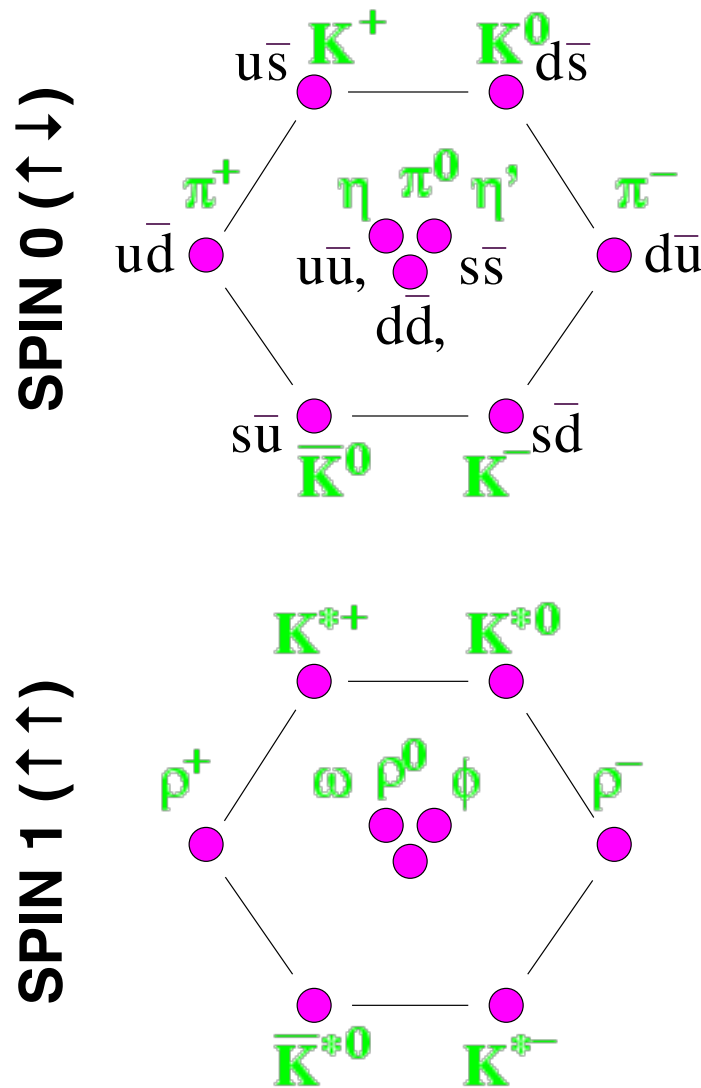


Particles you need to know

The only particles which can make tracks in our detector are those which are **charged** and **live long enough**



- **Pions:** $\pi^+ = u\bar{d}$, $\pi^- = d\bar{u}$, $m_{\pi^\pm} = 140$ MeV
lightest and most common of mesons
- **Kaons:** $K^+ = u\bar{s}$, $K^- = s\bar{u}$, $m_{K^\pm} = 494$ MeV
lightest mesons with strange quarks
- **Protons** and **antiprotons:**
 $p = uud$, $\bar{p} = \bar{u}\bar{u}\bar{d}$, $m_p = 938$ MeV
the only truly stable hadrons in nature
- **Electrons** and **positrons:** e^\pm , $m_e = 0.5$ MeV
lightest charged leptons, also stable
- **Muons:** μ^\pm , $m_\mu = 107$ MeV
what's left at the back of the detector

Other hadrons are observed via their **decays**, e.g. $\rho^0 \rightarrow \pi^+\pi^-$ (770 MeV)