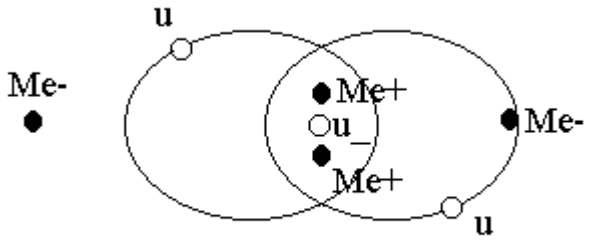
Examples of Baryon Internal Structures

(Not to Scale. Positions of Components Rough Estimate Only)

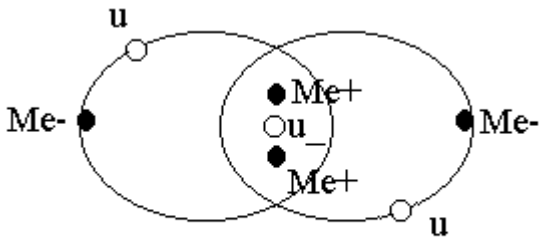


Proton

u

Mp d+ = u_ Me++ Me-

u

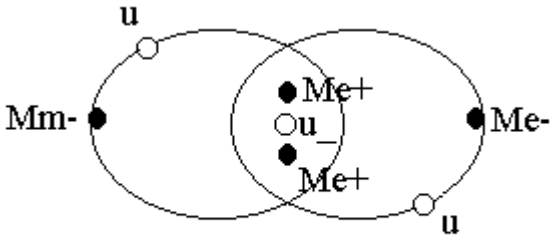


Neutron

u

Mn d+ = u_ Me++ Me-

d- = u Me-

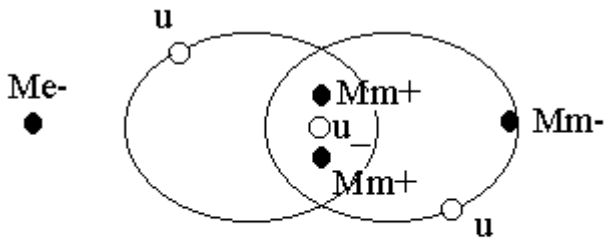


Lamda Neutral

u

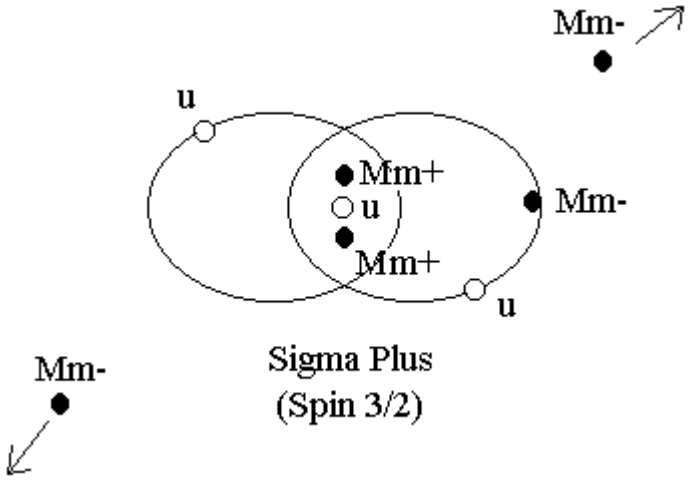
Lo d+ = u_ Me++ Me-

s- = u Mm-



Sigma Plus
(Spin 1/2)

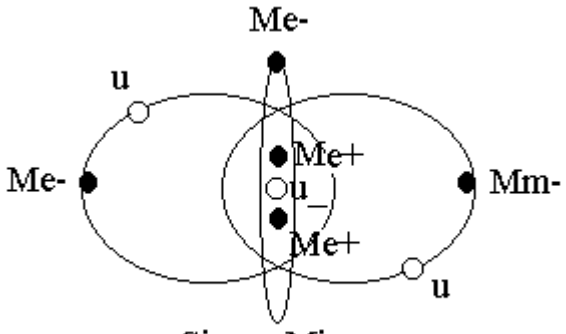
u
S+ s+ = u_ Mm++ Mm-
u



Sigma Plus
(Spin 3/2)

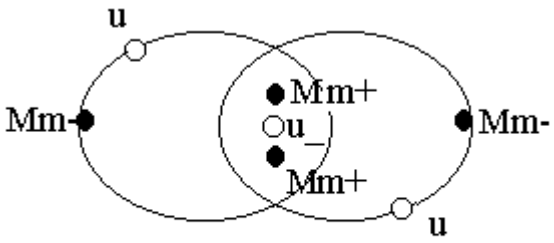
u
S+* s- = Mm-
u
Mm++ (2Mm-)

Charge comes from "internal" lepton components, and spin comes from quarks. The Sigma Plus has a more energized resonance. Its decuplet resonance has 3 (u) quarks, a muon, and two antimuons. Two muons are pushed away, leaving the particle "ionized". Thus the charge is the same as an ordinary Sigma Plus, but the spin is 3/2. The exact positions of the antimuons are uncertain, but they are highly transient. The Sigma Minus (S- = d- d+ s-), Cascade Neutral (Eo = u s+ s-), Cascade Minus (E- = d- s+ s-) and Omega Minus (O- = s- s+ s-) shown below all have resonant versions in the decuplet: (d- d- s-), (u s- s-), (d- s- s-), and (s- s- s-). The resonant particles look like their lower energy cousins, but have a different spin value due to the core quark not being an antiquark.



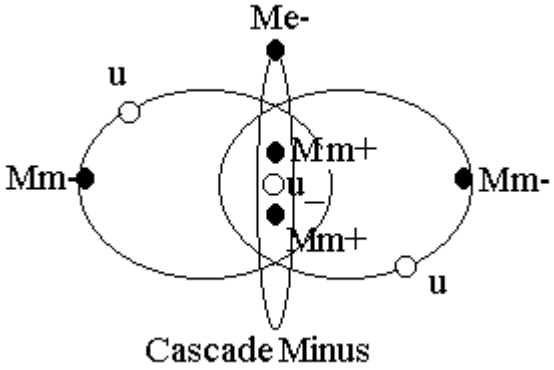
Sigma Minus

d- = Me-
S- d+ = u_ Me++ Me-
s- = u Mm-



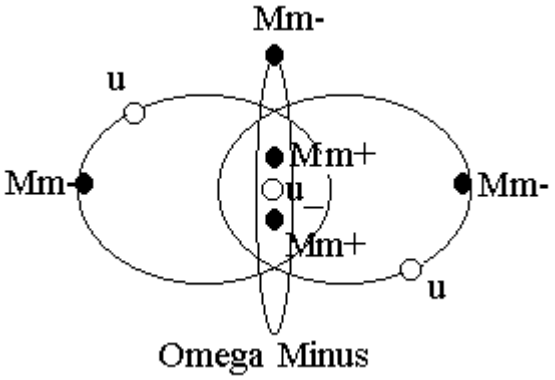
Cascade Neutral

u
Eo s+ = u_ Mm++ Mm-
s- = u Mm-



Cascade Minus

d- = u Me-
E- s+ = u_ Mm++ Mm-
s- = u Mm-



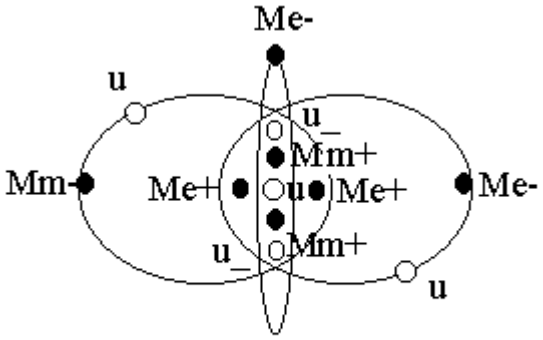
Omega Minus

s- = u Mm-

O- s+ = u_ Mm++ Mm-

s- = u Mm-

The spin (3/2) version has three (s-) quarks plus two extra muon pairs -- with 2 antimuons inside and two muons pushed away.



Lamda Plus
(charmed)

u

L+c d+ = u_ Me++ Me-

c = u d+ s-

d+ = u_ Me++ Me-

s- = u Mm-

The charmed quark is a neutrally charged composite of two (u) quarks and an anti (u) quark, two positrons, a muon and an electron. Thus it is pretty wound up and unstable in our normal energy environment. Below is another example -- the charmed Omega Neutral.