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# Weak Force

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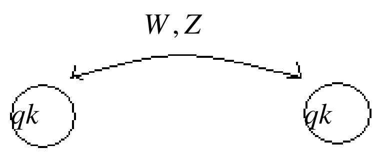
The weak force is that between quarks, mediated by the bosons W and Z. The weak force is the strongest one.




The quarks u and d are monopoles:

Magnetic and unified forces

$$F = \frac{q_m{}^2}{4.\pi.\mu_0 x^2} = \frac{khf^4}{w^3} \;; \qquad q_m = \frac{h}{2q_e}$$

$q_m$ -- magnetic charge; $q_e$ -- electric charge

$$x = 1.24\times10^{-17} \;; \qquad f = 1.275\times10^{25}$$

$$w = 1.58\times10^{8} \;; \qquad m = 3.36\times10^{-25} \;; \qquad E = 99.8GeV$$

Weak force:

$$F = 2.8\times10^{12}N \;; \qquad g = 2.61\times10^{33}$$

$$g = \frac{2.\pi.c^2}{n^3 x} \qquad \Leftrightarrow \qquad n = 3$$

$$v = \frac{c}{n} = 1\times10^{8} \;; \qquad R = \frac{3x}{2\pi} = 5.93\times10^{-18}$$

Binding energy of two quarks:

$$E_B = FR = 104TeV$$

**The electron has magnetic charges**

Magnetic moment = $\mu$

$$\mu_{\text{int}\,rinsic} = \mu_{orbital} = 9.28\times10^{-24}$$

$$\mu = \frac{qvR}{2}$$

Orbital: $R = 5.3\times10^{-11}$ ; $v = 2.2\times10^{6}$

Intrinsic: $R \approx 1\times10^{-18}$

$$v = \frac{2\mu}{qR} = 1.2\times10^{14}$$

The electron, to have his intrinsic magnetic moment must rotate at this speed. If it is impossible there is only one explanation: the electron must have two magnetic charges.

$$q_e = \frac{h}{2q_m}$$