

# The Charge Non Conservation in the Decay of A Neutron Made by Quark Model

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**Abstract:** Showing the charge non conservation in the decay of a neutron that made of quarks according to quark model.

## Main Viewpoints & Conclusions:

In the [1], we know, a free neutron is unstable, having a mean lifetime of just less than 15 minutes ( $881.5 \pm 1.5$  s) from a radioactive decay known as beta decay, and:

**a neutron  $\rightarrow$  a proton + an electron + a neutrino ( or an antineutrino) (i)**

And there be: a proton charges +1; an electron charge -1; and a neutrino (or an antineutrino) no charge.

By the *Law of charge conservation*[2] and (i), we have know a neutron should be charge +1 and -1.

In the quark model, there be: neutron = udd, u charge  $2/3$ ; d charge  $-1/3$ ; and dd charge  $-2/3$ . and  $2/3 + (-2/3) = 0$ . [3; page.11] It is able to meet the neutron is not significant feature of the electrically.

And for the neutron charge  $+2/3$  and  $-2/3$ , then, there be:

**a neutron(charge  $+2/3$  and  $-2/3$ )  $\rightarrow$  a proton (charge +1)+ an electron (charge -1) + a neutrino ( or an antineutrino and both no charge).**

The total number of the charges occurred proliferation in the process. Then we get, there be exist non conservation of charge in the decay of the neutron that made of quarks according to quark model.

## References

[1] Neutron <http://en.wikipedia.org/wiki/Neutron>

[2] Charge conservation [http://en.wikipedia.org/wiki/Charge\\_conservation](http://en.wikipedia.org/wiki/Charge_conservation)

[3] J.-L. Basdevant, J. Rich, M. Spiro, *Fundamentals in Nuclear Physics*, Springer, 2005