What is the Spin of the Particles?

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Abstract. According to the unified theory[1,2] of dynamic space it is described the first (Universal) and the second (local) space deformation, which change the geometric structure of the isotropic space. These geometric deformations created the dynamic space, the Universe, and the space holes (bubbles of empty space), the early form of matter. The neutron cortex[3] is structured around these space holes with the electrically opposite elementary units (in short: units) at the light speed. So, an electrical and geometric deformation of the neutron cortex occurs, as the third space deformation, resulting in the creation of surface electric charges (quarks), to which the particles spin is due. Additionally, the "paradox" magnetic dipole moment of neutron is interpreted.

Keywords: Space deformation; neutron cortex; quarks; spin.

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1. Electrical charging of the particles cortex - Quarks

The structure of the neutron cortex[3] interconnects the particle spherical structure with the cubic one of ambient space,[2] resulting in condensation of the units in the inner cortex region.

The elision of the negative units and their motion towards the cortex periphery repulsed them as homonymous to the centers of two opposite seats of the initial cube. The result is the appearance of two negative poles on opposite spherical regions of the cortex (Fig. 1), in the place of two opposite seats of the initial cube, while the surplus of positive units is condensed on its remaining four seats constituting the positive zone of the cortex. These electrically charged regions of the cortex are the particle quarks.

Now, it can be calculated the electrical charge q_n of neutron, the magnetic dipole moment of which is[4]

$$\mu = -1,913\mu_n, \tag{1}$$

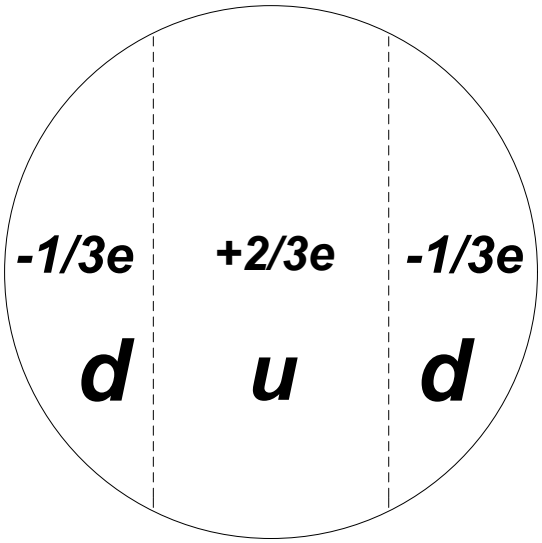

Figure 1. The surface electrical charges of the neutron cortex are its quarks

wherein μ_n is the unit of nuclear magneton. Respectively, the magnetic dipole moment of the proton with electrical charge $e = +1,6 \cdot 10^{-19}$Cb is[4]

$$\mu' = +2,792\mu_n. \tag{2}$$

These magnetic moments μ and μ' must be proportional to the electrical charges q_n (neutron) and e (proton), that is

$$\frac{q_n}{e} = \frac{\mu}{\mu'} = \frac{-1,913\mu_n}{2,792\mu_n} \Rightarrow q_n = -0,685e, \tag{3}$$

which equals to the electrical charge of the two negative poles (d quarks) of the neutron cortex. So, the neutron quarks are the two d quarks ($-1/3e$ each) and the intermediate u quark ($+2/3e$). Therefore, the total charge of the neutron is

$$-\frac{1}{3e} + \frac{2}{3e} - \frac{1}{3e} = 0. \tag{4}$$

So, macroscopically, the neutron is an electrically neutral particle. However, on the scale of the atom nucleus, the neutron behaves as a negatively charged particle and so its magnetic dipole moment is interpreted. The above negative charge $q_n = -0,685e$ (Eq. 3) creates induction close to the nucleus region and inverse electric field[5] of positive potential as a cloud of positive electrical units, affecting the nucleus field and the cohesive pressure[2] of proximal space, forming the architectural structure of the nuclei.[6]

2. The spin as an opposite structure of the particles cortex

These electrical charges concentrations in two negative poles and one positive zone in the particle cortex create inverse electric fields[5] and thus local reductions of cohesive pressure, since the creation of these electric fields is done at the expense of cohesive pressure P_0 of the proximal space.[2]

However, there is a difference of charging between each of the negative poles and the positive zone of the neutron cortex. Therefore, these electric fields are also different, resulting in a differential pressure ΔP between the poles and the zone and in an accumulation of peripheral forces,[8] which are vertical to the radial forces of cortex, according to the principle of spatial or right antithesis.[7] These peripheral forces ensure the rotation of the particle. Hence, the structure of the particle rotational motion is in spatial or right antithesis with its cortex structure. So, yet again the antithesis (opposition) principle, as the primary creative element and foundation of dynamic space, confirms its basic role in the creation of the fundamental Universal structures.

Respectively, the difference of electrical charging between the positive poles and the negative zone of the proton cortex (Fig. 2) creates unequal electric fields, which cause a difference of cohesive pressure ΔP of the proximal space between the poles and the zone, which is the cause of the proton rotational motion.

3. Dynamics of the particle spin

The linear motion of the particles[8] is created from the pressure difference ΔP, which ensures the accumulation of the motion forces and is maintained as a harmonic oscillation through the elastic dynamic space. The same applies in the rotational motion of the particles, wherein the motion forces are created from a pressure difference ΔP. There is, however, a basic difference. The linear motion is structured by an external cause, namely by an external force, while the rotational motion is due to the structure of the particle cortex, the surface electrical charges of which ensure the pressure difference ΔP and the accumulation of the peripheral forces.

The excess of positive units $(+2/3e)$ on the spherical zone of neutron repels the positive units[5] and attracts the negative ones (Fig. 2), reducing the pairs of oppositely charged units, resulting the reduction of cohesive pressure at $P_0 - 2\Delta P$. For the same reason the cohesive pressure is reduced at $P_0 - \Delta P$, due to the charge $-1/3e$, on both sides of the negative poles, since now the reduction of the pairs of oppositely charged units is smaller. It is noted that the in double reduction of cohesive pressure $(2\Delta P)$, is due to the fact that u charge is always double the d charge. Therefore, the pressure difference is

$$\Delta P = (P_0 - \Delta P) - (P_0 - 2\Delta P). \tag{5}$$

Respectively, the positive charge $+2/3e$ of proton poles (Fig. 2) creates a reduction of pressure by $P_0 - 2\Delta P$ and the negative $-1/3e$ of zone by $P_0 - \Delta P$. Thus, the pressure difference is $\Delta P = (P_0 - \Delta P) - (P_0 - 2\Delta P)$, namely the same with the neutron (Eq. 5).

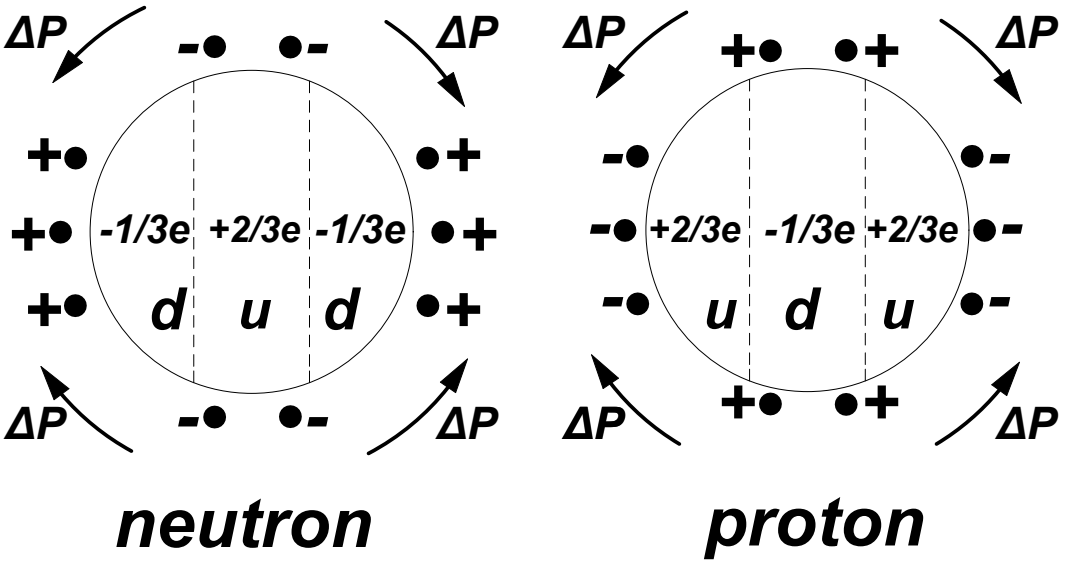

Figure 2. The same pressure difference $\Delta P = (P_0 - \Delta P) - (P_0 - 2\Delta P)$ is created by the surface electrical charges (quarks) of neutron and proton and installs a stable accumulated force $F_s/2$ in an antidiametrical pair of quadrants irrespective of the spin

The spin of the particle has two opposite motion arrows,[8] which appear that they balance each other. However, the pressure difference ΔP of the particle spin is due to the cortex structure and not to an external force. It always installs a stable accumulated force $F_s/2$ in an antidiametrical pair of quadrants of the vertical to spin axis meridian and one of the two pressures difference ΔP is enforced (the way of enforcement is due to an external cause[9]) without rotation moment, with a uniform rotary motion only.[8]

4. References

[1] N.I.Gosdas, *The Unified Theory of Dynamic Space*, Greek Edition (Trohalia, Athens, 1999).

[2] M.Tzoumpas, *Hubble's Law and antigravity - Higgs boson and gravity*, http://viXra.org/abs/1710.0082 [Quantum Gravity and String Theory].

[3] M.Tzoumpas, *Time as motion phenomenon - Physics Laws do not apply to inertial systems*, http://viXra.org/abs/1802.0372 (section 2) [Relativity and Cosmology].

[4] R.A.Serway, C.J.Moses, C.A.Moyer, *Modern Physics*, English Edition (Saunders College Publishing, 1989).

[5] M.Tzoumpas, *Inverse (inner) and outer electric field of electrically charged particles as fourth and fifth space deformation*, http://viXra.org/abs/1503.0210 (section 1) [Quantum Gravity and String Theory].

[6] N.I.Gosdas, *The Structure of Nuclei* (section 4.8, pages 120-149), Greek Edition (SALTO, Thessaloniki, 2001).

[7] M.Tzoumpas, *Hubble's Law and antigravity - Higgs boson and gravity*, http://viXra.org/abs/1710.0082 (subsection 2.1) [Quantum Gravity and String Theory].

[8] M.Tzoumpas, *Time as motion phenomenon - Physics Laws do not apply to inertial systems*, http://viXra.org/abs/1802.0372 (section 4) [Relativity and Cosmology].

[9] M. Tzoumpas, *The structure of autonomous motion - E/M waves*, http://viXra.org/abs/1511.0025 (section 1) [Quantum Gravity and String Theory].