Explanation of Double-slit Experiment

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Abstract. According to the theory[1,2] of dynamic space, the inductive-inertial phenomenon[3] G and its forces F_G has been developed. These forces act on the electric units of the dynamic space, forming the grouping units (namely electric charges or forms of the electric field). The nature of the magnetic forces is explained, that are Coulomb's electric forces between these grouping units, created by the accelerated electron. So, Coulomb's Law for magnetism, the physical significance of magnetic quantities and the so called strangeness of the fluctuation of nucleons magnetic dipole moment are interpreted. Additionally, due to in-phase motion of grouping units, a parallel common course of their electrons and a superposition picture of their motion waves are caused as in the double-slit experiment is displayed.

Keywords: Inductive phenomenon, atomic orbitals, nucleons magnetic moment.

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1. Coulomb's Law for magnetism

The magnetic forces are described as electric ones created by grouping units[3] of the moving electrons (Fig. 1). If Q_1 and Q_2 are the moving electric charges at speeds u_1 and u_2, while Q'_1 and Q'_2 are the respective electric charges of their grouping units, then it is obvious that

$$Q'_1 = KQ_1u_1 \tag{1}$$

and

$$Q'_2 = KQ_2u_2, \tag{2}$$

where K is a ratio constant. However, between these grouping units a Coulomb's electric force[4] F_{el} is exercised, being a magnetic force F_m, so it is

$$F_{el} = F_m = K_c\frac{Q'_1Q'_2}{r^2}, \tag{3}$$

where K_c is the electric constant and r the distance between grouping units. Substituting Q'_1 and Q'_2 from the above Eqs 1 and 2 in Eq. 3, we have

$$F_m = K^2 K_c \frac{Q_1 u_1 Q_2 u_2}{r^2}, \tag{4}$$

where

$$K^2 K_c = K_m \tag{5}$$

is the magnetic constant, while

$$Q_1 u_1 = m_1 \tag{6}$$

and

$$Q_2 u_2 = m_2 \tag{7}$$

are the magnetic quantities. Substituting Eqs 5, 6 and 7 in Eq. 4, we have

$$F_m = K_m \frac{m_1 m_2}{r^2}, \tag{8}$$

that is the magnetic force representing Coulomb's Law for magnetism.

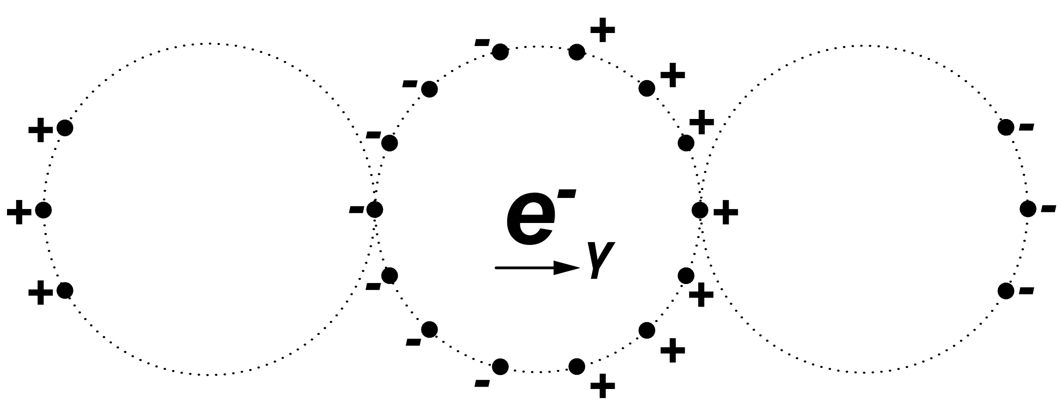

Figure 1. The grouping units and their first pair of reproduction extra grouping units

We put in Eqs 1 and 2 the speeds

$$u_1 = u_{a1} C_0 \tag{9}$$

and

$$u_2 = u_{a2} C_0, \tag{10}$$

where u_{a1} and u_{a2} the timeless speeds[5] of electric charges Q_1 and Q_2, then

$$Q'_1 = K Q_1 u_{a1} C_0 \tag{11}$$

and

$$Q'_2 = K Q_2 u_{a2} C_0. \tag{12}$$

As u_{a1} and u_{a2} are dimensionless values then, due to Eqs 11 and 12, it should obviously apply

$$KC_0 = 1 \Rightarrow K = \frac{1}{C_0}. \tag{13}$$

If we put in Eq. 4 the $K = 1/C_0$ (Eq. 13), $u_1 = u_{a1}C_0$ (Eq. 9) and $u_2 = u_{a2}C_0$ (Eq. 10), then the magnetic force becomes

$$F_m = K_c \frac{Q_1 u_{a1} Q_2 u_{a2}}{r^2}. \tag{14}$$

So, the magnetic force is represented in the dynamic space by the electrical sizes and by their timeless speeds.

The magnetic force between two parallel electric conductors is interpreted (Fig. 2), by the fact that their electrons create grouping units[3] during their motion as by the phenomenon G has been described.

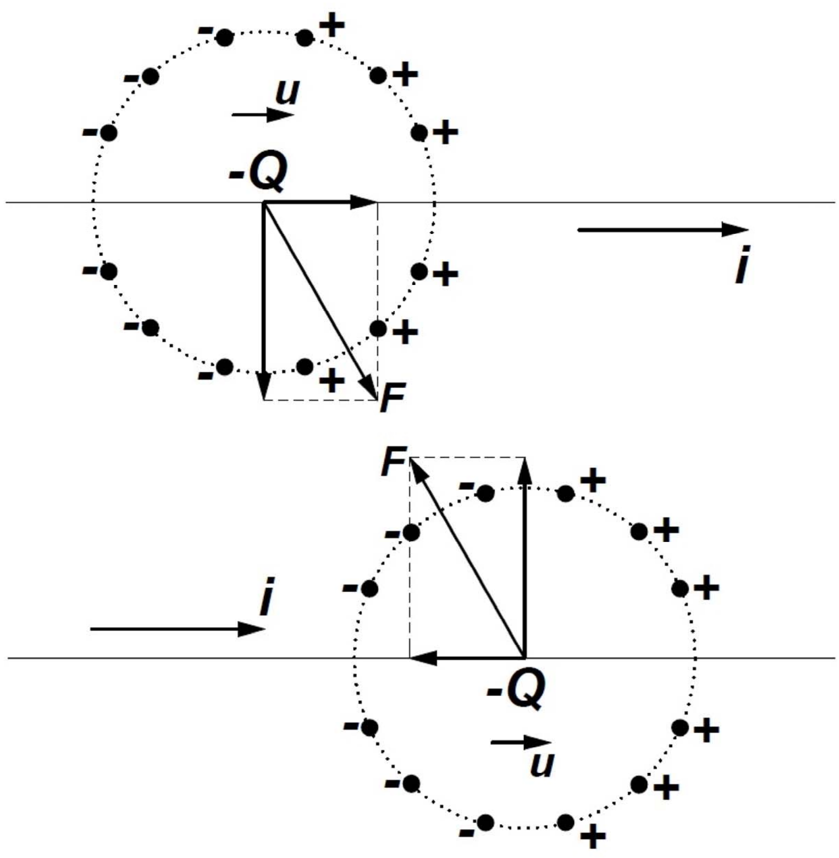

Figure 2. Interpretation of the magnetic force $F = F_m$ between two parallel electric conductors

Thus, the phenomenon[3] G is the cause for the creation of magnetic forces that occur as a result of attractive or repulsive Coulomb's electric forces between the grouping units of the moving electrons.

2. In-phase motion of grouping units - Superposition of motion waves

Dividing the magnetic force $F_m = K_c Q_1 u_{a1} Q_2 u_{a2}/r^2$ (Eq. 14) by Coulomb's electric force[4]

$$F_{el} = K_c \frac{Q_1 Q_2}{r^2}, \tag{15}$$

it is

$$\frac{F_m}{F_{el}} = u_{a1} u_{a2}. \tag{16}$$

Timeless speeds[5] of electrons are $u_{a1} < 1$ and $u_{a2} < 1$ and their product is very small, so that F_m is far smaller than F_{el} and at long distances magnetic force is negligible. However, this situation changes at short distances, where the parallel components of magnetic force F_m (Fig. 2) cause slippage of the parallel moving electrons in positions of stable balance and in-phase motion, in which magnetic force is zero, since opposite electric charges of grouping units[3] are neutralized.

Also, stable balance of moving electrons takes place at phase difference multiples of 2π or at wavelength λ.[6] Any other parallel motion of electrons at a different phase from the above creates an unstable balance, which tends to be restored at a stable balance with a parallel slippage of electrons under the influence of the parallel components of magnetic force (Fig. 2). Therefore, parallel moving electrons and their motion waves slide in positions of stable balance.

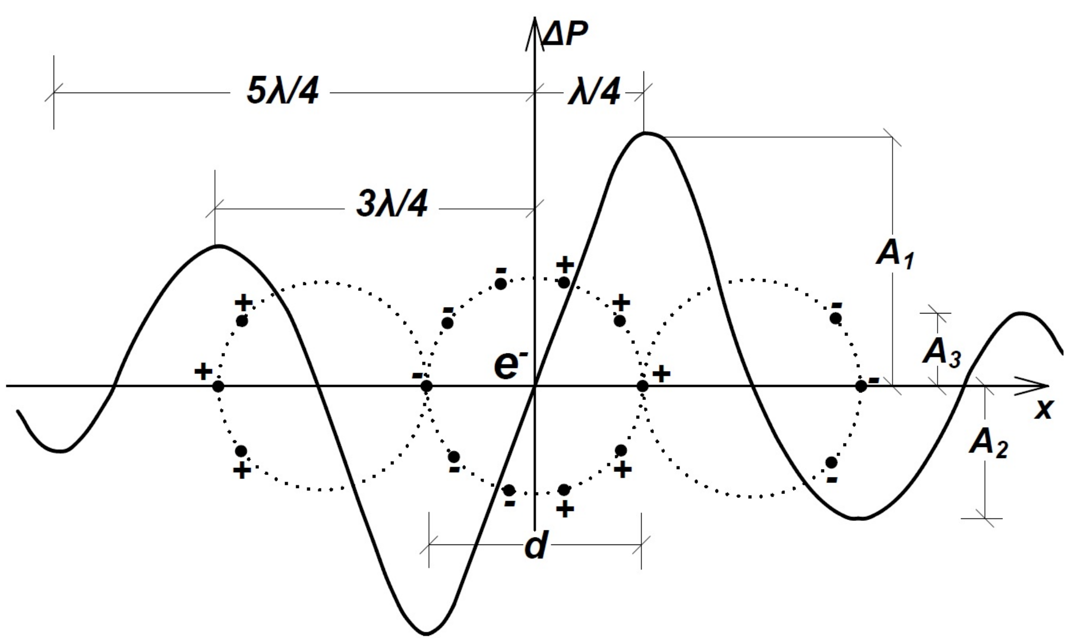

Figure 3. Descending change of pressure difference ΔP as motion arrow[7] of the electron with a motion formation diameter $d = \lambda/2$, where λ the wavelength of the harmonic fluctuation amplitude A of motion wave[6] ($A_1 = P_0 u_a^2/2$, $A_2 = P_0 u_a^4/2$, $A_1 = P_0 u_a^6/2$, where $u_a < 1$ the timeless speed[5] of the electron)

Superposition of motion waves[6] (Fig. 3) can be occurred in positions of stable balance only and in-phase motion of the moving electrons and takes place with an amplitude equal to the algebraic sum of the fluctuation amplitudes of the pressure difference[7] ΔP.

In the famous double-slit experiment[8] the moving electrons follow positions of stable balance, where their motion waves a superposition picture is displayed (caused by these motion waves), stimulated and created though by the electrons.

3. Atomic orbitals

Also, motion waves of the electrons are the cause of the self-superposition (standing waves), that are creating the atomic orbitals. This self-superposition happens so that the recycled formation of a motion wave takes place by the superposition of the corresponding in-phase amplitudes of pressure difference,[7] between the in front and behind of formation's spindle (Fig. 3). For example, if

$$n = 2 \tag{17}$$

is a principal quantum number, then the condition atomic orbital

$$2\pi r = n\lambda \Rightarrow 2\pi r = 2\lambda \tag{18}$$

of radius r requires a self-superposition of symmetrical pairs of extra grouping units-spindles (Figs 1 and 3) on the orbital length, thereby creating a standing wave of four spindles. The self-superposition of a recycled motion wave presupposes in-phase positions, achieved by rotation of the symmetrical spindles at multiples of $-\pi/2$ for the in front and multiples of $+\pi/2$ for the behind. It is noted that the creator of the theory[1,2] Professor Physicist N. Gosdas describes in excellent detail the above, clearly interpreting all of the quantum numbers.[9]

4. Fluctuation of nucleons magnetic dipole moment

Magnetic saturation is due to the inductive phenomenon[3] G, because of which the moving electron sends positive units in front and negative ones behind. Thus, the separation of the units creates a lack of positive units behind the electron and a saturation of those in front, thereby the weakening of the magnetism phenomenon due to the presence of grouping units.[3] Therefore, the increase of the electric field reduces magnetism and vice versa.

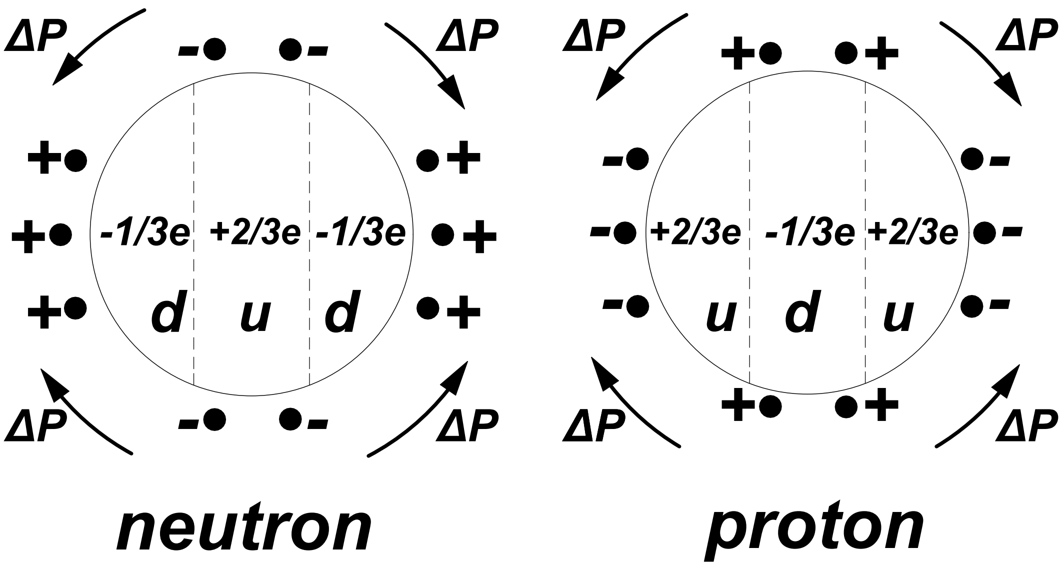

Figure 4. The same pressure difference[10] $\Delta P = (P_0 - \Delta P) - (P_0 - 2\Delta P)$ is created by the surface electrical charges (quarks) of neutron and proton and installs a stable accumulated force[7] $F_s/2$ in an antidiametrical pair of quadrants irrespective of the spin[10]

Of course, the inductive phenomenon G is observed and due to the particles spin,[10] wherein the quarks[10] act as moving charged "particles".[3] Thus, the $+2e/3$ quarks (two positive poles) of the rotating proton (Fig. 4) send easily negative units in front. The latter are in abundance in the inverse electric field of the proton,[11] which has difficulty to repel positive units behind due to the lack of them. As result it comes the reduction of magnetism and therefore the reduction of the proton magnetic dipole moment.

Correspondingly, the $-e/3$ quarks (two negative poles) of the rotating neutron (Fig. 4) send easily positive units in front. The latter are in abundance in the inverse electric field of the neutron,[10] which has difficulty to repel negative units behind due to a lack of them. As result it comes the reduction of magnetism and therefore the reduction of the neutron magnetic dipole moment.

However, this situation improves significantly in the nuclear environment (Fig. 5 shows the nuclei structure by the protons), where their lower inverse electric field[11] is changing rapidly and affects directly their magnetic field. As the rotating neutron enters in the lower inverse field of the proton (which has negative units in abundance) it acquires the possibility to increase the grouping units of its quarks, by sending negative units behind and positive ones in front, thus increasing its magnetic dipole moment. Additionally, this entrance of the neutron increases the magnetic dipole moment of the proton, whose the electric field is enhanced by the positive units of the neutron electric field.[10] Thus, the proton is facilitated to repulse the positive units behind and an equal number of negative ones in front. Note that this dependence by both fields has an enormous significance for the structure of nuclei.[12]

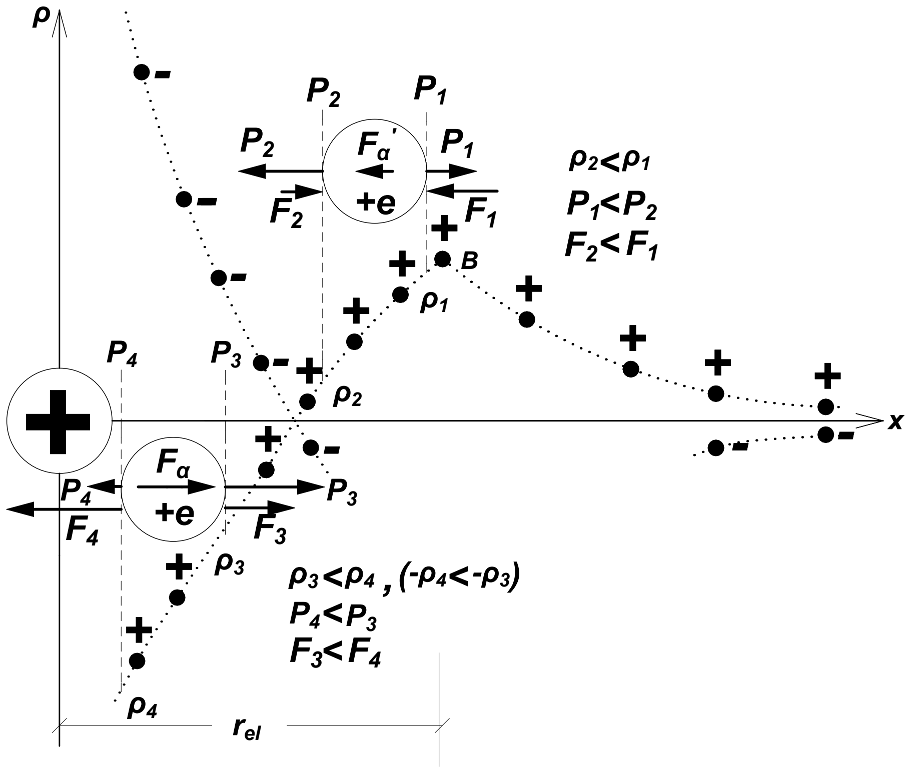

Figure 5. In the lower inverse nuclear field, which has negative units in abundance, an increase the magnetic dipole moment of neutron and proton and a repulsive antigravity force[13,14] F_a are created

It is also noted that, upon the interaction of same nucleons, their magnetic dipole moments are reduced. So, the so called strangeness fluctuation of the nucleons magnetic dipole moment is interpreted.

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