GEOMETRODYNAMIC MODEL FOR THE FIELD OF ELEMENTARY CHARGE

Frolov V. P.
V.V. Dokuchaev Soil Science Institute, Academy of New Thinking, Moscow, Russia

Summary. Under consideration is the author's model to simulate the main feature of elementary field and namely identical effect of particles different in mass and dimension on the neighbouring space. The property of non-zero divergence inherent to this model doesn't lead to dispersion of energy. The electromagnetic field proved to be a sequence of Doppler formula used with some correction for moving model. A specific form of reciprocal movement and orientation is found out to be considered as their strong interrelation.

The model proposed by the author in his paper titled "Microgeon Revival" with the aim at simulating elementary particle as a photon moving in circular trajectory of Kompton radius with the velocity of light helped constructing the field of elementary charge by using the vector of electrical field on the lines from Kompton radius into infinity. Let us assume that the vector moves around the centre of microgeon, i.e. every point of vector moves in such a way with velocity of light ( ). It becomes evident, that all the vector points are striving to form a spiral continuously stretching line intersecting the space with frequency, the value of which is calculated by the following equation:

(1),

where - is the distance from the centre of microgeon; - is the dimensionless factor to provide the volume of field to be simulated. Such intersection frequency of space by points makes it possible to simulate the main feature of elementary charge, namely its quantitative manifestation in space independing on the mass ( ) or dimenstion ( ) of microgeon ( ).

Functionally the model seems to be similar to inertial rotary flat spiral. It is obvious, that any energy is not required to maintain such movement in the absence of friction. At the same time, the spires prove to be scattered, thus reflecting divergence as any mathematical sign of the elementary charge field.

When representing the idea more clear and simple for calculation, let us multiply both parts of equation (1) by Planck's constant ( ) in order to determine the energy quantity and equate the right part with generally accepted equation for potential of the elementary charge field ( )

It follows from this, that the numerical value of spatial factor ( )

is equal to constituent of fine structure 1/137. We have every reason to assume geometric-physical pattern of this structure. It means, that each point of electrostatic field of elementary charge is seldom

intersected by vector line, namely by 137 times rarely as compared to points, which are constantly found in the plane of rotation. In view of this, one should conclude that there exists a reciprocal movement (pro bably reciprocal orientation) of elementary charges, in which their interrelation appears to be by 137 times higher than that of electrostatic movement. In handbooks published by Yavorskiy and Detlaf before 1982, such an interaction was defined as nuclear one being found out in atomic nuclei and potential of this interaction as Fermy's one.The cause of short action of nuclear forces can be demonstrated by our model more clear in comparison with Yukavy's potential [1]. It is evident, that magnetic field of moving charge can be found out as determined using the change in velocity of electrical field. Changes taking place in intersection frequency of any fixed spatial point by line of moving charge may be exposed with the help of Doppler formula. In this case variable component of electrical field of moving elementary charge proves to be represented as a difference of two frequencies inherent in intersecting spatial points by line of moving model and that which is immovable at the same point:

(2),

where - is the velocity of movement of elementary charge model; is the angle between the movement direction and the direction towards the observable point of field.

This equation is a vector potential [2] to be clearly demonstrated. It also indicates, that immovable opposite-marked charges do not completely compensate electrical field before and behind the moving model. "Traces"of electrical field may be seen in direction of model movement even in conductor with current. Such "traces" have been discovered in experiments carried out by G.V. Nikolaev [3].

Passing by immovable points of space the electrical line of model intersects them at different angles. The "turn"of intersection angle can be interpreted as rotor. The rotor in expression (2), i.e. a model of magnetic field of moving charge.

Unfortunately, for modelling of electromagnetic field (emanation) it] is necessary to resort to the help of complicated deduction, that is why the visual demonstration of model is lost. This is an internal difficulty in modelling and good imagination is needing toovercome it. But there is an external difficulty in constructing the model. The latter is designed to describe the minimum field of charge, called as elementa ry one. However, it doesn't agree with the present-day ideas about the structure of hadrons composing of particles with the charge lesser than elementary one, the so-called kwarks. By this reason, the author's attempt to publish materials concerning the proposed model has failed 20 years before.

References

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3. Nikolaev G.V. Non-discripant electrodynamics. Tomsk. 1997.