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A dynamics of a substance in an isolated spherical vortex and its relationship with radiation

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Abstract The given work is devoted to an examination of processes flowing in the viscous liquid spherical rotating vortex itself, leading to the appearing of fluxes of a substance, responsible for appearing of characteristics (potentials and intensities of the fields) in surrounding its in space.

The vortex state of a substance that was found by H.Ch.Oersted (1820) in his most known experiment with passing of a current through a wire, but this fact went undetected and, it had left not appreciated up to now.

The appearance of the coefficient c equal to the speed of light in an equation for the force of interaction of currents, which is absent in other equations for forces of interactions, that allows us to tell about that, it is in the moment by passing the electrical current through the substance, when the tangential velocity at the ends of vortex cones, creating the central "corn" of the spherical vortex (Fig. 1), reaches the velocity equal to the speed of light and in which case the ends of the vortex cones became unstable. From them the particles of a substance start to come off, that leads to the appearance of the sources of high-speed, high-temperature jets of a substance moving just as in polar so in radial directions in the center of the spherical rotating vortex. Moreover, every cone creates the fluxes in an opposite hemisphere (Fig. 1).

The jets breaking out from the ends of the cones, inheriting from them the vortex motion, at first behaves as twisted flooded jets in the body of the spherical vortex itself. But these ends of the vortex cones, passing through the viscous substance of the vortex, that they lose the velocity of the azimuthal rotation and, already at some distance from the "corn" the twisted jet behaves as not twisted. Thus, this is the reason of appearance of a convection of a substance of the vortex from its central part to periphery. The matter broken away from cones of rotation, moving in radial direction, has a range of velocities, that, in its turn, leads to a certain spectrum of fluxes, possessing various velocities of motion from $v_G < v \leq c$ (where v_G is its own velocity of rotation of the spherical vortex around its axis), i.e. up to fluxes, having velocities equal to the speed of light at outlet from the spherical vortex. The part of these hot and high-speed flows of a substance, having reached colder layers of the vortex, loses the part of their energy and runs along a layer at the velocity equal to their velocity of motion. Such "blocking" stable layer slows down and, eventually, it may stop the motion of the part of the liquid flows, which come to this layer from the central region. The head parts of an implanting flow of an emitted substance began to spread over the layer. The part of a substance gains a backward motion. These jets are similar mushroom thermics emerging in a liquid from a warmed surface. The *emitted substance* appears only in this case, when it leaves the rotating spherical vortex at the speed, which is more than the speed of motion of substance on its surface.

In the given work the deduction about forms of particles taking part in all kinds of interactions is confirmed. They are the particles - "micro"-vortices - "cones-monopoles" - magnetons, creating lines of a magnetic induction outside the body of the vortex and the motion of substance in the central part of

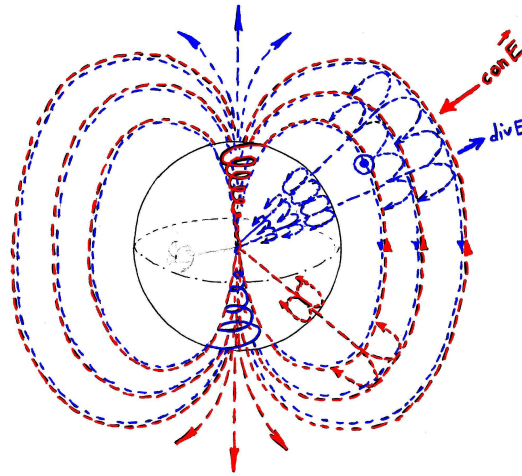


Fig. 1 The model of an inner structure of the spherical liquid vortex (of a drop of a nuclear substance), illustrated the appearance of radiation and convective, responsible for attraction.

magnetons is directed along the direction of the motion. Passing through the internal viscous medium of the vortex and losing by this due to the remarkable its viscosity the azimuthal velocity of rotating, these "cones-monopoles" turn in photons - isolated "microscopic" convective cells - Helmholtz's rings. Unlike particles, called by us "cones-monopoles" - magnetons creating the lines of a magnetic induction outside the body of the vortex, the photons have not a rotation in the azimuthal plane. The motion of the substance in their occurs only in meridional directions. This fact that Faraday had not detected the influence of the electrical fields to the light confirms the validity of the aforesaid above.

It is precisely that these "flying convective cells" that photons being the components of the radiation of a substance with the Umov-Poynting vector

$$\mathbf{S} = \frac{c}{4\pi} [\mathbf{E} \times \mathbf{H}], \quad (1)$$

that fly rectilinearly, transferring their substance along a ray of flight. Flying at the speed of light c , they do not only transfer their impulse $\mathbf{P} = mc$, but they also bear the moment of action equal to the constant of Planck h . A corpuscule - the photon in the form of the "convective cell", flying and throwing the substance forward along its motion, as if it rolls (as a wheel) along the ray of its wave vector \mathbf{k} . In this case the circle $2\pi r$ with radius r will be a length λ of the wave of the photon, created by the circulation of the substance of the photon along its outer shell. As this takes place, the "jets of the substance" creating the outer shell of the photon, are those magnetic force lines. The photon carries the quantum of an action h and, this quantum of an action is connected with the mass transfer by the photon, where its mass circulates at the speed of light c along the magnetic force lines forming it [1-3].

In the given work we develop further the proposed by us a new physical concept about the state of a substance in the nature in the kind of a viscous liquid created a self-closed spherical vortex, that allow us to have a new look at the problems of existence of different kind of fields of an interaction and, we also develop new dynamical theory of radiation, that give the possibility to have taken a new view at many processes occurring in the Nature. The mechanisms of an interaction of an emitted radiation with interacting objects are also examined.

Keywords Vortex · Radiation · Photon · Electromagnetism · Vortex Interaction

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