Faraday disc and ether

Bogdan Szenkaryk

Abstract: Faraday's disk can be used to present the truth about the mechanism of electrical and magnetic phenomena. This article presents this truth. The article presents how similar are electromagnetic and aeromechanical phenomena.

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Introduction - A few words about the ether

At the beginning of the 20th century, physicists stopped thinking about ether. Their minds were possessed by the ideas of both Einstein's theories of relativity and quantum mechanics. Today we can say that giving up the idea of ether was a mistake and a continuation of the earlier made mistakes. And the earlier mistakes consisted mainly in the resignation from the logical description of the mechanism of running physical phenomena - a logical description and for everyone understandable, that is by means of words. Symbols began to be commonly used to describe phenomena that were treated as parameters of the phenomena. These symbols in descriptions became the cause of the course of subsequent phenomena, which were again written down using symbols. In this way, the mathematization of natural sciences gradually progressed and finally, there were developed theories in which the course of physical phenomena became for people unimaginable.*1)

Giving up the concept of ether did not contribute to the logical development of interpretations of physical phenomena. The concept of ether was abandoned, and instead of it the term "physical vacuum" started to appear in descriptions of phenomena. When using the concept of ether, there was a need to explain what this ether is composed of, how it is built. The concept of physical vacuum did not impose such requirements any more. But as early as the 1930s and beyond, some astronomers and physicists were already convinced that there was some kind of matter in a physical vacuum. The concept of dark matter emerged, and its existence was evidenced by the gravitational effects observed by astronomers. This was reflected in the way galaxies moved and interacted with each other. The dark matter became what was lacking so far to explain the course of astronomical phenomena. But dark (i.e. invisible) matter can also be used to explain phenomena that you can encounter every day. Because even in primitive conditions it can be stated that a lump of magnetised iron has around 1% more weight than the same lump of iron before it was magnetised.*2)

The laws of physics in Faraday disc The previously unexplained physical phenomena can logically be explained, but the existence of more subtle matter than atomic matter should be taken into account. This can be shown with the example of the Faraday disk. Experimental physicists say that the operation of the Faraday disk is based on physical laws, which have been quite thoroughly learned and described. This knowledge of physicists can be illustrated by means of Fig.1 with attached explanations.

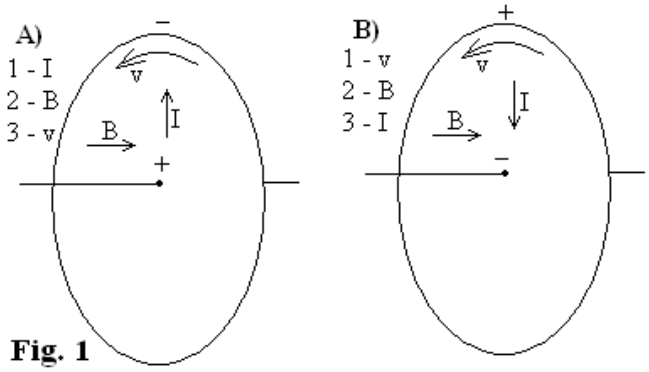

Fig. 1

Two right-hand rules in the Faraday disk

A) Electricity as a source of motion of the conductor (disk)

When 4 straightened fingers of the right hand indicate the turn of the magnetic field line and the thumb indicates the conventional return of the electric field line, then the conductor will move in the same direction in which the open hand makes the pushing motion.

B) Motion of the conductor (disk) as a source of electrical current

Another rule of the right hand determines the direction of the current induced in the conductor. When the magnetic field induction vector enters the right hand and the thumb shows the direction of the conductor's motion, then the 4 fingers extended show the turn of the electric field line in the conductor.

The Faraday disk, which is presented in the form of sketch A), rotates under the influence of applied voltage and flowing current from an external source. The disk rotates due to the existence of magnetic induction. The source of induction can be an external magnet, which can either rotate with the disc or remain stationary. It can also be that the very disk is a magnet. In either case, the flow of current within the disc, between its external circuit and the axis, is the cause that forces the disc to rotate. It is important to note that the poles of the external power source through the brushes are connected: positive (+) to the axis of the disc and negative (-) to the external circuit of the disc. With this connection of the electric poles and when the magnetic field vector is directed towards the disc, the disc rotates to the left.

In Fig.1, there are sketches of discs A) and B), and they differ only in the direction of the electric field lines, or else they differ in the direction of the flowing electric current. This difference is related to the cause which induces the physical process. For disc A), the cause is electric current I, which induces rotational motion of the disc, and for disc B), the cause is rotational motion of the disc, resulting in an electric field and current. These processes involve a magnetic field whose induction vector is (from the observer's point of view) directed towards the disc.

Faraday's paradox

In fact, today's physics does not explain in a logical way what is the mechanism of the course of phenomena that are related to the Faraday disk. There is talk of the existence of the Faraday paradox. Experiments have been carried out in which a copper disk and a magnetized disk could rotate together or separately on one axis next to each other. Strange relations were observed. Under certain circumstances, the copper shield became a source of electric current that flowed between the shield's axis and its periphery. This was happening when the copper disc was rotated and the magnetic disc was stationary. This could be expected because the disc was rotating in a magnetic field. But the current flowed also when both discs were rotating together in the same direction. This phenomenon was a surprise for researchers. The second surprise was that there was no electric current flowing when the copper disc remained stationary, and the magnetic disc was being rotated. And according to their expectations and understanding of physical laws, the current in a conductor should flow regardless of whether the conductor moves against the magnet, or whether the magnet moves against the conductor.

In this case, however, there is a significant difference because the field of the magnet relative to the conductor is constant. The expectation that the motion of the magnet will cause a flow of electric current is similar to the expectation that a transformer will transfer energy of direct current from the primary circuit to the secondary circuit. And there arises a question: if a rotating magnet, because of its constant magnetic field, does not cause a flow of electric current in a stationary Faraday disc, then why does a current arise in a rotating disc when the magnet remains stationary? The shortest answer may be that in this case there are unrecognized, completely new physical phenomena. But just these phenomena have recently been discovered and the purpose of this article is to present them.

The essence of magnetism

Phenomena that occur in Faraday disc can easily be explained. However, one has to take into account the existence of subtle matter, which used to be called ether, later it was renamed into a physical vacuum, to finally start calling it dark matter. Here this subtle matter will be called the protoelectronic centre.*3)

In order to understand the occurring links between electric current and magnetism, it is necessary to introduce a new concept - protoelectron. Protoelectron is a concept - a word which is to facilitate and simplify descriptions of physical phenomena. Because instead of using multiple words in many places, for example, in the form of a centrally symmetrical field, it is more convenient to use one word protoelectron. The protoelectron is what exists before the electron is created. Protoelectrons are centrally symmetrical fields (c.s. fields) that exist both where matter exists in the form of atoms and in the physical vacuum. Protoelectrons are particles of matter that manifest their existence in physical experiments. They will play a key role in the further description of phenomena. Because even if we talk about an electron, this word will replace the following set of words: "a dense cluster of large amounts of protoelectrons."

Using symbolic signs for parameters in descriptions of magnetic interactions is very useful. However, despite this usefulness,

symbolic signs do not help in understanding the physical mechanisms of occurring phenomena. The constant electric current flowing in the conductor and the direction of the magnetic needle's deflection near the conductor have become the basis for determining the direction of magnetic field lines. This kind of symbolism does not reflect the essence of what is happening in and around a conductor. A flowing electric current is in fact an electron stream flowing in a conductor. This flux contributes to the partial orientation of the position of atoms in a conductor. This happens because atoms usually have an asymmetrical structure, this refers especially to ferromagnetics. The flowing stream of protoelectrons in a conductor interacts with protoelectrons that are around the conductor. For this reason a directed motion of protoelectrons also takes place around the conductor. This motion is the cause of the density, which means that the closer to the conductor, the higher the density of the flowing protoelectron particles in the protoelectronic medium. This phenomenon of concentration of protoelectrons in a flowing stream is clearly visible in the form of interaction of two parallel conductors with electric current. In the same direction of current in both conductors they are attracted to each other. In the opposite direction of the current in these conductors their repulsion from each other takes place.

A magnet construction consists in action of a cylindrical induction coil, in which an electric current flows, with, for example, a steel core placed inside the coil.. The electric current flowing in the coil windings has a similar effect in the core as everywhere around it. Namely, it forces in the core the flow of particles of protoelectronic medium, which partially exists there in the form of electrons. This flow of electrons causes partial orientation of atoms position in the steel core. In this way a structure is formed in the magnet, which to some extent resembles a windmill.

The winged disc and Faraday disc - similarities

When working on a Faraday drive, physical processes take place that can be logically explained on the basis of classical physics. For this purpose, you can use the similarity of processes that take place in another type of disc, namely, you can use the processes that take place in the winged disc.

A winged disc is a mechanical structure. It consists of a cylindrical casing and a rotor embedded in the casing. There are two orifices in the casing: one in the outer part (outer orifice) and the other in the axis area of the rotor (inner orifice). The most important, because the working part of the rotor is connected to each other by two cylinders: the inner and the outer one. The walls of the cylinders are in fact networks through which air can flow freely. These cylinder walls are the supporting structure for slanted wings. The wings are parallel to the axis of the rotor and, depending on the direction of air flow, the rotor can rotate in one direction or the other. If the rotor is rotated by an external motor, the air can flow through the disc in the direction from the inner to the outer opening or in the opposite direction, depending on the direction of rotation of the rotor.

The operation of a winged disc, i.e. the direction of air motion and the direction of rotation, is easy to imagine if you consider, for example, a section of the upper part of the rotor with a large diameter. Then this section is almost straight, as shown in the figure below.

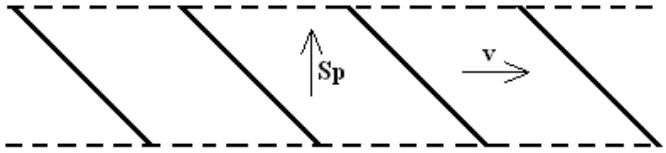

Fig.2. A fragment of a winged disc (cylindrical drum) - the carrying nets, the wings of the disc and the axis of the disc (located far below and invisible in the figure) are perpendicular to the surface of the figure;
Sp - direction of airflow motion;
v - direction of motion of a fragment of the winged disc drum;

The motion of the airstream from the bottom to the top - in other words, from the axis of the disc to the outer orifice in the disc casing - forces the fragment of the disc to move to the right, i.e. rotate the disc to the right. This happens when the process is forced by the airstream. The same figure can be used to illustrate the process when it is forced by moving a fragment of the disc to the right at a speed v. Because in this situation the direction of the airstream Sp remains the same.

The tilt of the wings in the winged disc is here a reference to the deformation of the structure of matter in the Faraday disc, where this deformation outside manifests itself as a magnetic field. The airstream Sp, which flows in the winged disc, is the equivalent of the stream of electrons (or otherwise, protoelectrons) flowing in the Faraday disc during its operation.

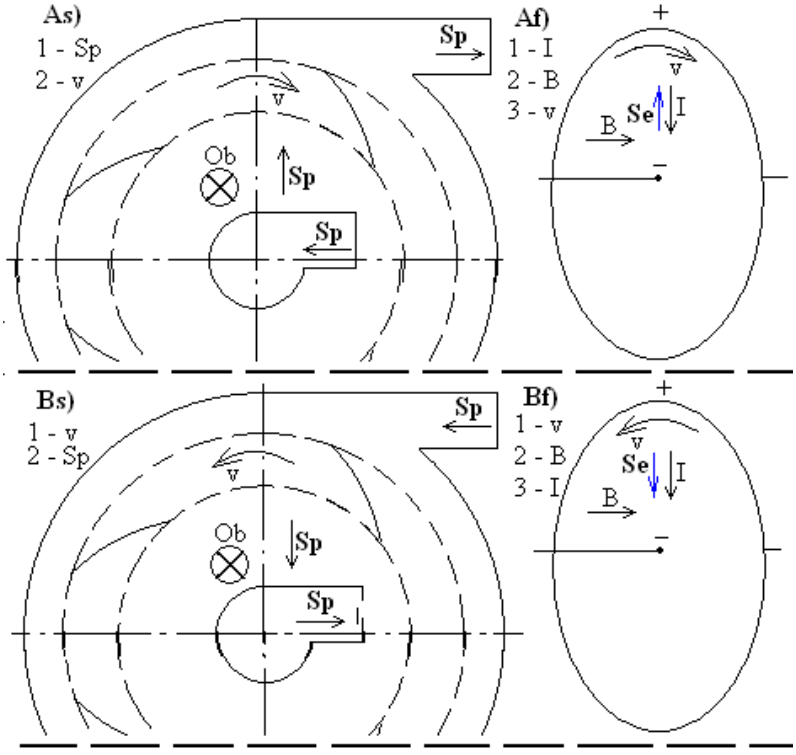

Fig. 2

Winged disc L **Faraday disc**

As) The cause of the rotational motion of the disc is the airstream.
Bs) The cause of the airstream is the rotating motion of the disc.
L means that from the observer's point of view the wings are inclined "left". The tilt of the disc wings is equivalent to the deformation of the matter structure in the Faraday disc, which manifests itself as a magnetic field. "Ob" and the circle with an X symbolizes the observer and the direction of observation.

Af) The cause of the rotating Faraday drive is electric current.
Bf) The cause of the electric current in the disc is its rotary motion.
$\vec{B}$ - Magnetic field induction - Symbolic indication of deformation the matter structure of the Faraday disc.

The sketches of the Faraday disc Af) and Bf) shown in Fig.2 were copied from Fig.1 and to some extent changed and supplemented. In Fig.1 and Fig.2 the conventional direction of the flowing electric current is from the positive pole (+) to the negative pole (-). In Fig.2 a blue arrow is added, which symbolizes the direction of flowing electrons in Faraday disc. The introduced change concerns the part of Fig.2 Af) in relation to the part of Fig.1 A). These sketches of the Faraday disc represent a situation in which the rotating motion of the disc is caused by electric current flowing in the disc. In Figure 2 Af), the electric pole signs are swapped and changed to opposite direction of rotary motion of the disc.

You can now compare the directions of rotation of the winged L disc and Faraday disc with the directions of flowing airstreams (Sp) and streams of electrons (Se). The comparison shows that the Faraday disc works on a similar mechanical principle as the winged disc. Probably it will be useful to explain why in Fig.2 in sketches Af) and Bf) the Se vectors are directed in opposite directions, while in both cases the electric poles are connected in the same way. In both cases the negative pole (-) is connected to the axis of the Faraday disc.

Well, the "secret" of this difference in directions of vector Se is related to the necessity of distinguishing what in each of these two cases is a source of electric current. In the case of the Af) sketch, the polarity signs refer to an external power source. The negative pole (-) of the external current source is connected to the axis of the disc and there is an excess of electrons. So this excess of electrons through the magnetized matter of the disc will flow towards the positive pole (+). In the case of the Bf) sketch, the situation is the opposite - it is the disc itself that has become a source of electric current due to its rotation. Near its axis there is an excess of electrons. After connecting the external receiver with this external part of the electric circuit, a current in the form of a stream of electrons will flow in the direction from (-) to (+), and in the disc the electrons will move from (+) to (-).

The ending - Ether in a new form

Without taking into account the existence of subtle matter, physical phenomena cannot logically be explained. Herein is an example of ignorance, which can be removed from the science of nature. It is only necessary to take into account the fact that

there is a material medium which consists of much more subtle particles of matter than protons and neutrons.*4)

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*1) More about errors in physics can be read in the article entitled "Myths of 20th Century Physics" on http://pinopa.narod.ru/Mity_fizyki.pdf (Polish version) or on http://pinopa.narod.ru/Mity_fizyki_ru.html (Russian version).
*2) About concentration of additional matter in a lump of iron during magnetization can be found in the article "Magnetization - its effect on mass" on http://pinopa.narod.ru/Magnes_Masa_uk.pdf.
*3) Details on magnetism can be found in the article "Magnetic field? ...But it is very simple!" on http://pinopa.narod.ru/06_C2_Magnet_pole_pl.pdf (Polish version) or on http://pinopa.narod.ru/06_C2_Magnet_pole_ru.pdf (Russian version).
*4) Fundamental particles of matter are described in the article "The essence of fundamental particles of matter and interactions" on http://pinopa.narod.ru/Protoelektron_uk.pdf.