

Longitudinal Thermomagnetic Effect

Alexander M. Mishin

Abstracts

A phenomenon of anisotropy of thermal conductivity of electrical conductors, which take place along the force lines of magnetic field, is theoretically predicted and experimentally proved on the basis of etherodynamics law discovered earlier. About 20% of total thermal flow go towards South Pole during the heating of the middle part of metal magnet. It is supposed that this effect explains the fact of thermal asymmetry of the Earth's and the Sun's hemispheres.

In modern physics there is a known thermomagnetic effect, which characterizes the behavior of thermal flow in solid conductor placed into constant magnetic field. This Rigi-Leduke effect can be detected in the conductor with temperature difference, which is placed into constant magnetic field. This field is perpendicular to the thermal flow. Due to the effect a secondary difference of temperatures appears in the direction perpendicular to the initial thermal flow and to the field. The effect is explained by the influence of Lorentz force on motion of current carriers in magnetic field. Let's underline that the indicated physical phenomenon is observed in the plane, which is perpendicular to the vector \vec{B} . In this sense, this phenomenon as well as all known galvanomagnetic and thermogalvanomagnetic phenomena can be called transverse, as all classical electrodynamics in general.

However, a publication [1] appeared in 1988. This publication described longitudinal galvanomagnetic effect, which involves the interaction between electrons and magnetic field along the lines \vec{B} . The author of this publication found a steady (on average) electrical current between the poles of conducting horseshoe-shaped magnet using sensitive microamperemeter (north pole had negative polarity, south pole had positive polarity).

An attempt to repeat this phenomenon in my laboratory gave negative result. Perhaps, the complexities with repeating became the reason of the fact that the experiment by A.K. Sukhval that is very important for theoretical physics, had not due response in official science. Besides, the non-less interesting results by G.V. Nikolaev, who studied longitudinal electromagnetic effects [2], also were ignored.

I became particularly interested in longitudinal galvanomagnetic and thermomagnetic phenomena after I **succeeded to understand fine etherodynamic structure of magnetic field basing on fundamental properties of ether** and main law of etherodynamics [3-5]. It followed from my

theoretical model that any real electromagnetic system, which includes metal conductors and magnetic circuits, i.e. solid physical bodies, is an autonomous system in ether sense. It has its own center or gravitational axis. Therefore, the notion of "left" and "right" in the formation of quasimaterial ("Yan") and antiquasimaterial ("In'") structures of free ether [5] can be applied to the ether multibeam vortical-wave radiation excited by electrical currents. It is important to understand that we speak about "topological subharmonics" of classical electromagnetic processes; formation of these processes is closely related to atomic-molecular structure of usual substance.

A piece of cylindrical conductor is shown on the Fig. 1.

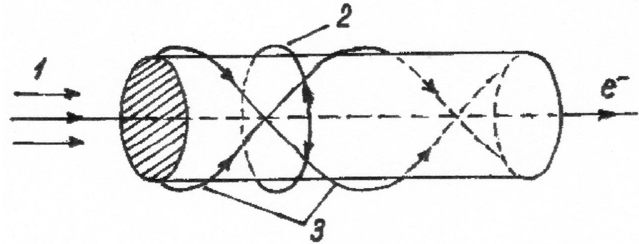


Fig.1

Electrical current flows through this conductor (the direction of electrons movement is shown). The following ether waves are excited inside the conductor and around it:

1. First, it is the longitudinal wave 1, which coincides with the direction of electron current.
2. Secondly, these are two longitudinal waves 2 of electromagnetic type ("topological" electromagnetic waves), which propagate right and left at a right angle to the electron current in opposite directions and phases. These waves form closed circular trajectories around the conductor and they are self-compensated.
3. The main waves are the longitudinal-transverse waves 3, which propagate at the angle of 45° to the vector of current: quasimaterial wave (yan) goes left and anti-quasimaterial wave (in') goes right. Such waves form two screw flows crossing at the angle of 90° , which are the ether "phantom" of classical magnetic field.

Lines on the Fig. 1 show only the direction of movement of waves, which really fill all bordering space. The weaker longitudinal-transverse waves, which propagate at other angles, as well as insufficiently known waves in radial plane are not considered here for model simplification.

If the conductor is winded round ferromagnetic core in the form of solenoid, then the **autonomous center of gravitation** coincides with the axis of magnetic core. In this case the longitudinal-transverse waves together with longitudinal wave form a single rotating toroidal vortex, which includes two counter-directed screw

flows of in' and yan types, as it is symbolically shown on the Fig. 2.

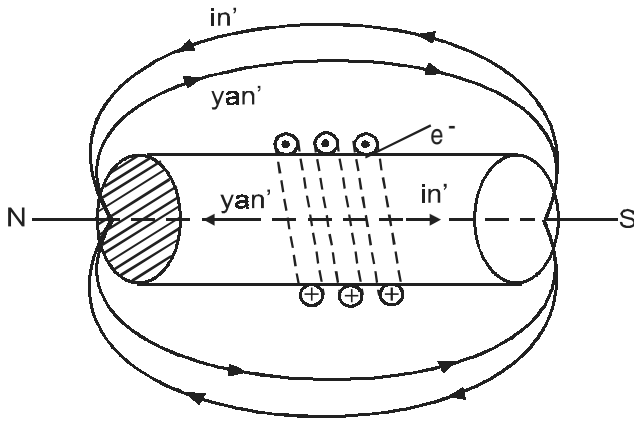


Fig.2

(The direction of electron current is shown on the cuts of the conductor). So, we get a vortical system of solenoid size and consisting of elementary quasiparticle and anti-quasiparticle enclosed in each other. The trajectories of total flows are shown on the Fig. 2, though really these are screw movements with the angular step of 45°.

The inner structure (space-time spectral composition) of vortical-wave toroidal screw flow is sufficiently different in air and in ferromagnetic, that's why the specific potential barriers appear on the boundaries of poles, which can be easily controlled by extrasensory method. **An excess of right-handed vortices (in') is formed on the external side on the North Pole, and an excess of left-handed vortices (yan) is formed on the South Pole.** It is naturally that the most concentration of ether flow is observed inside the ferromagnetic core. That's why due to the difference of in' and yan essences the magnetized rod for certain physical processes should have anisotropy along the force lines. Of course, these properties are inherent to any constant magnet.

Similar theoretical reasoning became the basis to carry out laboratory experiments to find out the indicated anisotropy. There was no reason to suppose that the magnet itself can generate significant Electro Magnetic Force (EMF) or thermo potential, **but it was expected that spatial ether anisotropy is able to create the asymmetry of direct and reverse thermal flows created by external energy source in magnetized ferromagnetic.**

The main experiment included the following (Fig. 3).

A horseshoe-shaped metal magnet with the magnetic intensity of about 400 Oersted (from the magnetron IM-58) placed on a laboratory table was heated in its middle part up to the temperature $T_M = 30^\circ$ or 40° C by means of wire glazed resistance $R = 2\text{K}\Omega$. A pulsating current was passed through the resistance from the

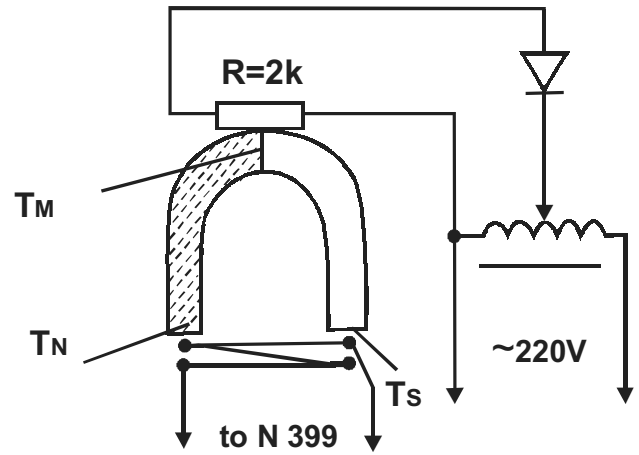


Fig.3

autotransformer plugged to the supply of alternating voltage 220 V. The heaters were removed from the magnet at a distance of more than 1 meter. The temperatures of magnet poles T_N , T_S and the temperature of its middle part T_M was measured by thermometer to within $0,1^\circ\text{C}$. Besides that, the ends of thermocouple (of 0,3 mV per degree sensitivity) were pressed to the poles of the magnet by means of special iron shoes. The voltage from this thermopair was delivered to the self-registering microammeter N399.

The first experiments gave striking results. With the temperature in the laboratory $T_L = 20^\circ\text{C}$ and heating of the middle part of the magnet up to 40° the **difference of temperatures between North Pole and South Pole was discovered as $\Delta T = T_S - T_N > 1^\circ\text{C}$ and the thermal flow was directed to South Pole.**

To find the value of longitudinal thermomagnetic effect we introduced the **coefficient of thermal asymmetry (CTA)**, which weakly depends on the temperature of the environment:

$$CTA = \frac{T_S - T_N}{T_M - T_{Av}}, \quad T_{Av} = \frac{T_S + T_N}{2},$$

where T_S , T_N are the temperatures of South and North poles of the magnet, T_M is the temperature of middle part of the magnet and T_{Av} is the average temperature of the poles.

For $T_M = 40^\circ$ and values of the effect (they were stable during first days) $T_N = 34,5^\circ$ and $T_S = 35,5^\circ$, we got $T_{Av} = 35^\circ$ and the coefficient is:

$$CTA = \frac{35,5 - 34,5}{40,0 - 35,0} = 0,2$$

The difference in thermal flows going to the magnetic poles appeared to be 20% and in certain cases it reached 30%! The oscillogram of the value $\Delta T = T_S - T_N$ is given on the Fig. 4.

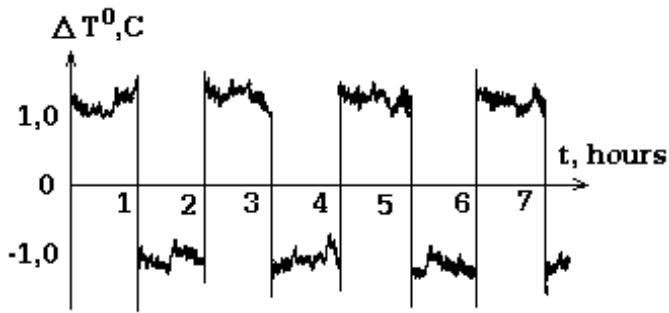


Fig.4

The change of sign of the signal here was obtained by turning over the thermocouple every hour that is equivalent to the change of magnetic poles. Let's note that usually intensity of other parapsysical phenomena was decreasing in two times during three hours after start of the experiments [6].

After a week (for the second week) of the experiment the effect became less stable. It was discovered that the value ΔT is influenced by splashes on the Sun (disturbance in the center of the Universe [5]) and magnetic storms as well as anisotropy of space in area of immovable magnet, which is changing due to rotation of the Earth.

Longitudinal thermomagnetic effect while existing proves that vortical-wave structures of free ether described in the beginning of the article has a great influence on heat transport in the body of metal magnet along the force lines of magnetic field (by the vector). This means that the quasimaterial particles **yan** and **in'** are able to interact with electrons and influence the heat transport directly or indirectly. New thermodynamic processes are qualitatively different from the classical ones in dependence on the external cosmophysical factors as well as its laboratory specificity. For example, an anomalous fact of **temporary loss of thermocouple sensitivity (disappearance of Zeebek effect!)** was found during long contact with poles of the heated magnet. After removal of the magnet, thermoelectrodes doesn't react to the temperature difference (even 10°) during about one minute (the sensitivity of 0,3 mV per 1 degree, limit of scale on the device N399 0 is 1 mV). Galvanic shorting of poles of the magnet made by any conductor influences on value of the effect.

It is significant that asymmetry of thermal flow is not observed in dielectrical ferrite materials placed into magnetic field.

Gradient of temperature in the body of metal magnet should create the difference of electrical potentials between North and South poles like Thomson effect. This new thermogalvanomagnetic effect waits for its researchers. At that North Pole should have negative potential like in A.K. Sukhvalov's galvanomagnetic experiment.

Reviewing laboratory experiments we give the formula of the discovery:

Previously unknown phenomenon of asymmetrical propagation of thermal flow in the direction of metal magnet (electromagnet) poles while heating of its middle part was experimentally established. At that South Pole heats up more than North Pole. Thus, thermal conductivity of magnet or conductor placed into magnetic field depends on the direction of thermal flow along the magnetic field force lines.

The new phenomenon was called the longitudinal thermomagnetic effect (longitudinal to the force lines of magnetic field).

In the applied problems new thermomagnetic effect gives a **technical possibility to control a certain part of thermal flow in conductive materials by means of magnetic field**. Special investigations should be made to find out specific circumstances of use of this discovery, its technical and economic appropriateness. It can be so that the mentioned effect has **main perspectives as a detector of nontraditional ether disturbances**. Finally, it is really important to know that such physical phenomenon does exist in nature and techniques to take into account its influence on traditional processes. Essentially, that anomalous behavior of thermal flows in magnetic field is the most steady among all studied parapsysical phenomena.

Another result is not less actual and perspective for Weltanschauung. The effect of asymmetry in propagation of thermal flows should be observed in the body of the Earth and other heavenly bodies having magnetic field. If there is really an iron core in the center of the Earth, then the Earth as a magnet is allied to our laboratory model. **As a result, North geographical Pole, which corresponds to South physical Pole, should be warmer than South Pole. It is observed in reality.** It is known that geophysical equator is shifted to the North at 6° relatively to the geometrical equator, and the northern hemisphere is different by its higher volcanic activity. We should expect that concentration of **yan**-essence and negative electrical potential on North Pole will be concerned with the nature of Aurora Borealis. In perspective, on the basis of discovered effect the methods to forecast the tendencies of latitudinal thermal flows changes can be developed.

Astrophysical observations show [7] that **northern and southern hemispheres of solar photosphere also have different temperature** (differential of brightness) particularly in the periods of the increased solar activity. This difference in brightness differential reaches 15% in maximum, and exceeds 150° by the temperature difference. The unsteady character of the observed processes is mentioned in the work [7], but connection with magnetic field of the Sun is not considered.

The discovered effect together with other experimental results [6, 8] serves as a basis for some very important observation: The Earth planet as an integral ether system is analogous to the solenoid (magnet) described above, since it includes two really observed spatially combined toroidal screw vortexes. The flows of these vortexes intersect at the angle of 90° . On the surface of the Earth the vortical-wave flow **yan** is directed from northeast to southwest, and the flow **in'** is directed from southeast to northwest. Naturally, there is also the longitudinal wave from east to west as well as transverse wave, all in full correspondence with the main law of etherodynamics [5]. It was empirically determined for sure that **"interference" of ether waves creates a steady vortical grid of recurring staggered core vertical vortexes and antivortexes known in parapsychical literature as Hartman grid.**

Generalization of this phenomenon for all spatial-time (scale) hierarchy of etherodynamic systems was made in the work [5], i.e. for stars, galaxies and entire Universe. But it will be logically to extend this generalization on the smaller scales. Correctness of such course of argumentation again is proved by empirical fact, i.e. **existence of "Hartman grid" on a human body in the form of well-studied Chinese and Indian system of acupuncture.** Therefore, solenoid and constant magnets also should have stable and specific vortical grid for these systems.

The author has experimentally proved that parapsychical systems work more stable in the knots of Hartman grid. This implies that effective detector on non-traditional ether waves will be created by a person, who will discover "acupunctural" system of vortexes on the body of constant magnet (electromagnet) and will learn to use it. It is possible to establish a determined connection between material world and the world of "topological harmonics" only through this stable structure of macrovortexes that is obviously demonstrated by biosystems.

The obtained results expand the limits of theoretical physics. The new effect proves that standard model of electromagnetism needs serious revision, because stereodynamic multidimensionality of ether was not taken into consideration during its development. Free ether exists along with physical vacuum. It was called "free ether", because in contrast to material level for the "free ether" there is no fractal "pressure" from our Galaxy. Due to this reason, free ether presented by macroscopic structures acts regarding material world as a "phantom" medium, which doesn't manifest stable inertial properties. Exactly this explains the existence of energy-informational barrier between world ether objects of the different scales.

In conclusion, let's underline again that my parapsychical experiments in contrast to phenomena and laws of classical physics, which relate to "flickering" physics of free ether, presented in material world by **the known phenomenon of flicker effect.** Randomicity of the latter is explained by total action of "flickering" laws, which

characterizes the interaction between superfluid medium and objects of common world.

The laboratory system with magnet described above demonstrates one of the kinds of non-traditional interaction. ***Increase of magnet sizes can proportionally increase the average value of CTA that follows from the main property of flicker effect (increase of intensity with increase of time period and spatial scale of the process).***

Elementary scientific logic makes to recognize that vortical-wave objects of other spatial-time levels are required to explain the longitudinal thermomagnetic effect besides macroscopic ether structures of the "physical vacuum". These vortical-wave objects are symbolically called **"topological subharmonics" of classical material processes.** The nature of flicker effect, which is incomprehensible for orthodox scientists, is explained by the influence of the mentioned objects onto our world, and the discovered thermomagnetic effect is the clearest window to the new physical reality.

However the "elitist" science wants to hide in a comfortable niche of primitive materialism, evolution inevitably will turn the pages of history and will light the divine rainbow of other worlds on the sky of natural science.

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