

An Experimental Investigation of the Physical Effects in a Dynamic Magnetic System

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History of this project

Team of scientists from Moscow Aviation Institute (MAI) was created on the basis of "Machine Industry Projects" Institute of association "Aeropromservice" in 1990 as a technical physics laboratory. The research work was made to investigate electromagnetic fields and to find efficient methods of electromagnetic energy transfer. Financing was organized by private investors and the work was produced in close collaboration with Chair number 310 of MAI, especially Prof. PhD. L.K. Kovalev, Prof. PhD. V.V. Rybakov and PhD. K.V. Ilyshin.

Also in 1990 an analysis of laboratory data on hydrodynamics of vortex structures was published, which have special properties (Physics of Negative Viscosity Phenomena. Prof. Victor P. Starr, Massachusetts Institute of Technology) and there was discovered a new understanding of the structure of quantum media that can be considered as the base of electromagnetic and gravitation interactions. A series of experiments was produced to confirm the theory and in 1991 the Technical Task to manufacture "A device for conversion of inner energy of matter" was written. The experimental setup was started in 1991 and it continued for 2,5 years up to the middle of 1993.

We could work with the setup only for a very short period of time due to investor's financial problems lead to de-installation of the device and the laboratory was closed in 1993. This paper is a description of the results.

From 1993 to 1999 we tried to find financial support for the work from different government bodies, such as the Russian Academy of Science. Unfortunately we failed to find serious interest to this problem from them.

Today the project "Astra" is developing as analytic, engineering and patent work and it is a private initiative. At the present time we have all the documentation needed to produce the experimental setup and we have an agreement with some organizations to produce research work into a complex program, which also includes the medical biological aspects.

Abstract

It was demonstrated that a magnetic system, which is based on rare-earth magnets could be used to convert different forms of energy. ***With some critical mode the experimental setup becomes fully energetically autonomous. This is accompanied with some local changes in the weight, some decrease in the surrounding air temperature and creation of concentric "magnetic walls" around the setup.***

Introduction

We have experimentally investigated physical effects in a system based on rotating permanent magnets [1]. Below the technology of manufacture, assembly, and the results of testing are disclosed.

Technological description

The converter consists of an immobile stator and rotor, which carries fixed magnetic rollers. The magnetic system of the converter has about 1 m diameter. The stator and magnetic rollers were manufactured from separate magnetized segments made of rare-earth magnets (REMs) with a residual magnetization of 0.85 T, a coercive force of 600 kA/m, and a specific magnetic energy of 150 J/m. Then the magnetized segments were assembled and glued together in special mounting stage that is necessary for tolerance in positioning of the segments. With this mounting stage it became possible to glue the elements into the common unit. The stator incorporated REMs with total weight of 110 kg and the rollers contained 115 kg of the same REM material. The elements of magnetic system were assembled into a single structure on a special platform made of non-magnetic alloys.

The platform construction includes several springs and shock absorbers to move the converter in the vertical direction on three slides. There is an inductive transducer to mark any changes of weight. The total weight of the platform with the magnetic system in initial state was 350 kg.

Description of the observed effects

The converter was installed in 2.5-m-high laboratory room on three concrete supports at ground level. In addition to ordinary steel-reinforced concrete ceiling blocks, the converter environment included a standard electro-generator and an electro-motor. The converter was accelerated by means of the electric motor. The speed of rotation was gradually increasing until the ampermeter, which was connected in series with the motor circuit showed zero input current or back current direction. This mode of operation corresponds to 550 rpm, but the motion transducer began to indicate a change of weight beginning from 200 rpm. Then the electric motor was disconnected by means of special electro-magnetic overrunning clutch, and standard electrodynamic generator was connected to the main shaft of the converter.

On some critical mode (~ 550 rpm), the rotor demonstrated a sharp increase of the rotation speed; this was accompanied by slow-down in the rate of changes in weight. At this moment, first 1 kW load was connected to the system. Immediately upon connection, the rotation speed began to decrease. Weight changes in the system depend both on the consumed power (the load consists of ten standard 1kW heaters) and on the polarization voltage applied to the system. For maximum consumed power (7 kW), the change of weight reached up to 35% of initial value (350 kg), which corresponds to 50% of the pure weight of the working body of the converter. An increase of output power in load above 7 kW led to a gradual decrease of the rotor speed and, eventually, to the mode of operation when the system was leaving of the self-generation regime and the rotor speed at decreasing until it finally stopped. The application of a high-voltage signal to the cellular ring electrodes could control the platform weight. The electrodes were placed at 10 mm above the external roller surface.

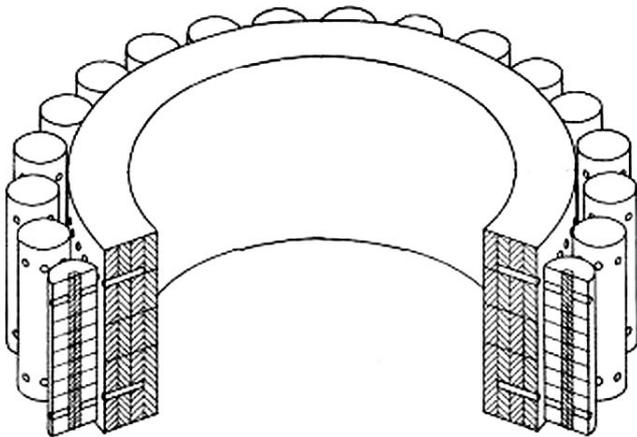


Fig 1

Direction of the rotor motion demonstrated certain hysteresis. For the clockwise rotation, the critical mode

was observed for 550 rpm and the axial force acted against the gravity vector. For the counter-clockwise rotation, the critical mode was observed for 600 rpm and the extra force was co-directed to the gravity vector. The onset of the critical mode exhibited a scatter within 50–60 rpm. It should be noted that, probably, some other critical resonance mode might exist, which corresponds to some high rotor speeds and a greater level of load. Starting from the general theoretical considerations, the output mechanical energy must nonlinearly depend on the internal parameters of the converter magnetic system and the rotor speed, so that the observed effects are far from optimum. Establishment of the maximum output power, maximum weight variation, and the converter energy resource is a topic of great theoretical and practical interest.

Besides the phenomena described above, a number of other interesting effects were observed in the process of experimenting with the system. ***In particular, the converter operation in the dark was accompanied by a corona discharge with a pinky-blue light emission and by ozone production.*** The ionization cloud was formed around the stator and rotor and it acquired a toroidal shape. The general corona discharge showed wavy pattern corresponding to the surface of rollers: zones of increased emission intensity were distributed along the roller height in a manner similar to that observed for the high-voltage microwave induction energy storage in the pre-breakdown state. These zones appeared to be yellowish-white, but the emission was not accompanied by sounds characteristic of arc discharge. Nor did we observe any visible erosive damage of the stator and rotor surfaces.

One more effect, which has never been previously reported, is the appearance of vertical "magnetic walls" surrounding the setup. We have detected and measured an anomalous constant magnetic field around the converter. The measurements revealed zones of increased magnetic field strength, which have the order of 0.05T arranged coaxially relative to the system center. The direction of the magnetic field vector on the "walls" coincided with that in the rollers. The structure of these magnetic zones resembles the pattern of circular waves on the water surface. No anomalous field was detected by the mobile magnetometer employing the Hall effect in the areas between zones.

The layers of increased magnetic field strength propagated with no attenuation to a distance of 15 m from the converter center and then rapidly vanished at the boundary of this 15-m area. Each layer zone was 5–8 cm thick and had sharp boundaries. The layers were spaced by 50–60 cm, the spacing slightly increased with the distance from the converter center. A stable pattern was also observed at height of 5 m above the setup (the measurements were conducted in a second-floor room above the laboratory; no tests were performed on next floor).

Another interesting phenomenon is the anomalous temperature drops in the immediate vicinity of the

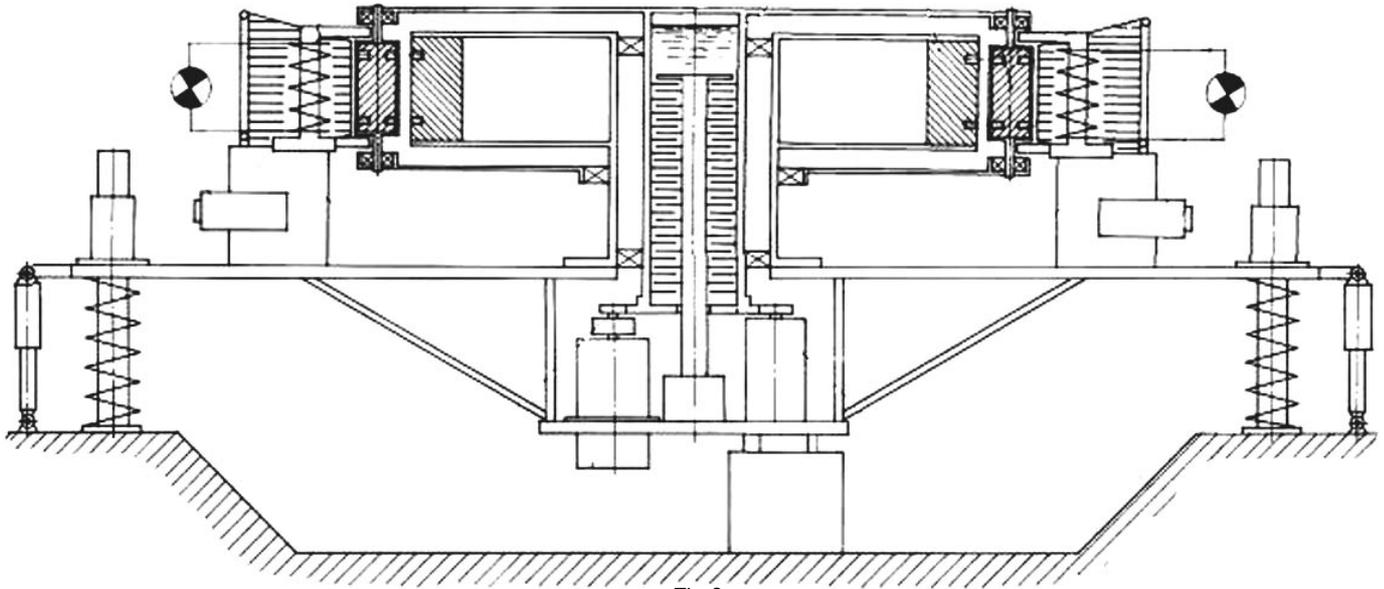


Fig 2

converter. When the room temperature level of the laboratory was about +22 C, the temperature at the converter surface was 6–8 degrees lower. Similar temperature variations were detected in the vertical magnetic “walls.” An ordinary alcohol thermometer with a reading step of time of 1.5 min detected the temperature changes in the walls. The temperature variations in the magnetic “walls” could be easily detected directly by the human body: a hand inside of the “wall” immediately feels cold.

Discussion of results

All the experimental results described above are very unusual and need some theoretical rationalization. Unfortunately, attempts to explain the obtained results within the existing framework of physical theories showed that none of these models can explain the whole set of experimental data. Recently, Dyatlov [2] attempted **to combine the concepts of electricity and gravity** by introducing the so-called electronavigation and magnetic-spin coefficients into the Heaviside gravity equations and into the Maxwell field equations. This provides the relationship between the gravitational and electrical components, as well as between the magnetic and rotational components in a given medium. The assumptions are built around a special model of inhomogeneous physical vacuum, the so called **“the vacuum domain model”** [2]. It is suggested that the extra relationships are absent outside the vacuum domain. Although it is difficult to imagine a long lasting vacuum domain, the proposed model provides us with a satisfactory explanation (at least some qualitative phenomenology) of discovered emission, the system

weight changes and the conversion of energy taken from the surrounding medium into the rotational mechanical moment of the rollers. Unfortunately, the theory cannot provide a physical pattern of the observed phenomena.

Conclusion

At the present time some work into a new advanced version of the converter are in progress at Glushko town, Scientific Industry Corporation “Energomash” (Moscow). This experimental setup will allow us to get a new deep insight into the physics of the observed phenomena. Another goal is the creation of commercial samples for practical application.

References

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2. V.L. Dyatlov, *Polarization Model of Heterogeneous Physical Vacuum* (Inst. of Mat. Novosibirsk, 1998).

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