of non-linear elements of electric currents in metal conductors, which are bent at some angle.

A valuable information about antigravitational device according to Ph.D. Dokutchaev V.T., was published in 1989[17]. This device had weight less than one gram and it used electromagnetic waves to create propulsion force of about a milligram. It is not the limit for the devices of such type, and a more powerful result can be created. *(Editor's: See the above article "Design of an Engine for Free Space based on the Pondemotor Effect" by Acad. Gennady F. Ignatyev, who got a propulsion force about 60 N, i.e. equivalent to 6 kg-force).*

Space has different reaction on translational motion and rotational motion. Gyroscopes use this property. Member of Byelorussian Academy of Science, Albert I. Veinik discovered these effects during his experiments.

Prof. Kaznacheev made an analogous experiment using the rotating gyroscope and he explained weight changes as a result of the inner lifting force [18].

There are a number of proofs on possibility to create the reactionless space propulsion drive. This problem requires a serious State research program.

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Experimental Investigations Based on the Model of Electromagnetic Solitary Waves (Solitons)

(It is published here in short version)

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Using transceiver of electromagnetic solitary waves [1] and mathematical idea on the nature of electromagnetic (EM) solitary waves (solitons) [9] there were made experimental attempts to find interaction of artificially generated EM solitary waves and natural formations, which contain the same solitary waves. To do this the experiments on influence of EM solitary waves radiation on objects, which have various nature, were made, in particular, on biological processes and biophysical objects (processes of bioplast fission and neurostructure of brain and others), on ultrahigh frequency plasma, on the process of atomic nucleus decay as well as gravitation. In all of them **we found specifically soliton effects**, which were due to the fact that the mentioned effects and processes contained **coherent spiral structures**. These structures were stipulated by the presence of multilinked (many-sheeted) EM solitary waves.

For example, an effective influence of EM solitary waves was observed on the following biological objects. Growth of food barm in solution of honey kvass increased two times (in comparison with process in standard solution) during radiation by solitary waves of positive polarization (by electromagnetic component). It was made by two transmitting magnetic antennas (MA) shifted relatively each other at 90-degree and 90-degree phase delay. The same barm slowed their reproduction during radiation by solitary waves of negative polarization. Obviously, such effect is related with the change of spiralization threshold. Change of this threshold stimulates the excitation of electron-vibron field (it is some component of triune field of many-sheeted EM solitary wave). At that electromagnetic component of EM solitary wave field (biofield) was observed before as luminescent filaments of mitogenetic (ultraviolet) radiation for process of the cell fission.

In another experiment a single (for the time of less than 1 second) radiation by EM solitary waves on simple

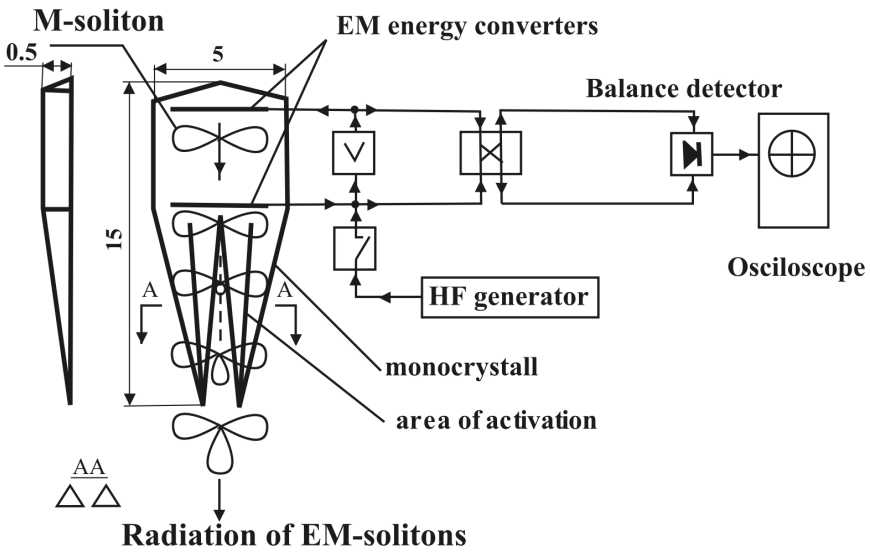

Fig. 1
Principal scheme of EM solitary wave transceiver

water (which was used for plants) led to acceleration of the plants growth and it can be related with homeopathic memorization of space-time torsion by chemical clusters (globules) of water molecules. This torsion is called by EM solitary waves of radiation passing through the water [4].

Analogically it was found [5] that radiation of EM solitary waves (with screened electromagnetic component) called the deceleration of radioactive β-decay of cesium isotope Cs at approximately 5%, it was measured according to the readings of radioactivity meter RUP-1.

Radiation of EM solitons of linear polarization increased the critical temperature of superconductor made of ceramics (disk of 10 mm diameter) at 10%. Such effect may be stipulated by partial re-orientation of electron spin (analogously to [6]) from anti-ferromagnetic state to ferromagnetic state.

Soliton microwave discharge looking like ball lightning [6] had ball shape of about 2 mm diameter, moving towards radiation. In perspective, to create self-sustaining chain reaction, as it is known, one should increase the volume, density and temperature of plasmoid up to some critical proportion.

Thus, in conclusion we can say that considered theoretical scheme of excitation and propagation of EM solitary waves allowed to create principally new technical generators and detectors of EM solitary waves. These devices can be applied for creation of introscopy geophysical devices, radio-relay and space communications systems of practically unlimited distance of operation, speed and density of transmitted and received information.

Generators and detectors of EM solitary waves can be used for principally new level of research of biological objects in medical application.

In context of the research made a possibility of distant radioactivity and gravitation control [10] using the field of standing EM solitary waves (or EM pulse-waves) of higher topological symmetries comes to light.

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