# Support of non-traditional concepts

Dmitrii Kouznetsov

*Institute for Laser Science, University of Electro-Communications,*
*1-5-1 Chofugaoka, Chofushi, Tokyo, 182-8585, Japan*
*email:    dima@ils.uec.ac.jp*

compiled October 16, 2010

Violation of some of well established concepts is considered. The conservation of energy and the Second law of Newton are assumed. Inertioids are shown to contradict not only the First and the Third laws of Newton, but also the principle of relativity of the movement. The violation of the principle of relativity is suggested to arrange the device that measures the absolute speed of the inertioid. The realization and demonstration of such a device would provide the strong evidence in favor of intertioids and sufficient argument to refute the First and the Third laws of Newton.

## I.    INTRODUCTION

In history of Science, many proposals were not confirmed: creation of new chemical elements in the chemical reactions, violation of the Laws of thermodynamics [1], violation of the Principle of Equivalence [2], violation of Laws of Newton [3, 4] and so on. Some of such proposals are still under discussion. In particular, it is claimed that the support-less propulsion does not violate the conservation of energy, id est, the device, that violates the Laws of Newton [3, 4], has no need to be a perpetual motion machine [5, 6].

From the first look the "non-traditional" proposals can be qualified as pseudoscience and rejected. On the other hand, in some countries, such important branches as Theory of Relativity, Quantum Mechanics, Cybernetics, Genetics were qualified as pseudoscience and physically suppressed [7]; the distinguishing of science from pseudoscience is sometimes difficult [8].

Science can be distinguished from pseudoscience by its refutability, id est, by the ability to formulate some non-trivial predictions, that can be used to reject the concept [9]. The fundamental concepts of physics are refutable, and in order to support the non-traditional concept, some traditional concepts should be refuted. In order to simplify the refutation of the concepts, the relations between them should be revealed. For example, is it possible to violate the First Law of Newton without to violate the Second law? Is it possible to violate the Third law of Newton, but still use the concept of conservation of energy and the principle of relativity? Is it possible to perform an experiment such that the "General Theory of Relativity" by A.Einstein and the "Relativistic Theory of Gravity" by A.Logunov [2] give different predictions about the result?

The new concept may negate the previous concepts; the scientific revolutions [10] should be allowed. The easier is to arrange an experiment to negate the concept, the less trivial are the predictions, the more refutable is the concept; the refutability makes the concept scientific [9]. However, if some new, non-traditional concept contradicts the fundamental and well established concepts, then, the strong evidence is necessary to consider the new concept seriously.

For example, if the new concept negates the axioms of arithmetics [11], for the support (and for the refutation of the arithmetics) it would be sufficient to represent some natural number through the product of primes by two non-equivalent ways.

For refutation of the General Theory of Relativity, it would be sufficient to detect the deviation of the narrow beam of gravitational waves from the coaxial beam of electromagnetic waves due to gravitational interaction with some mass nearby. Unfortunately, up to beginning of century XXI, no beams of gravitational waves (similar to the laser beams) are available.

In the similar way, in order to establish the theory of inertioids, id est, the suppport-less propulsion, one needs to refute some of the Laws of Newton.

Due to the technical difficulty with beams of gravitational waves mentioned, the author cannot yet suggest a simple reliable experiment that would distinguish the inertial force from the gravitational one (negating the Principle of Equivalence and confirming the Relativistic Theory of Gravity [2]). Therefore, in this article, I consider only the case with violation of Laws of Newton reported recently [3, 4, 5, 6]. Below, the experiment is suggested to support the concept of the support-less propulsion.

## II.  DEFINITIONS

In this section, I collect the definitions I need. The definition of science is already suggseted in [12]; while that paper is available only as a preprint, I repeat the definition:

Science is kind of knowledge, activity and notations, based on concepts that have all the six properties below:

**S1.** Applicability: Each concept has the limited range of validity, distinguishable from the empty set.

**S2.** Verifiability: In the terms of the already accepted concepts, some specific experiment with some specific result, that confirms the concept, can be described.

**S3.** Refutability: In the terms of the concept, some specific experiment with some specific result, that negates the concept, can be described.

**S4.** Self-consistency: No internal contradictions of the concept are known.

**S5.** Principle of correspondence: If the range of validity of a new concept intersects the range of validity of another already accepted concept, then, the new concept either reproduces the results of the old concept, or indicates a way to refute the old concept. (For example, the estimate of the range of validity of the old concept may be wrong.)

**S6.** Pluralism: Mutually-contradictive concepts may coexist; if two concepts satisfying S1-S5 have some common range of validity, then, in this range, the simplest of them has priority.

Also, in order to deal with Laws by Newton, they are reformulated here:

**N1.** There exist some reference frame such that if some body does not interact with others, then its center of mass moves straight with constant speed.

**N2.** If the interaction of some system with the exterior can be expressed in terms of forces, then the acceleration of the center of mass of this system is equal to the sum of forces affecting it, divided by the total mass of the system.

**N3.** If the interaction between two systems A and B can be characterized with force, and the system A affects the system B with force $\mathbf{F}$, then system B affects system A with force $-\mathbf{F}$.

The Principle of Relativity can be formulated as follows:

If the Second Law of Newton and other laws of physics are valid in some reference frame $S_1$, then they are valid also in any other reference frame $S_2$ than moves with constant speed with respect to reference frame $S_1$; and there is no way to detect the absolute movement of the reference frame.

This formula is adjusted for the case, when the First and Third laws of Newton are not accepted.

In this paper, inertioid is any machine or any system, that provides a force that does not satisfy the First and the Third Law of Newton. The First and the Third Laws are entangled: if the interaction between some subsystems of a body causes the movement of their center of mass, then the interaction of the subsystems in does not satisfy the Third Law, and vice versa. However, in order to deal with forces, one needs to keep at least the Second Law; over-vice, such quantities as mass and force loss their meaning. In this case, the "exterior" (which interacts with the body) is an equivalent of the Luminiferous aether, getting the recoil.

## III.  CONSERVATION OF ENERGY FOR THE INERTIOIDS

Descriptions of inertioids [3, 4, 5, 6] use the terms "mass", "coordinate", "time", "power", "force". This indicates, that the physics of inertioids does not negate all the traditional physics, and some of the traditional concepts still can be used. In particular, it is recognized, that the inertioids are not a perpetual motion machines. For this reason, in this paper, the case with conservation of energy is considered. For simplicity, let us deal with the single-dimendional movement of the intertioid; the generalization to the three-dimensional case is straightforward.

Assume that the energy is conserved in some reference frame. Consider some inertioid that moves with velocity $v$, providing the force $F$. Assume that this velocity does not change much during the experiment. Then, the conservation of energy means, that the inertioid provides the power $P = Fv$. The inertioid may be not perfect, it may dissipate some power. Assume that the dissipated power can be measured, as well as the total power consumed. The difference between the total power consumed and the dissipated power gives value of $P$. Then, the velocity of the inertioid can be expressed: $v = P/F$.

One has no need to fight for high efficiency or high value of $F$; the only need is to calculate the power $P$ spent for the movement, and the force $F$ that the inertioid provides. Therefore, the device that measures the speed, can be small; for the detection of the generated force, it should be just above the level of noise; this is easier than to design a big inertioid that would be able to move a vehicle or to change the orbit of the satellite reported [3, 4].

The detector of the absolute movement above would be very strong argument to refute the First law of Newton in support of the possibility of the support-less propulsion. This

would be an academic and scientific way to conclude the discussion of inetioids.

## IV. CONCLUSION

The inertial propulsion device [3, 4, 5, 6], inertioid, is considered assuming conservation of energy. Such an inertioid is not compatible with the principle of relativity, giving the way to measure the absolute speed. Such a measurement would give the direct answer on the question, wether the stars and planets move round the immobile Earth; this would be the modern solution of the problem formulated few centuries ago. The detection of the absolute movement would be strong support of inertioids, gravitsapas and the related non-traditional concepts. Before such confirmation, the inertioids should be treated as perpetual motion machines.

I am grateful to the colleagues at Citizendium [13] for the important discussion.

———————————————

[1] A.Stanley. "Perpetual Motion Machines". Scientific American, 1968, **218** (1), 115122.

[2] A.A.Logunov, M.A.Mestvirishvili, Yu.V.Chugreev, "On incorrect formulations of the equivalence principle", PHYS-USP, 1996, **39** (1), 7379.

[3] A.Kislyakov. Russia to help develop nuclear-powered spacecraft. RIA Novosti, 29 March 2005, `http://www.globalsecurity.org/space/library/news/2005/space-050329-rianovosti01.htm`

[4] Russian scientists test perpetual motion machine in space "Pravda", 14 April 2009, `http://english.pravda.ru/science/tech/14-04-2009/107399-Russian_scientists-0`

[5] Vladimir Gundarov. "Valery Menshikov: We do not invent the perpetual motion." Aviation explorer, 4 February 2010 (In Russian). `http://www.aex.ru/fdocs/2/2010/2/4/16891/`

[6] V.A.Zhigalev. Destruction of torsion reserarch in Russia. Second physics, 2009. (In Russian). `http://www.trinitas.ru/rus/doc/0231/008a/1076-zd.pdf`

[7] Genetics in the Soviet Union: Three Speeches From the 1939 Conference on Genetics and Selection. Science and Society Volume IV, No. 3, Summer 1940. `http://www.marxists.org/subject/science/essays/speeches.htm`

[8] B.L.Beyerstein. Distinguishing science from pseudoscience. Victoria B.C.Canada, 1995,1996. `http://www.sld.cu/galerias/pdf/sitios/revsalud/beyerstein_cience_vs_pseudoscience.pdf`

[9] K.R.Popper. Conjectures and Refutations: The Growth of Scientific Knowledge. Routledge, 2003.

[10] T.S.Kuhn. The Structure of Scientific Revolutions. University of Chicago Press, 1962.

[11] D.Kouznetsov. The Mizugadro's number. Preprint Samizdat, 2010. `http://zhurnal.lib.ru/k/kuznecow_d_j/mizugade.shtml`

[12] D.Kouznetsov. Place of science in the human knowledge. Preprint ILS, 2010. `http://www.ils.uec.ac.jp/~dima/PAPERS/2010mestoe.pdf`

[13] `http://en.citizendium.org/wiki/Reactionless_propulsion`