

# **Manifestation of the Conservation of Angular Momentum in Different Aspects of Human Life**

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The paper unites different phenomena of Physics and human life, having nothing common from a first look, on a base of the angular momentum and its conservation in various manifestations like the Nipher effect, aerodynamic circulation, mind-matter events and others.

All the dissimilar objects, including even social ones, can be physically represented with the Field Gyroscope, which is a quantum object having measurable parameters like a power, angular momentum and others. The instruments for that have been developed by the author. This approach enables analysis of relations between wide classes of phenomena in terms of their interconnectedness.

One of today's conceptions of the organization of the World is based on Descartes' approach [1, p.3], considering spinning of universal vortices, as a cementing base of everything.

In XX century this got a further development [2,3], which declares that any spinning/rotation produces its specific agent –a Torsion Field. Numerous experiments of lasts decades have shown that Torsion Fields, TF, are real and have their specific manifestation [11, The Collection].

The recent paradigm says that even human thoughts have a field, TF-base, not to say about more “mechanical” phenomena [4].

This is a stimulus to relate different profound phenomena of our life on one common base.

One of the fundamental laws of the spinning/rotation is a Conservation of Angular Momentum.

Basing on that, let's consider different phenomena and manifestation of conservation of angular momentum as their common denominator.

## **1. The Nipher Effect.**

When very first X-ray tubes came to the stage on a border of 19 and 20<sup>th</sup> Centuries, while experimenting with a free-rotating cathode modification, Nipher revealed that the cathode experiences spinning as the current passes inside the tube [5,6], Fig.1.

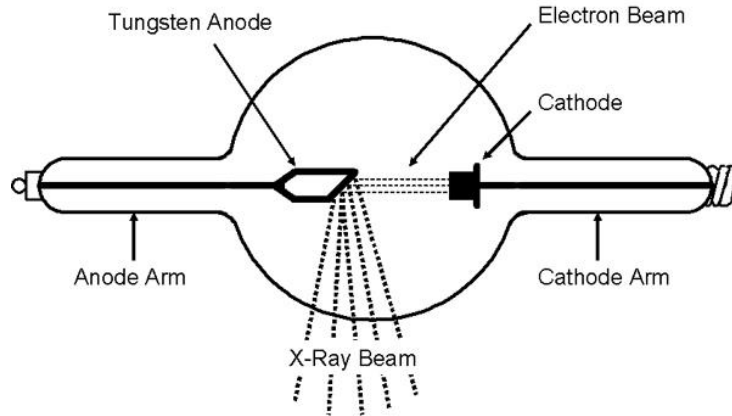


Fig.1. A free-rotating cathode of the X-ray tube experiences spinning as a current passes through the tube

N.P. Myshkin, who studied phenomena of rotating objects in a flux of the radiant energy, believed that rotating the cathode is caused by unknown ponderomotive forces, manifesting itself in the cathode rays as well as other radiant fluxes [6].

The scientists of that time were puzzled with this, but today we explain this in terms of the spin and the conservation laws [7].

Actually, the cathode rays are a flux of the electrons.

Electrons have a spin, which is a quantum manifestation of the angular momentum. Its value is  $\pm 0.525 \times 10^{-34} J \cdot s$ . When zillions of electrons leave the cathode, they carry away a certain angular momentum. Because the initial angular momentum of non-powered a cathode-electrons system was zero, it tends to keep this state. By this reason, the cathode starts to spin to compensate the lost angular momentum with the opposite one. The modulus of the cathode angular momentum has to be equal to that of collective one of the left electrons. But electrons and the cathode have opposite signs of their angular momentums.

Let's estimate a reality of that.

Each the electron leaving the cathode develops a derivative of an angular momentum  $\vec{L}_i$  which produces an elemental torque  $\vec{M}_i$  of the cathode.

$$\frac{d\vec{L}_i}{dt} = \vec{M}_i = [\vec{R}\vec{F}_i] \quad (1)$$

The total torque, transferred to the cathode, is a sum of the elemental torques developed by all the electrons for a time  $t$ . Number of these electrons is  $It/e$ , where  $I$  is a current.

Here,  $\frac{d\vec{L}}{dt} \approx \frac{\Delta\vec{L}}{\Delta t} = \frac{\Delta\vec{L}}{\tau}$ . The  $\tau$  is a time between collisions of two electrons.

Time of leaving the crystal lattice is of the same order as the time between two collisions of the electrons. We can calculate the time  $\tau$  between the collisions, basing on a relation between mobility of electrons  $\mu$  and the mass  $m$  of electron

$$\mu = \frac{e\tau}{2m} \quad (2)$$

That is

$$\tau = \frac{2m\mu}{e} \quad (3)$$

Having  $\mu \sim 1.0m^2V^{-1}s^{-1}$ ,  $m=9.1e-31kg$  and  $e=1.6e-19C$ , we get  $\tau \sim 1.0e-11s$ .

Finally, we have for the cathode of a radius  $R$ :

$$\vec{M} = \sum_{i=1}^n \frac{d\vec{L}_i}{dt} \approx \frac{\Delta\vec{L}_i}{\tau} \frac{It}{e} = \frac{\Delta\vec{L}_i}{2m\mu} It = [\vec{R}\vec{F}(t)] \quad (4)$$

Therefore, the total torque of the cathode will be gradually increasing as the current passes inside the X-ray tube.

Value  $\Delta L$  of the total angular momentum can be easily estimated. It's composed of the spin and orbital momentums of electrons. While the spin momentum is  $0.53e-34 J*s$ , the orbital one can be as one order as higher, so we can consider their sum as  $\sim 1.0e-33 J*s$

Let's estimate the torque  $M$  acting on the cathode.

For 100 mA =0.1 A cathode current of X-ray tubes and the parameters of the formula (4) given above it, we get  $\Delta M/\Delta t = 0.56e-4 N*m/s$ . That is, for each the second, the cathode will gain an additional  $0.56e-4 N*m$  torque.

For 1 cm radius cathode, having a freedom of rotation, the force applied to its perimeter will be increasing for  $0.56e-2 N$  each the second. Even if the friction force acts, the accumulated torque will overcome it at some moment. As the result, the cathode will be spinning. Acceleration of the spinning finally will be equilibrated by a friction force.

Nipher's effect is a good bridge between micro and macro worlds. Origination of this torque is possible due to discrete nature of the electron angular momentum.

## 2. Aerodynamic Circulation.

We know that there is a *circulation* of air around a moving airplane wing.

Due to this circulation, the upper plane has more speed of the air, and, due to Bernouilli's equation, the differences of pressures between the lower and upper planes origins.

But what does compel the air around the wing to move around it according to the circulation law?

Once again, the Conservation of Angular Momentum. The initial angular momentum of a Wing-Air System equals zero. As the wing moves, the vortices origin at its rear edge and leave it. The leaving vortex takes away some angular momentum.

And the conservation law forces the air around the wing to rotate in opposite direction to keep the sum of angular momentums of the gone vortices and that of the circulation equal zero, Fig.2.



Fig.2. Origination of the circulation around a moving airplane wing. The vortices at the rear edge trigger a motion of the air around the wing according to the angular momentum conservation law.

It looks like two engaged gears in a gearbox.

This is a pretty simple manifestation of the Conservation of Angular Momentum Law.

### **3. The Thought Uttered is a Lie?**

#### **The Angular Momentum of a Thought?**

We encounter different modifications of this phenomenon pretty frequently in our life. Everybody has noted: when he or she speaks out a “raw” thought, not enforced with a real implementation before the thought leaves our mouth, something opposite to our plans happens.

The idea about field nature of our thoughts was spoken out in frames of new scientific discipline - Psycho Physics [4].

In particular, this can be based on a Spin-Torsion mechanism.

Spin-Torsion fields are related to any spinning/rotational process as its agent.

Can the angular momentum of human thoughts be measured?

The very idea sounds pretty heretical.

On the other hand, a direct influence of human consciousness/sub consciousness on physical instruments and experiments is not something new.

First of all, we have to mention a pretty rare phenomenon of mentally-induced bending small objects like tea spoons.

While this phenomenon remains as an object for further studying, we can recall pretty measurable manifestations of a direct influence of the human thoughts on physical objects.

Back in 1969, Helmut Schmidt, a German physicist, working at the Boeing Company revealed a direct influence of the mental induction on the statistics of a radioactive decay of Strontium-90.

In our days, this experiment is transferred to Random Number Generators, RNG, having no radioactive components and actually available to a wide circle of the public [8, pp.79-81]. In the referred device, a normal, not-influenced operation looks like a random motion of a light spot in CW and CCW direction with odds 50% by 50%. The influence of some people, having a developed psycho-kinetic activity, can alter the motion of the light spot in one selected direction by odds over 10000 to 1.

Speaking of a hidden potential of the human thoughts, we have to recall so called “Pauli effect”. Wolfgang Pauli, a famous Swiss theoretical physicist, was also known as a person whose very presence in a laboratory made the instruments, sometimes very expensive, nonfunctional [9, pp.20-22]. By this reason, the experimental physicists tried to avoid his presence in the laboratories by any polite means.

It has to be said, that this category of people is well-known in a technical world.

The author of this publication was a repeated witness of that how a complex electronic equipment, fixed and then tested by electronic technicians during 24 hours, got broken after 1-2 hours testing by a special engineer who did nothing physical to it. Only after this person was transferred to other department, the mishaps ceased. At the same very company, the author knew a technician whose look, directed to powerful transistors working in the equipment under a high voltage yet at a heavy current, damaged them in few minutes after powering the equipment. By this reason, that person was prohibited to concentrate a look on the heavy operating transistors more than few seconds.

The list of this kind can be continued endlessly. Speaking of the influence of human thoughts and emotions on RNG, we have to mention a well-known today fact that RNG of the Global Consciousness Experiment went out their normal statistics 3-4 hours prior to tragic events of September 11, 2001 in USA [4, p.67].

After that, it does not look amazing that human thoughts and emotions can affect the measuring instruments directly in a measurable way.

The author of this publication has developed a family of the instruments for measuring localized spinning electromagnetic fields –Field Gyroscopes, FG [13,14,15] . The instruments are named as *SEVA*, which stands for a Spinning Electric Vector Analyzer.

FGs have a mass and angular momentum as well as other features of a classical mechanical gyroscope. But being the field objects, they have additional specific features like a quasi-resonance, developing a negative mass of FG and others. Moreover, FGs are quantum objects, what superimposes a discreteness of their behavior as well as interaction with other real quantum objects like quanta and elemental particles [10,15].

By the way, the very name of the FG-detectors, *SEVA*, means an *altruistic service to others* in a sacred *Sanskrit* language. The author learned this 4 years later he named the instrument this way. The chances of occasional coincidence are  $(1/26)^4 = 1/456976$ . A probability to figure out the 4-digit bank code is 47 times higher. So, the author believes this matching is not occasional, but its hidden background is out of the brackets of our current topic.

The latest model, SEVA-Integral-M, Fig.3, is capable to react on human emotions.



Fig.3. SEVA-Integral-M1 - the latest instrument of the SEVA-family

Influence of thoughts and emotions on the localized field spinning, the Field Gyroscope, was discussed in details in [15].

Figs. 4 and 5 show the measurable results of these experiments. The thoughts and verbal emotions change spinning of FG.

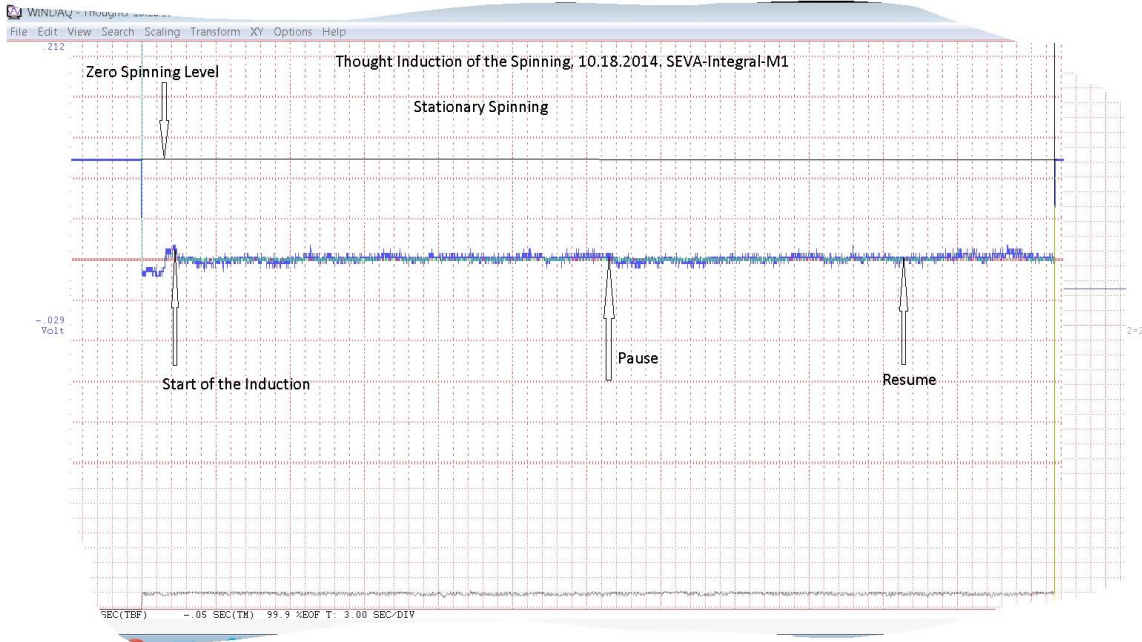


Fig.4. Thought-induction of imaginable CW spinning in vicinity of the SEVA-sensor influences the background FG. The experimenter stood 0.5 from the sensor.

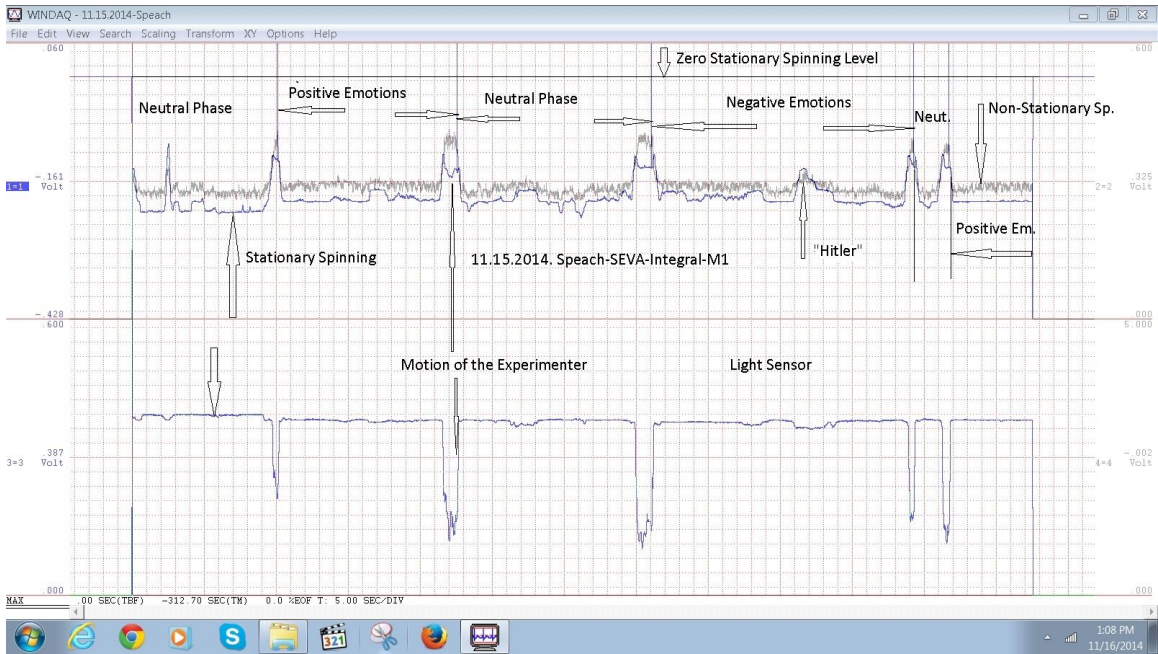


Fig.5. Verbal-emotions influence on the FG. The experimenter stood few meters from the sensor.

The output reading of SEVA-Integral-M1 is related to power  $W$  of spinning FG per a unit of volume  $V$  and the quantum properties of FG in the following way



$$U_{out} = k_1 \frac{W}{V} = k_1 \frac{1}{2} \varepsilon_0 \varepsilon \sum_{i=1}^n E_{1i} E_{2i} \omega_i \sin \varphi_i = k_1 \frac{1}{2\pi V} \sum_{i=1}^n \hbar \omega_i^2 \quad (5)$$

Here,  $k_1$  and  $n$  are a calibrating factor and a number of lines in the spectra of FG, respectively.

The existing SEVA-algorithm processes the signal of its sensor in the way of formula (5), which brings the power of the spinning per a unit of the volume. From here we can get the angular momentum per a unit of the volume, which will require another algorithm:

$$\frac{L}{V} = \frac{2\pi}{V} \sum_{i=1}^n \frac{W_i}{\omega_i^2} = \pi \varepsilon_0 \varepsilon \sum_{i=1}^n E_{1i} E_{2i} \frac{1}{\omega_i} \sin \varphi_i = \frac{1}{V} N \hbar = k_2 U_{out} \quad (6)$$

$N$  is an integer number. It can be used to estimate directly the angular momentum of the given FG in units of the Plank constant.

Fig.6 shows an example of the calibration of the earlier one-frequency SEVA at 6+kHz.

This diagram brings the conversion factor for the specific power:

$$4.40 \times 10^{-8} J \cdot s^{-1} \cdot m^{-3} \cdot V^{-1}$$

From (6) we can estimate the conversion factor for the specific angular momentum at 6.0

$$\text{kHz: } 1.73 \times 10^{-16} J \cdot s \cdot m^{-3} \cdot V^{-1} = 1.60 \times 10^{18} \hbar \cdot m^{-3} \cdot V^{-1}$$

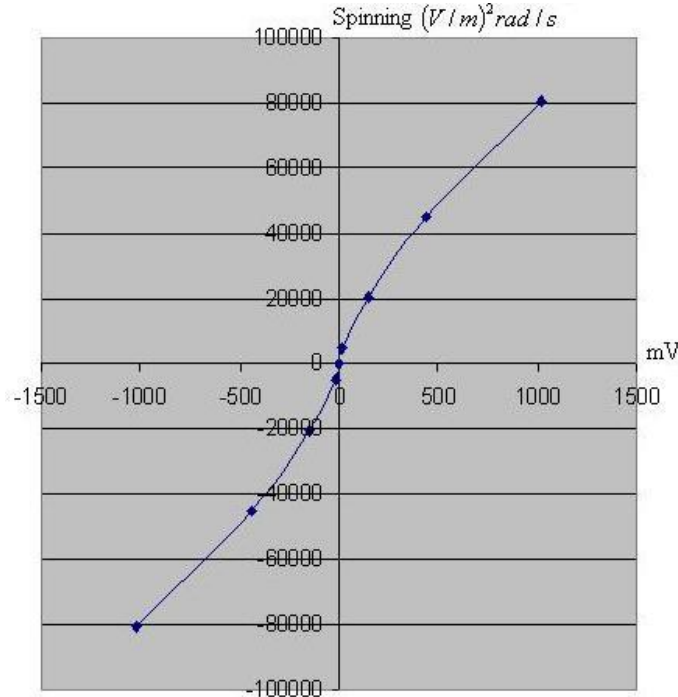


Fig.6. Calibration of the earlier one-frequency instrument at 6+kHz.

So, all the variations of FG under thoughts and emotions above are really measurable.



**If we can measure a real power of a spinning of the thoughts-influenced FG, we can suppose that the angular momentum of our thoughts interacts with the surrounding space of events in the way pretty identical to that of origination of the circulation above, Fig.2.**

**For the conservation of the angular momentum sake, the events in the space of events begin to act in opposite way.** This conception was spoken out by the author in [11, p.248]

We call this *to overlook, to bewitch with the evil eye*. As we know from our life experience, this pretty frequently happens with too much praise in advance – the following events develop just in an opposite way.

On the other hand, we know from the same life experience, that our long-standing negative thoughts frequently result in their realization. *Think positive!* This slogan is confirmed by the life. How to reconcile both the realities: 1- failing our too early *spoken out* plans/their opposite results and, 2- realization of our long-standing fears?

If the first thesis is based on the conservation of the angular momentum of a system, then we have to refine the role of a *verbal* declaration of our raw plans in terms of FG. The second category is based mostly on the thoughts with no verbal declaration. It looks like we deal with two different phenomena.

Experiments of Figs.5 and 6 actually deal with two different approaches: speechless thoughts and verbal emotions. In work [12], analyzing the physical base of the human believes, the author spoke out a possibility of materialization of our thoughts on a base of Super symmetry conception when each boson has its super partner- a fermion and vice versa. As we believe, our thoughts are a quantized field, probably bosons, which can be concentrated at a point. While bosons are a base of forces, the fermions symbolize both a mass and a volume, which is a matter. This is a real base for a mutual transformation.

#### **4. Conclusion**

The wide class of phenomena, even those principally not related to each other, can be explained with the angular momentum paradigm.

The experiments with SEVA-Integral-M1, based on the conception of the Field Gyroscope, revealed a possibility to unite a wide class of events, including human thoughts and emotions, under an umbrella of the angular momentum. Therefore, we can legally raise a question on applicability of the Conservation of Angular Momentum law to these different phenomena and explain events of our life taking into consideration these experiments.

All the dissimilar events can be estimated on a base of sets of characteristics of the Field Gyroscope, in particular- the power per a unit of a volume, measured by instruments like SEVA-Integral-M1.

Their common denominator confirms one more time a unity of the Universe and interconnectedness of all phenomena.

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