A Phenomenon of Driving the Field Gyroscope Up to Speed by a Light

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Abstract
The experiments with the Spinning Electric Vector Analyzer, SEVA, have revealed an integration-like process of gradual driving a localized spinning electromagnetic field up to speed. The spinning process was induced both incandescent and gas-discharge lamps in vicinity of the SEVA sensor. The experiments can be explained as manifestation of G.I. Shipov’s field of inertia associated with the Physical Vacuum. An original electromagnetic spinning field drives its vacuum partner up to speed, having a characteristic time constant which depends on the conditions of experiments. The similar driving-up-to-speed processes were noted for a wide class of other phenomena. The quantum nature of FG is obviously seen on the images from a screen of the oscilloscope as a manifestation of discrete orbits.

It was noted by the author repeatedly that the Spinning Electric Vector Analyzer, SEVA, develops its reading a background with a drive-up-to-speed manner. The time constants of these processes exceed the instrumental time constant drastically.

SEVA [1,2,3,4] measures a value of wide-band electric spinning $\vec{S}$, developed by parent vectors $\vec{E}_1$ and $\vec{E}_2$, which can be shown as

$$\vec{S} = \sum_{i=1}^{n} \omega_i \sin \varphi_i \left[\vec{E}_{1i}, \vec{E}_{2i}\right]$$  \hspace{1cm} (1)

Here, $\omega$ and $\varphi$ are an angular frequency and a phase shift between the driving parent vectors, respectively.

The output signal of the instrument can be shown as

$$V_{out} = kS = a \sum_{i=1}^{n} \varepsilon_0 \varepsilon \omega_i \sin \varphi_i E_{1i} E_{2i} \approx a \sum_{i=1}^{n} \varepsilon_0 \varepsilon \omega_i \sin \varphi_i E_i^2 = a \frac{\text{Power}}{\text{Volume}}$$  \hspace{1cm} (2)

Here, $a$ and $k$ are instrumental constants. Dimension of $a$ is $V/(W/m^3)$.

$E_i$ is an average of vectors $\vec{E}_1$ and $\vec{E}_2$.

So, the instrument measures a summarized specific power, $P/V$, of electric spinning in a limited wideband.

Earlier, the author spoke out a hypothesis of origination of a localized electromagnetic spinning, the Field Gyroscope, FG, of radio-frequencies, as a consequence of Huygens-Fresnel Principle [5]. Later, this phenomenon was recorded with SEVA– instrument [6].

Back at the joint of 19th and 20th Centuries, N.P. Myshkin, a Russian scientist, noted a phenomenon of rotation of a light-weight mechanical object in a light flux [7]. He supposed a manifestation of some unknown ponderomotive forces here. This phenomenon was explained by the author of the current publication as a manifestation of FG, which can develop a mechanical torque.
Field spinning phenomena were considering by independent authors who endow the same term with different properties.

The Field Gyroscope, FG, of the author of this publication is a localized spinning electromagnetic field, having a time-varying mass, angular momentum, yet developing a mechanical torque [8]. FG, developed by the spinning vector $E_s$ at angular speed $\omega$, inside a cylinder of diameter $D$, has a mass:

$$m(t) = \frac{\varepsilon_0 \int_{V} E_s^2(t) dV}{2c^2 - \left(\frac{D \omega}{2}\right)^2}$$

Its angular momentum:

$$\tilde{L}_s(t) = \frac{D^2 \tilde{\omega}_s(t) \varepsilon_0 \int_{V} E_s^2(t) dV}{8c^2 - (D\omega)^2}$$

Non stationary behavior of FG produces a time-varying mechanical torque:

$$\frac{dL}{dt} = \frac{D^2}{8c^2 - (D\omega)^2} \varepsilon_0 \left[ \omega \frac{d}{dt} \int_{V} E_s^2(t) dV + \frac{d\omega}{dt} \int_{V} E_s^2(t) dV \right] = \frac{D}{2} F(t) = RF(t)$$

It’s our routine knowledge that electric charge, having the charge of electron as its quanta, has its own agent – Electromagnetic Field, EMF. Another fundamental phenomenon, a spin, also has its quanta – Plank constant, an elemental angular momentum, as well as its universal agent – Torsion Field, TF, which accompanies any kind of spinning/rotation.

Actually, the Torsion Field generators are sources of FG, in the wide definition of this term, not just reduced to electromagnetic fields only.

A great contribution into theory and practice of the spinning fields was done by A.E. Akimov, a Russian scientist [9,10,11]. The TF generator, developed by A.E. Akimov, was based on driving spins in ferrite by means of a magnetic component of the driving electromagnetic field. The electromagnetic component of the primary driver was blocked with conic electromagnetic shields. So, only TF component left in surrounding space.

Unlike FG in Akimov’s systems, that in the author’s research has no electromagnetic shields and EM and TF fields coexist simultaneously [12,13].

G.I. Shipov, a famous Russian theoretician, believes that the Quantum theory describes a dynamics of the Field Gyroscopes, developed by the fields of inertia. By Shipov, the phenomenon of inertia is a major one that describes all the physical fields and interactions through the Schrödinger equation [16,17].
The quantum base of the field gyroscope is observed in the experiments with a single-frequency EM spinning. Fig.1 shows images of the single-frequency FG localized at various objects. The discrete orbits are seen. Beside that, the precession process is observed.

![Image of quantum nature of 6 kHz EM FG located in vicinity of various objects. The discreteness of their orbits is seen. Beside that, these FG experience a notable precession.](image)

Shipov’s FG is a geometric object having no mass. However, it has the inertia. Therefore, FG of the author, shown above and those considered by G.I. Shipov, are different in the following. The author’s FG is an electromagnetic object, while that according to G.I.Shipov is a geometrized object having a pure spinning accompanied with the inertia. May be, the author’s FG is a private manifestation of that geometrized object. However, the inertia is a common denominator which unites both the FG.

It was repeatedly known in TF-related experiments that, after deactivating TF generator and removing it, some information is still registered by adequate detectors in this spot. These phenomena are called Phantoms. As the own experiments of the author with SEVA have shown, the Phantoms are nothing but the remaining field spinning [14]. It’s a pure manifestation of the fields of inertia by G.I. Shipov.

Another manifestation of the inertia fields was revealed with SEVA-related experiments with a light-induced FG.

Fig.2 shows an experiment with an incandescent lamp illuminating the sensor of SEVA with 1000 lumen/m^2, periodically superimposed on a basic 500 lumen/m^2 illumination in a room. The time constant of the instrument is 0.1 sec. The diagram reveals the processes with a much longer time constant. The instrument records both quasi-stationary and non-stationary spinning of FG, QSS and NSS, respectively. It has to be said that SEVA-Integral-M-3 measures a modulus of NSS.
Fig. 2. Illumination of SEVA sensor with a regular incandescent lamp manifests inertial properties of FG.

Fig. 3 shows an experiment with a 20 W gas discharge lamp, GDL, located in vicinity (20 cm) of SEVA sensor. It’s seen obviously that each activation of GDL is accompanied with a slow driving FG up to speed. Each horizontal cell is 50 sec, so the time constant of the process is tens of seconds.

Fig. 3. The experiment with a gas-discharge lamp reveals clearly the inertial-relaxation properties of FG.

The most important result of this experiment is that FG experiences reversing the direction of the spinning under action of the GDL. CW and CCW stand for clockwise and
counterclockwise, respectively. The thick black solid horizontal line is a zero-level for QSS. The QSSs in lower and upper positions with respect to this line have opposite directions.

Both QSS and NSS modes demonstrate the relaxation phenomenon. However, while QSS change the polarity and increases the signal as GDL is OFF, NSS shows decrease of the spinning, which can be explained by narrowing electromagnetic spectrum, furnished earlier by GDL.

If we look at the formula (6) above, the legitimate question arises: The torque, according the (6) has to be sign-varying, while we see a monotonic rotation of Divining Rod inside the electromagnetic FG [15]. What’s going on?

The author’s explanation is in that the electromagnetic FG drives a Physical Vacuum (PhV) FG up to speed gradually. That is: the angular momentum and the specific power of Vacuum FG are integrals of electromagnetic (EM) FG. Both Vacuum/geometric FG by Shipov and the considered EM FG are interrelated. Indeed, the various physical fields are just a polarization of Physical Vacuum.

\[ L_{\text{PhV}} = b \int_{0}^{t} L_{\text{EM}} dt \]  

(7)

Here, \( b \) is some combined parameter of the Vacuum, including its local time constant Therefore, the angular momentum of the Vacuum FG will be increasing in a monotonic way under action of EM FG.

This can be illustrated in a simple way with Fig.3. The figure shows how the originally rapid action of EM FG converts into a relaxation process in the object, due to inertial action of the Physical Vacuum, having some analog of a time constant, represented here with conditional resistor and capacitor.
Fig. 4. Conversion of the originally rapid action of EM FG into a relaxation process in the object, due to inertial action of the Physical Vacuum, having some analog of a time constant, represented here with conditional resistor and capacitor.

A mechanical torque, developed by the Vacuum FG as a result of the driving up to speed can be shown as

$$RF = b_0 \frac{d}{dt} \int_0^t L_{EM} dt \quad (8)$$

The reality of such the mechanical torque inside the EM FG was shown in the video-experiments [15]

In a similar way, the registered power of the Vacuum FG, coherent with its EM driver, can be shown as

$$\frac{P_{PSV}}{V} = b_1 \frac{d}{dt} \int_0^t \frac{P_{EM}}{V} dt \quad (9)$$

We see the manifestation of formula (9) in the experiments of Fig. 2 and 3.


