Rotation of bodies and electromagnetic time correction

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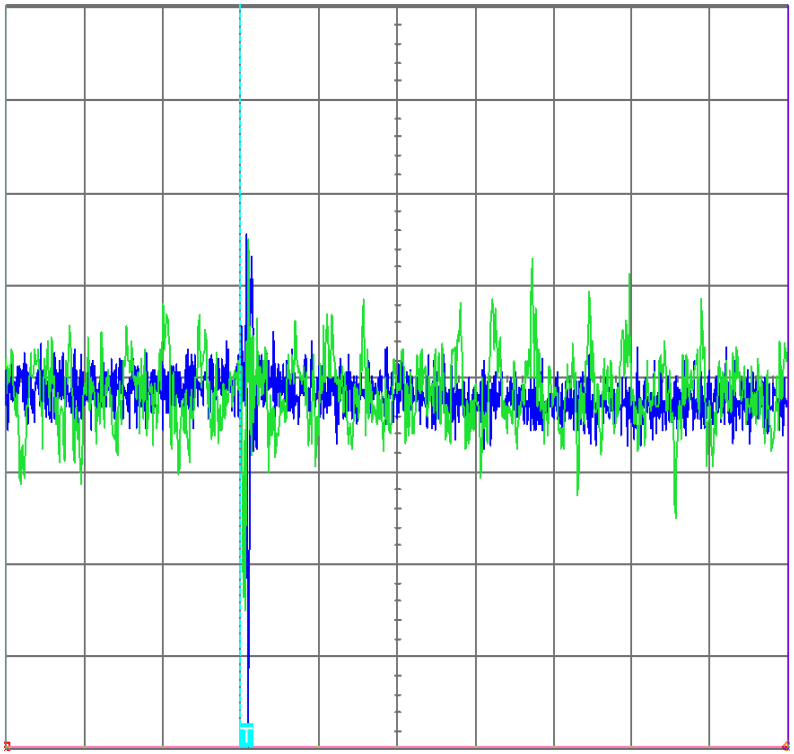
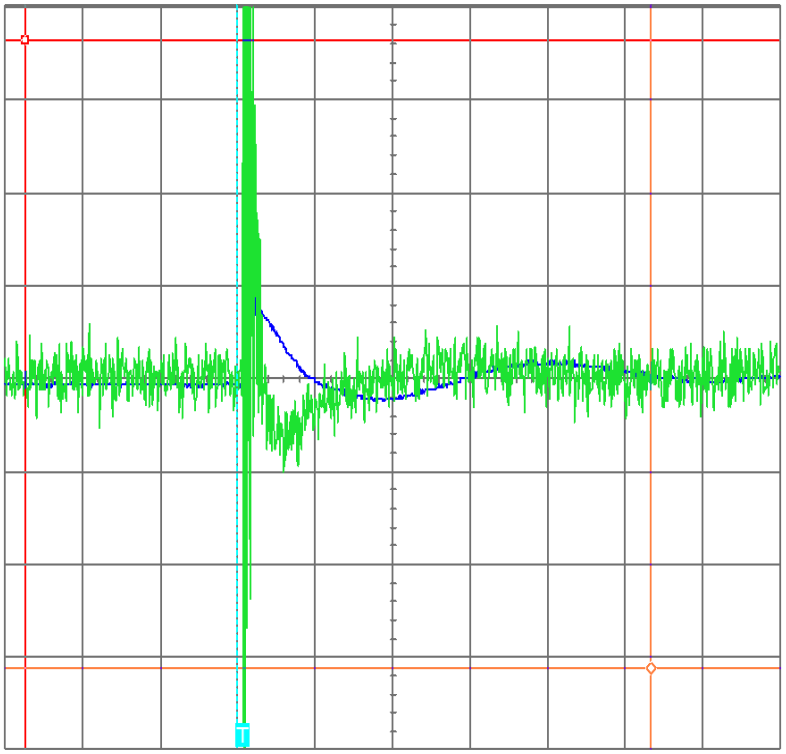
A typical picture of a signal on an antenna next to a Ni + H generator



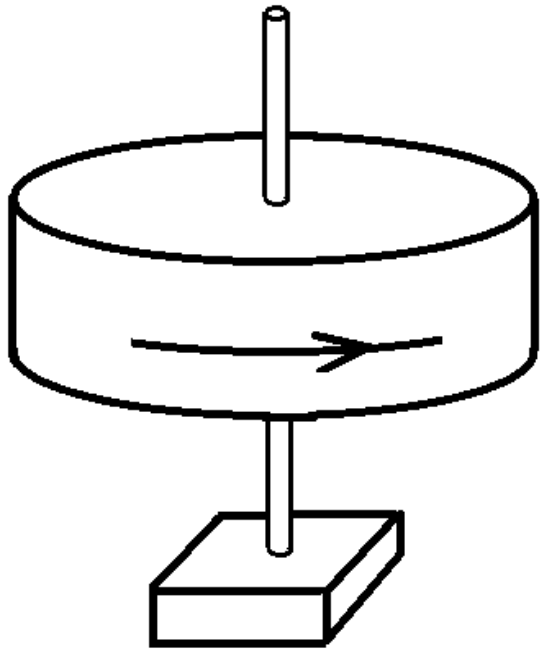


2 mv/div, 1 μsec/div

What triggered the start of this work?

- Newton's second law (1687, Mathematical principles of natural philosophy.) is derived from observations of the action of the forces of gravity. In the real world, in addition to gravity, electromagnetic forces act. But physicists have extended second law to all types of forces.
- Lack of a coherent explanation for gravity. About Nicolas Fatio de Duileries (1691).
- «Bodies push off when interacting». There is no forces of gravity.
- The linear nature of classical electrodynamics. Acad. Krasnoshchekov showed (Notes of Academician Pavel Krasnoshchekov, Internet) that the linearization of the equations of gas dynamics leads to a transformation similar to the Lorentz transformation. So, the price for linearization in gas dynamics is the rejection of the Galilean transformations in favor of the Lorentz transformation.
- In electrodynamics, rotation and linear motion are related (**E** and **B**). There is no such connection in mechanics, rotation doesn’t generate linear motion. This raises doubts about the validity of classical mechanics.
- About levitation of diamagnets in strong magnetic fields. G.I. Shipov, 06.10. 2014. Internet. An example with changing the weight of a precessing gyroscope. The weight of the gyroscope changes by 1/400 of the weight of the gyroscope substance.

Weighing a gyroscope with a vertical axis of rotation



- Relations for the kinetic impulse and kinetic moment of a system of material points are known from classical dynamics

$$d\mathbf{P}/dt = \mathbf{F}^e$$

$$d\mathbf{L}/dt = \mathbf{M}^e$$

Obviously there is interaction with the third body.

- Possible, violation of Newton's second law, which manifests itself in the presented experiments with electromagnetic interaction, is due to the fact that **with accelerated movements** material objects interact not only with a source of force, but also with a certain medium that surrounds us ("electromagnetic substance" and "gravitational substance")
- In addition to a change of impulse during electromagnetic interaction, **a change of the moment of impulse** in the direction of interaction necessarily occurs. It can be concluded that the unknown medium ("electromagnetic substance") that surrounds us has a moment of impulse.

Weighing scheme of a rotating body on a beam scale with USB output

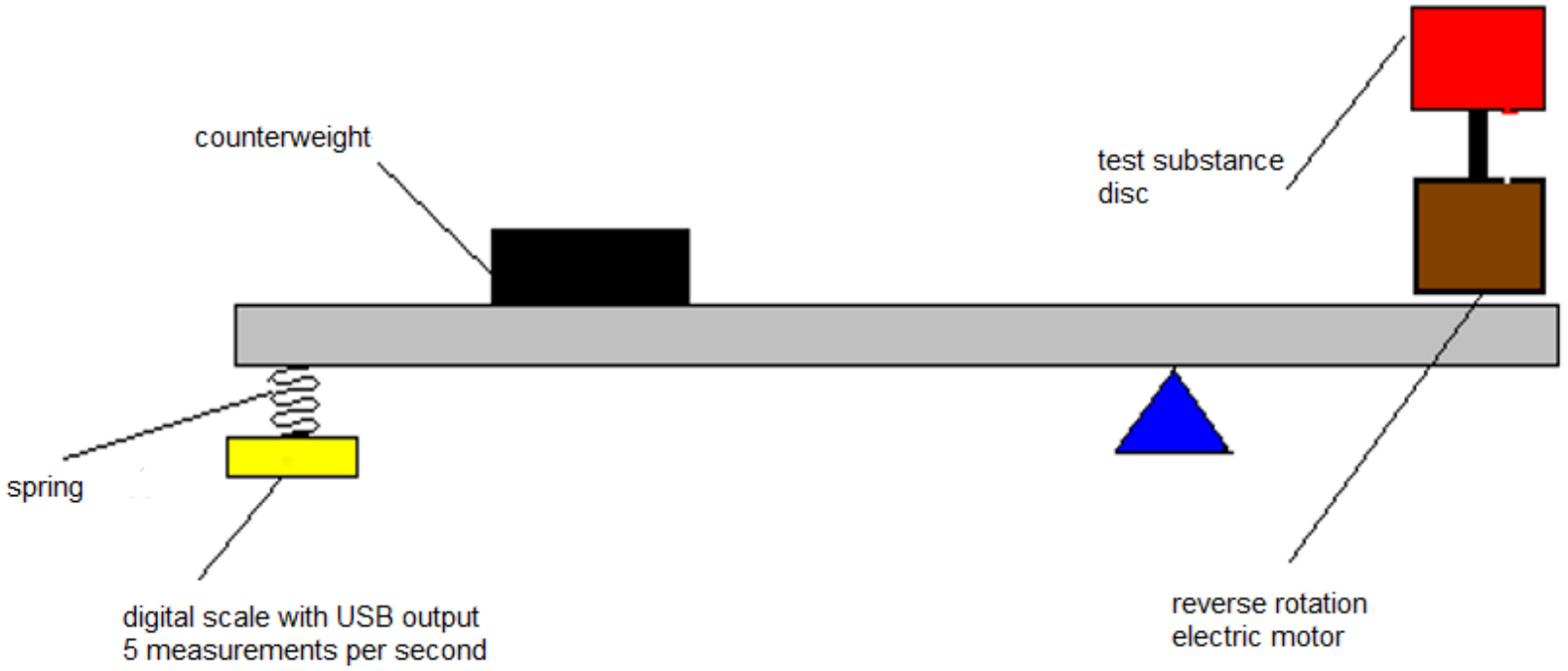
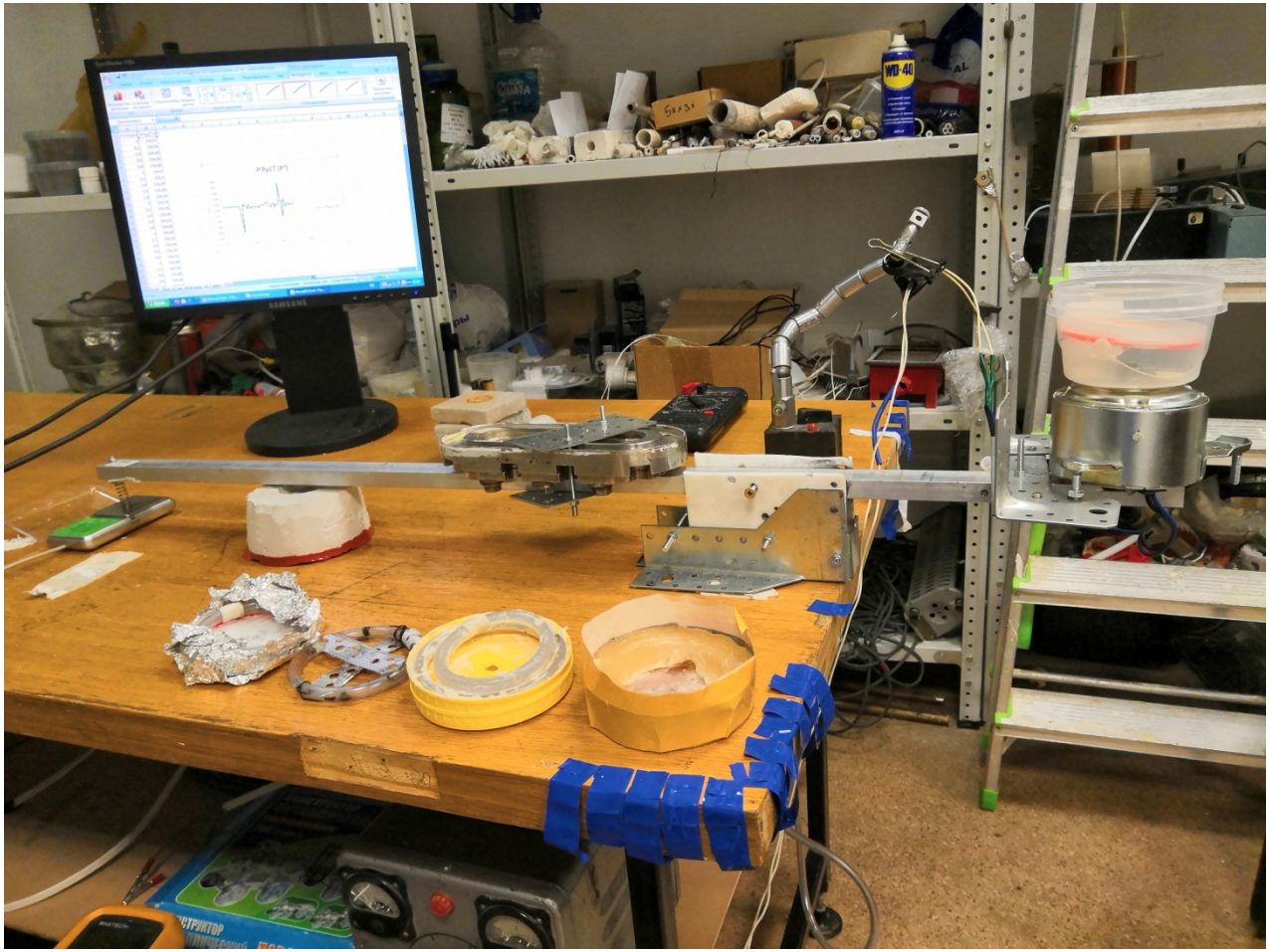
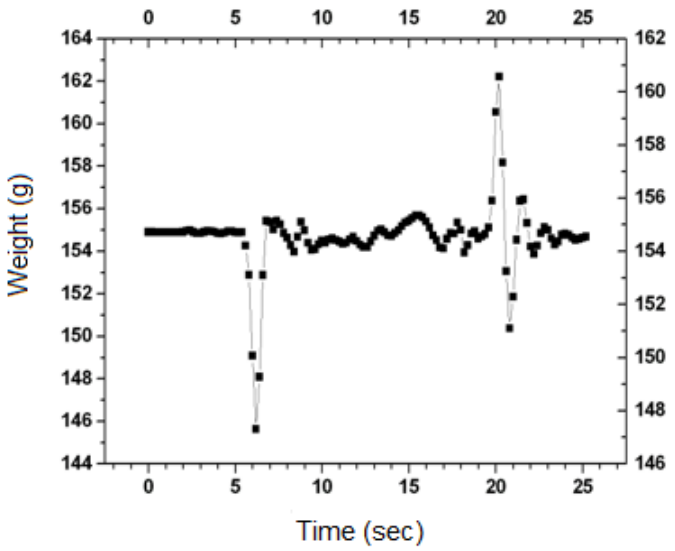


Photo of a stand with beam scales with USB output

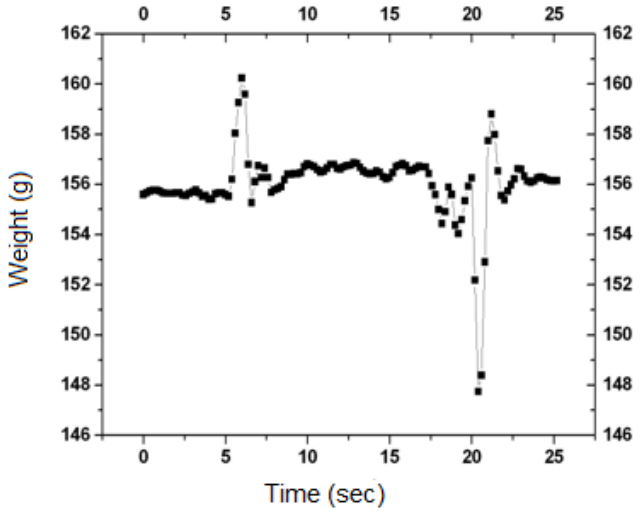


Indications of electronic scales when the sample rotation speed is changed

Clockwise



Counterclock-wise



Rotation with acceleration leads to the induction of axial force $\mathbf{F_\Omega}$

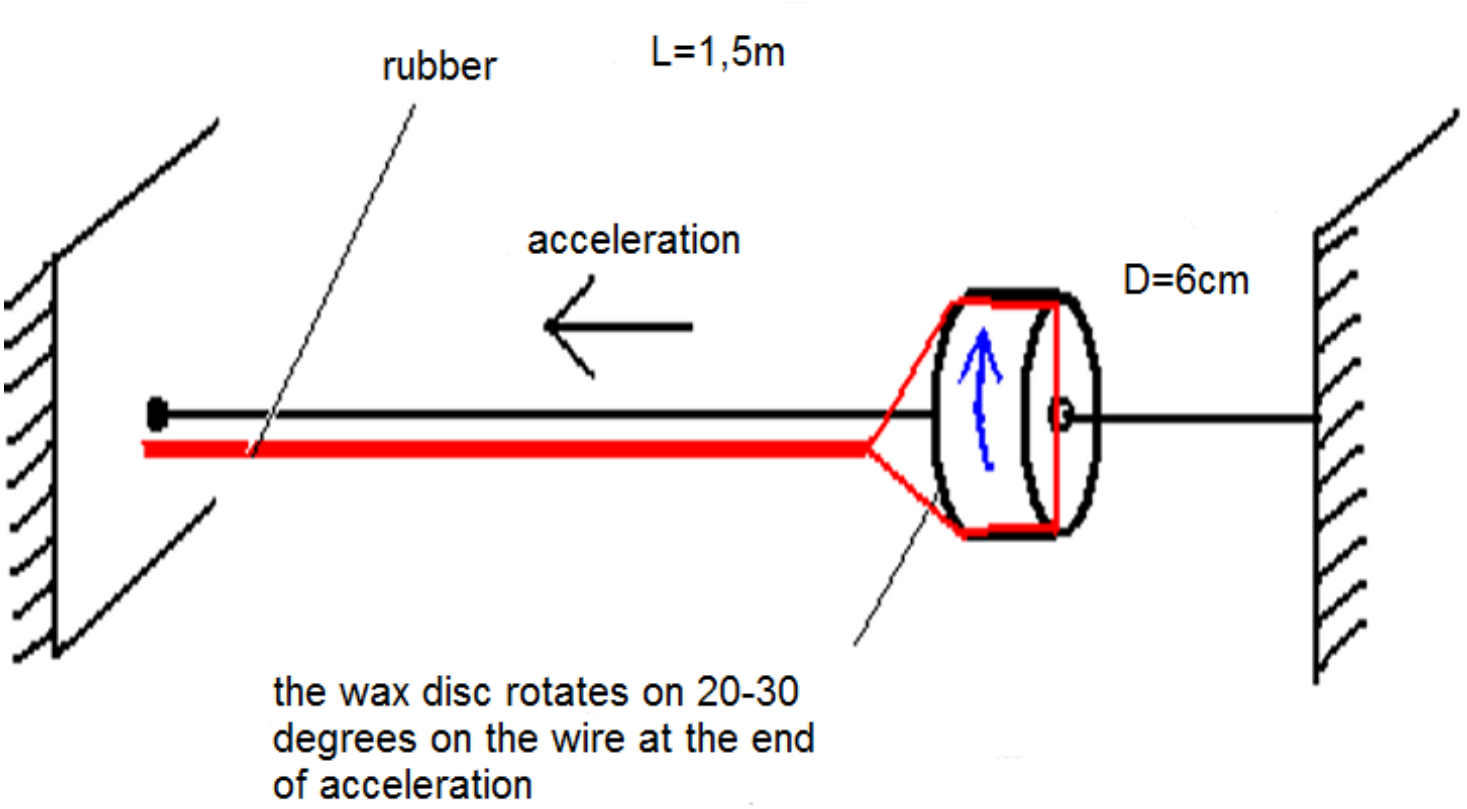
$$\mathbf{F}_\Omega = Amr\, \partial\, \mathbf{\Omega} / \partial t$$

Rotation with acceleration leads to the accelerated translational motion.

Change in the weight of the wax disc with a change in angular speed

- $\mathbf{P = P_0} + \Delta \mathbf{P} = \mathbf{P_0} - A\, mr\, \partial\boldsymbol{\Omega}/\partial t$
- $\mathbf{P_0} = 19{,}8g$
- $\Delta \mathbf{P} = - A\, mr\, \partial\boldsymbol{\Omega}/\partial t = -(160{,}24-155{,}8)*2{,}73 = -12{,}1g$
- $A = \Delta \mathbf{P} /(mr\, \partial\boldsymbol{\Omega}/\partial t) = 0{,}121/(0{,}0198*0{,}04*150)$
- For wax $\mathbf{A \sim 1}$

Translational motion with acceleration induces rotation



Translational motion with acceleration results in torque induction

$$\mathbf{M}_a = B m r d\mathbf{V}/dt$$

With accelerated translational motion, moment $\mathbf{M}_a$ is induced, which leads to accelerated rotation.

Calculating the B coefficient for a wax disc

- $mr^2 d\Omega/dt = BmrdV/dt$
- $B = r\Omega/V = r\varphi/L$
- $\varphi = 20^0 = 0{,}34$ rad

- $B = 0{,}03m * 0{,}34/1m = 10^{-2}$

Inertial parameters

$$m = \int \rho dv$$

$$mR_i = \left(\int (\rho \mathbf{R})^2 dv\right)^{0,5}$$ introduced by us

$$J = mR^2 = \int \rho R^2 \, dv$$

Torsion when falling by gravity

- Experiments have shown that bodies made of metal or dielectric don’t rotate during free fall.
- Arising moment of impulse is divided between the Earth and the body, so the body does not rotate.

Preliminary results of the study of plasma effects at the moment of hitting a metal body against an obstacle

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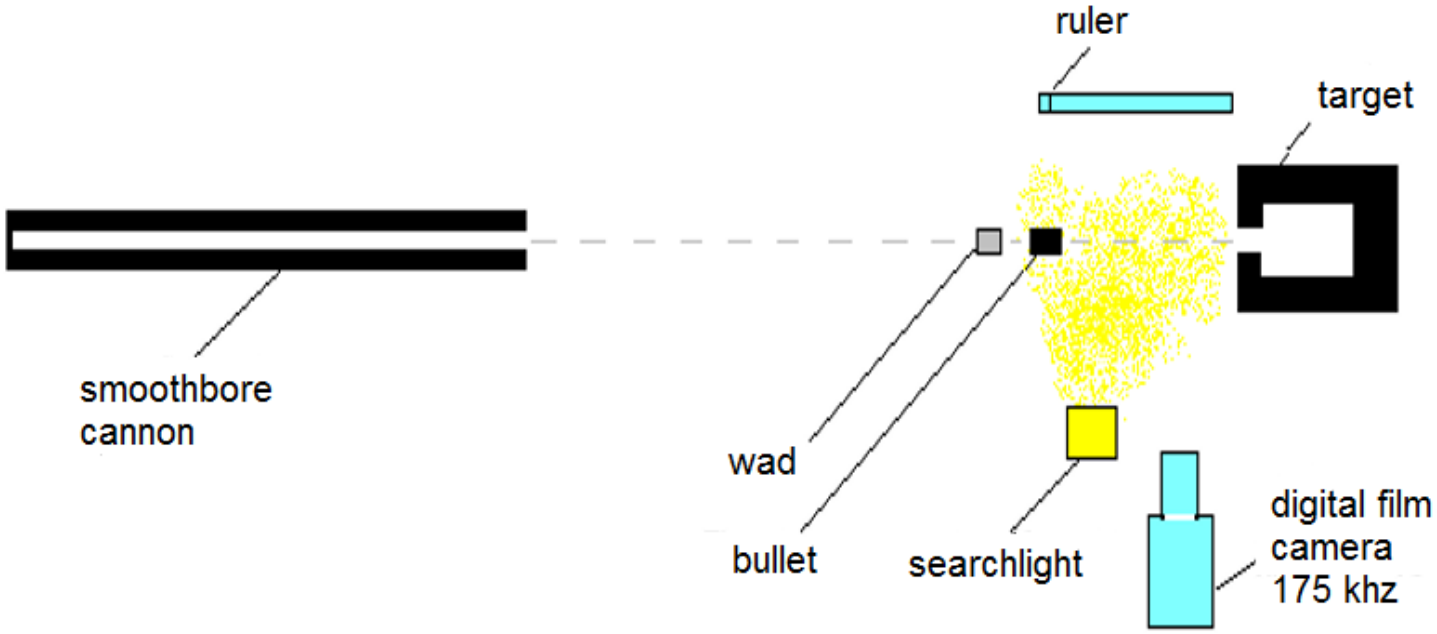
Moscow Technical University named after N.E. Bauman

The preliminary results of experiments on the collision of a bullet (speed ~ 1200 m / s) with a solid obstacle (a special cup) are discussed. The heating of the glass after the hit was 1.5-2 times greater than the heating from the transformation of the kinetic energy of the bullet into heat.

Scheme of registration of a bullet flight when fired from a smooth-bore cannon



Measurement of the energy released when a bullet hits a target

$$Q = 2 * mV^2/2$$

Impulse of force and moment of impulse taking into account the induced terms

- $\mathbf{P} = m\mathbf{V} - mR_i\,\boldsymbol{\Omega}$ Impulse
- Because of $R_i = R_i(t)$,

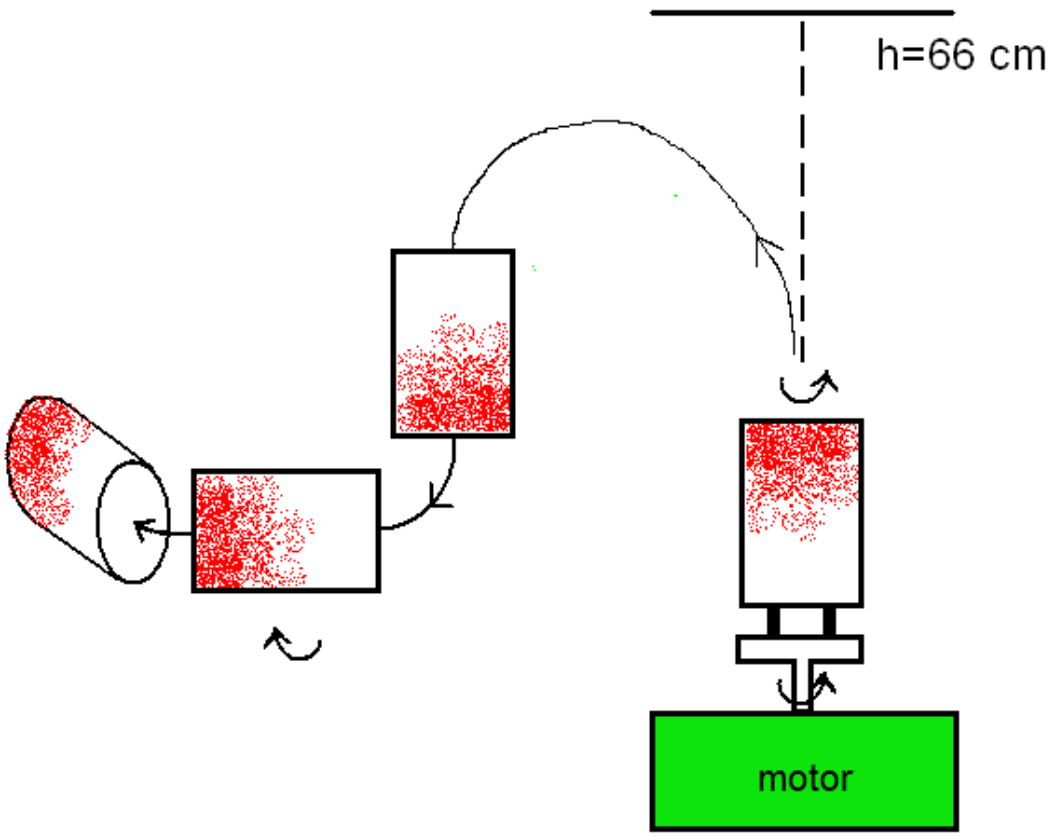
$$\mathbf{V} = \mathbf{V}(t)$$

$$\boldsymbol{\Omega} = \boldsymbol{\Omega}(t)$$

$$\mathbf{J} = mr^2\,\boldsymbol{\Omega} + mR_i\,\mathbf{V}$$ Moment of impulse

Boomerang – ?

Diagram of an experiment on taking off a dielectric cylinder



Frame-by-frame video printout. Time between frames – 8.3 msec. Frame 1

Frame 2: 8.3 msec

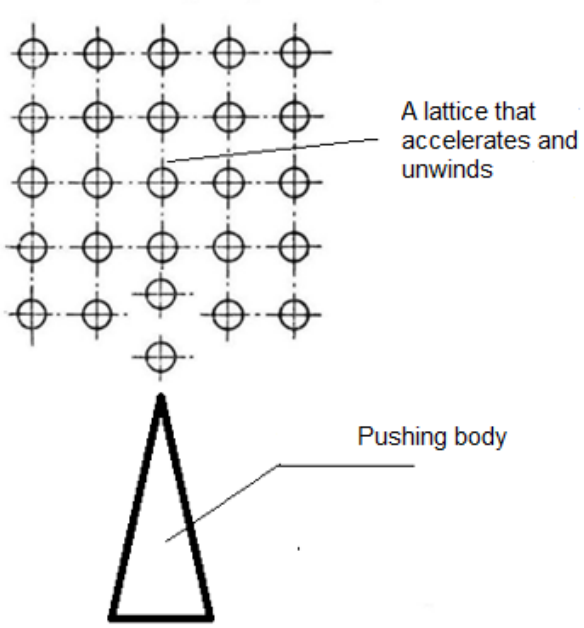
Frame 3: 16.6 msec

Frame 4: 24.9 msec

Frame 5: 33.2 msec

Frame 6: 41.5 msec

Model for calculating the twisting of a metal sample under the action of a point e/m force



- $dW = dN\hbar\omega$; $dN = dW/\hbar\omega$;
- $dL = \hbar dN = \hbar dW/\hbar\omega$;
- $dL/dt = dW/dt/\omega = \mathbf{S}/\omega * A =$

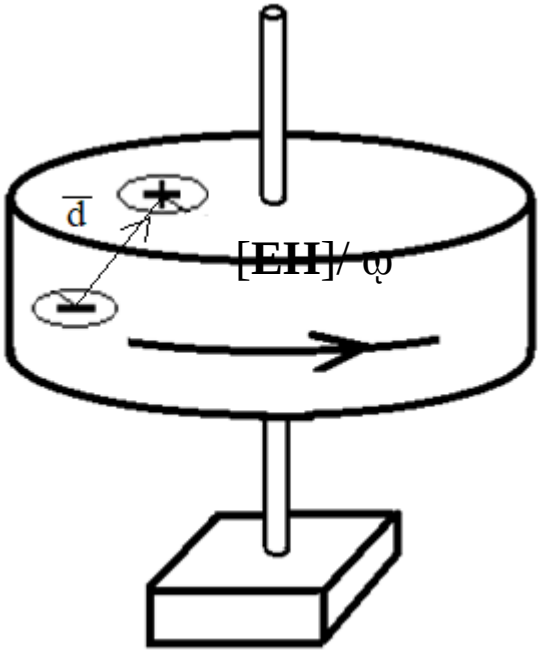
  $= [\mathbf{EH}]/\omega * A \neq 0.$

where dN – number of photons frequency ω fallen over time dt to the surface A, **S** = [**EH**] – Poynting vector incident on the accelerated sample of the e/m wave, ħ - angular momentum of one photon, L – angular moment of the accelerated sample.

Pulse density [**EH**] and moment of impulse density [**EH**]/ ω in e/m wave have the same direction and are perceived primarily by electrons.

Electrons transfer impulse and moment of impulse well to the lattice (Einstein-DeGaas experiment, 1915)

Model for calculating the linear acceleration of a dielectric sample during its unwinding



- $\mathbf{B} = [\partial\mathbf{d}/\partial t/cR^2 + \partial^2\mathbf{d}/\partial t^2/c^2R\,,\,\mathbf{n}]$
- $\mathbf{F_{Ld}} = q[\mathbf{v},\mathbf{B}] + (-q[-\mathbf{v},\mathbf{B}]) = 2q[\mathbf{v},\mathbf{B}]$
- where **B** – magnetic field, $\partial^2\mathbf{d}/\partial t^2$ – the second time derivative of the dipole moment vector **d**,
- **n** – direction of observation, q and **v** - the charge and speed of the positive charge of the rotating dipole, -q and -**v** - the charge and speed of the negative charge of the rotating dipole.
- The magnetic field does not act on a linearly moving dipole.
- The magnetic field acts on a rotating dipole with a vengeance.

The result of considering e/m effects in the interaction of two bodies

- The effects are explained by classical electrodynamic interactions.
- The terms "induced force" and "induced moment" reflect the electromagnetic nature of the effect..
- Forces and moments of unknown nature are not involved.
- The geometry of the forces of moments and motions differs from the geometry of interaction in the Kozyrev's effects.
- The fact that it was possible to explain the effect of induced motion in the interaction of two bodies by electromagnetic effects suggests that the electromagnetic field is a medium that doesn't obeys to Newtonian mechanics, but to BZ mechanics..

Our model of ether mechanics

- The etheric substance is located in 3-dimensional Euclidean space **x,** and in the 3-dimensional space of its own turns **φ,** in time t. Etheric substance moves in space from 7 coordinates.
- The etheric substance has no particles and consists of a continuous medium, which is characterized by density and fills space **x, φ,** t . Integral of the density at time t over an arbitrarily small volume in space **x, φ** nonzero.
- At each point in space **x** at the moment t, there can be arbitrarily much etheric substance, which differs in coordinates in space **φ.**
- Conversely, at every point in space **φ** in the moment t can be as much etheric substance as you like, differing in coordinates in space **x.**

Parameters of the "relic ether" free from material particles

- T = 2,725K – «relic ether» temperature
- $c = 3*10^8$ km/s – phase velocity, determined by the compressibility of the "relict ether" in space **x.**
- $\omega_0 = 10^{12}$ rad/sec –phase proper angular velocity of the "relic ether". Has the same meaning as c. Determined by the compressibility of the "relic ether" in space **φ.** Now it is determined from the experimentally measured frequency of "relict oscillations".
- $m_e = 0,2*10^{-42}$kg – the mass of a hypothetical particle of the "relic ether". It does not exist as a denser particle than the surrounding etheric substance. Defined as part of the "relic ether" in space **x,** having its own moment of impulse ħ.
- $R_e = (ħ/m_e\omega_0)^{0,5} = 0,023$m = 2,3 cm – radius of the hypothetical particle "relic ether»
- $\rho = 3,9 *10^{-39}$kg/m^3 – density of matter of "relic ether"
- Viscosity ν - can be determined from the data on the damping of its own oscillations in the "relict ether».
- $C_e \approx C_{air}10^{39}$ – heat capacity of "relict ether". The order of heat capacity of the "relict ether" is determined from the universal gas constant divided by the mass of the particle of the "relict ether ".

The equations of dynamics of a continuous medium with allowance for amendments to Newton's second law

- $\mathbf{P} = \rho(\mathbf{u} - \mathbf{R\Omega})$ – impulse, conserved in space **x, φ.**
- $\mathbf{L} = \rho R^2 (\mathbf{\Omega} + \mathbf{uR^{-1}})$ – proper moment of impulse, conserved in space **x, φ.**
- **R –** inertial radius tensor
- $\mathbf{R^{-1}}$ **–** inverse tensor of inertial radius
- **Ω** - own angular velocity vector
- **RΩ** - vector, convolution of tensor and vector.

Obtaining Maxwell's electrodynamics from the equations of motion of the "relict ether" as a continuous medium with its own moment

- $\partial\rho/\partial t + \mathrm{div}\rho\mathbf{u} = 0$
- $\partial(\rho(\mathbf{u} - \mathbf{R\Omega})/\partial t + \mathrm{div}(\rho\mathbf{u}\Theta(\mathbf{u} - \mathbf{R\Omega})) = 0$
- $\partial(\rho R^2(\mathbf{\Omega} + \mathbf{u}\,\mathbf{R^{-1}})/\partial t + \mathrm{div}(\rho\mathbf{u}\Theta R^2(\mathbf{\Omega} + \mathbf{u}\,\mathbf{R^{-1}})) = 0$
- Electromagnetic wave in vacuum. **Linearizing** these equations and assuming the **incompressibility** of the substance of the "relic ether"(ρ = const) for the one-dimensional case, we obtain
- $\partial u/\partial t = Ru0\ \partial\Omega/\partial x$ comparing with the equation $\partial E/\partial t/c^2 = \partial B/\partial x$ for an electromagnetic wave in a vacuum, we obtain
- $E = (\rho/\varepsilon_0)^{0,5}\,u$ – e/m field strength and e/m field speed along the axis Y.
- $B = (\varepsilon_0/\rho)^{0,5}\,\hbar/(m\,c^2)\,\Omega$ - induction and angular velocity of the e/p field along the axis Z.

ε_0, ρ , $\hbar$, m, c - dielectric constant of vacuum, density of matter, moment of impulse of matter of the field, mass of a single particle of "relic ether", speed of light in vacuum.

Vacuum is the "relic ether".

Limitations of classical electrodynamics

- It is believed that one of the limitations is the creation of electron-positron pairs

$$E << E_{cr} = m_e^2 c^3 / e\,\hbar = 1{,}3 * 10^{18}\ \text{В/м}$$

- Another classical constraint on the frequency by quantum mechanical effects.
- It follows from our consideration that there are other restrictions:

- Maxwell's electrodynamics assumes the incompressibility of the e/m fields. This is generally not true.
- Maxwell's electrodynamics is a linearized system of equations, which is generally not true. Lorentz transformations appear as a result of linearization. (Let us once again recall Academician P. Krasnoshchekov).
- Lorentz Transform - Pay for Linearization Errors,
- the speed of light in linearized Maxwell's electromagnetic fields is the phase speed and should obviously be constant. In the general case, in nonlinearized electrodynamics, taking into account the compressibility, the group propagation of the disturbance will be a variable quantity.

The success of Maxwell's linearized electrodynamics, in particular, is that, due to the very high heat capacity, it is very difficult to heat the ether. This is one of the reasons for the constancy of the speed of light.

How did the idea come about that in e / m phenomena with the concept of time, not everything is clear

- The system of equations of ether motion can be rewritten in the form

- $$S / V_x = \varphi / \Omega_x = t, \qquad (1)$$

- where Ω_x и V_x these are constants, *S and φ – path and angle of rotation.* notice, that (1) has the form of the so-called parametric equation of a straight line in coordinates *S* and *φ*. Time is used as a parameter *t*. Time *t* can be excluded from the relations (1). Then we get from (1) equation of a straight line in coordinates *φ* and *S*

- $$S = \varphi V_x / \Omega_x = (J / m R_i) \varphi = L_c \varphi, \qquad (2)$$

- where $L_c = (J / m R_i)$ - a characteristic of a body that has the dimension of length. Of (2) it follows that if we can measure the angle of rotation of the body φ, know the characteristic body size L_c, which is a characteristic of the body that does not depend on the action of the force, then to find the traversed path **S** there is absolutely no need to measure time, translational speed or angular velocity.

- Conclusion: There are conditions for the motion of bodies or continuous media when time is not a mandatory parameter. The angle of rotation can play the role of time.

What is time?

Continuum mechanics based on Newtonian mechanics

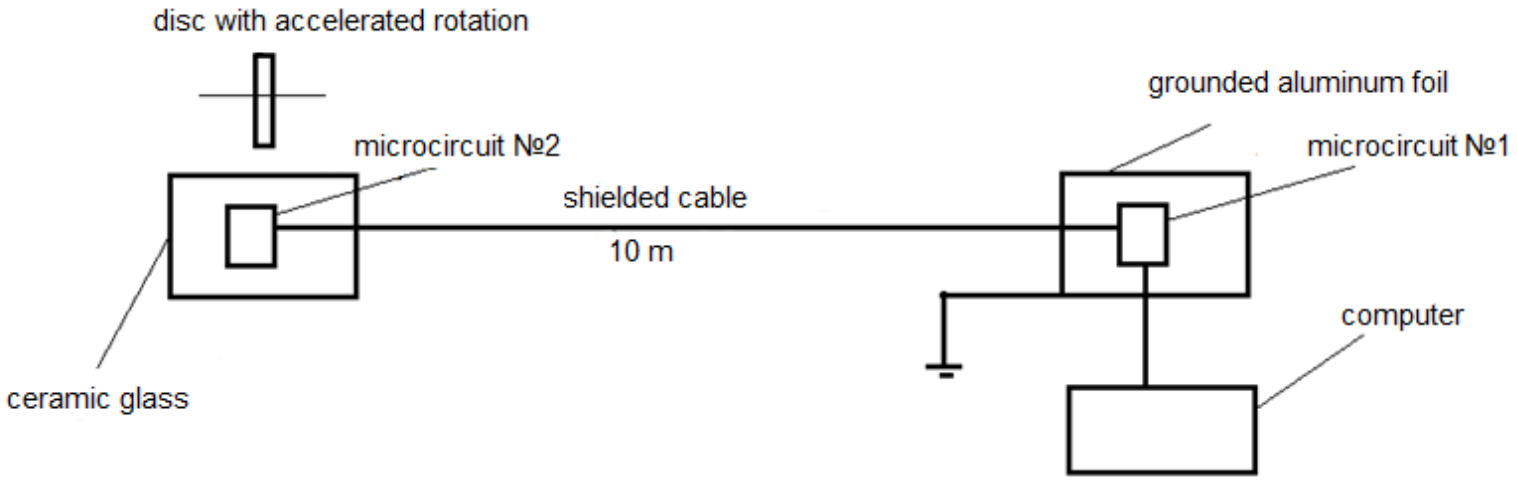
- (1) conservation of mass(ρ)
- (2) conservation of impulse (ρ**u)**
- (3) energy saving (E)
- (4) moment of impulse conservation (**M**)
- (5) entropy change (S)

- Number of unknowns : ρ, ρ**u,** E, M, S, t – 6 unknowns. One variable, for example, time t, can be selected as a **free parameter.** Time has no physical meaning in Newtonian mechanics.
- Space **x** is constructed using time, momentum and density **x** = ρ**u/** ρ *t
- Space **φ** is built using time, proper angular momentum, density and space **x**
- **φ** = **M**φ / ρx^2*t

Continuum mechanics based on Baranov-Zatelepin mechanics

- (1) conservation of mass(ρ)
- (2) conservation of impulse (ρ**u** - ρ**R**i**Ω)**
- (3) energy change in space **x** (Ex)
- (4) orbital moment of impulse change(**Mx**)
- (5) entropy change (S)
- (6) change in own moment of inpulse (**M**φ)
- (7) energy change in space **φ** (Eφ)
- (8) total energy conservation (E = Ex+ Eφ)
- Number of unknowns: ρ, ρ**u,** Ex, Mx, S, t, **M**φ, Eφ – 8
- **Time is not an independent variable and cannot be arbitrarily set. It is included in the dispersion relation. The time depends on all the variables of the task.**
- In particular t = t(W)
- Kozyrev is right in this sense, believing that time is somehow connected with energy.

Scheme of the stand for measuring electromagnetic time corrections



Explanations of how the change in the oscillation period of the microcircuit №2, located in the vicinity of the rotating disk, was measured

Microcircuit №2 (DS-3231), around which the disk starts to rotate, counts the vibrations of its quartz crystal, and after 32768 vibrations, which according to microcircuit № 2 means that 1 sec has passed, it sends a pulse to the processor through a shielded cable №1 (ATMEGA-328), located in another room at a distance of about 10m. Processor №1 works with a frequency of 15997310 and counts its fluctuations. When receiving a signal from the microcircuit №2 processor №1 sends to the computer program the number of oscillations that occurred in its crystal during the time elapsed from receiving the previous signal from the microcircuit №2. For example, it could be 15997288 oscillations. Then the computer puts a point on the graph, with coordinates along the abscissa axis 1 sec, and along the ordinate with coordinates 15997288 - 15997310 = - 22. From the point of view of the microcircuit №1 the signal came from the microcircuit №2 too fast. If we assume that the microcircuit №2 does not generate systematic errors, this means that in our example the microcircuit №2 is in space with a faster passage of time than the passage of time in the space of a microcircuit №1.

Leaving the chart up - slowing down the time at the clock №2, Leaving the chart down - acceleration of time at the clock №1.

What affects the measurement of time with a quartz watch? What is electromagnetic time correction?

Quartz clock physics

- The electronic part of the watch consists of an oscillator stabilized by a quartz resonator and a divider. The oscillation frequency of the generator is usually 32,768 Hz. The choice of this particular frequency is due to the fact that in order to obtain the second cycle required for the operation of the mechanical part of the clock, the frequency of the crystal oscillator must be divided by 2^{15}. This is done with a simple binary counter, which simplifies the electronic part; this was especially true before the production of specialized watch microcircuits began.

What possibly affects the readings of a quartz watch

- Change in the mass M of vibrating lattice atoms.
- Change in "hardness K" of the electromagnetic field in the lattice.
- Changing the time scale due to the change in the electromagnetic energy of the lattice.
- Variation in the lattice spacing due to a change in the lattice temperature.
- These are not relativistic effects..

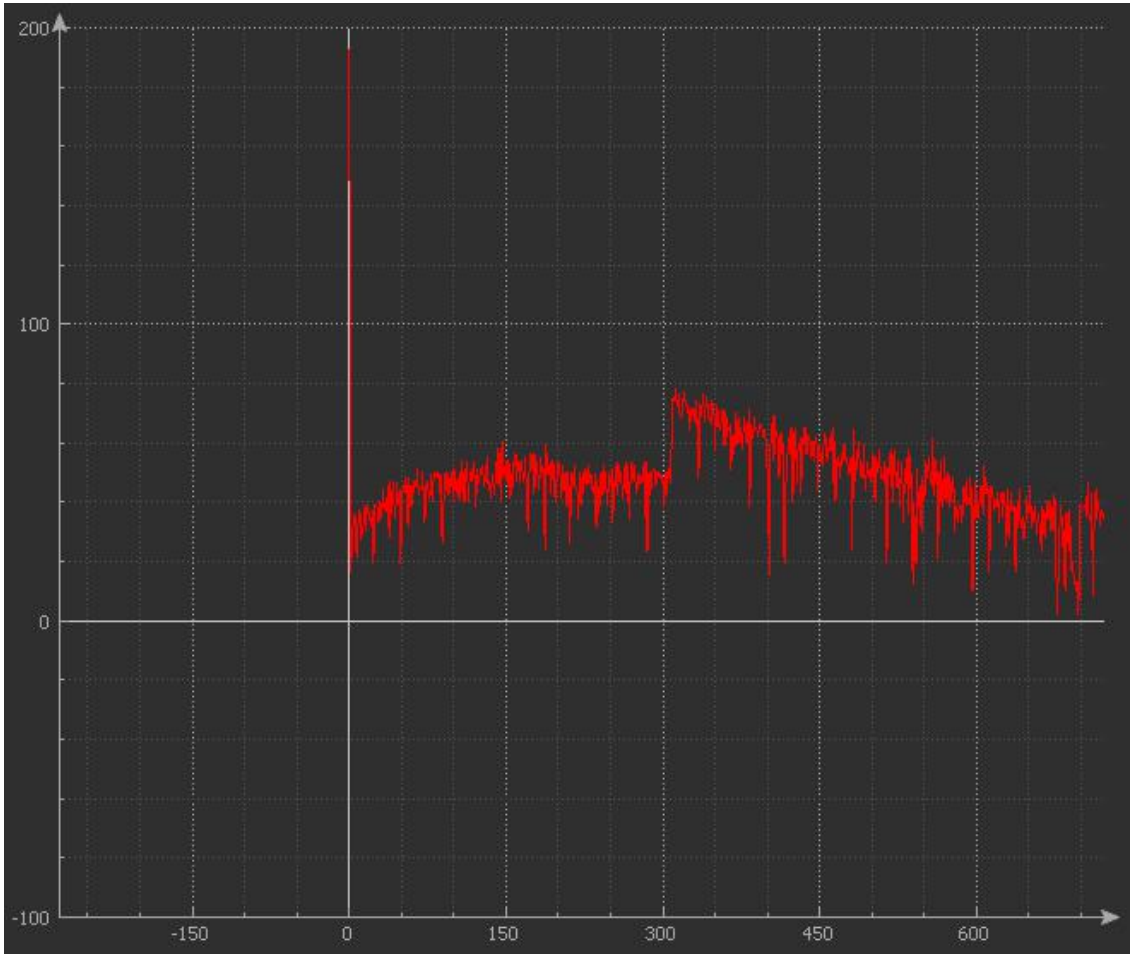
Assessment of the effect of quartz temperature on vibration frequency

- $\delta a/a = 6*10^{-7}$ $1/^oC$ – for quartz, where a - is the lattice spacing, δa – the change in the lattice spacing with increasing temperature on 1^oC
- If we assume that the oscillation period of the lattice T obeys the law of a spring pendulum with rigidity k determined by the total Coulomb field of the lattice, then we can write $\delta T/T = -\delta k/2k = \delta a/2a = 3*10^{-7}$ $1/^oC$
- where δT – If the oscillation period has changed due to crystal heating, then you can write to change the temperature δt of the crystal
- $\delta t = \delta T/T/3*10^{-7}$
- When accounting for calculation δT N = 1/T lattice vibrations, we obtain from the experiment
- $\Delta t = 1{,}6*10^{-5}/ 3*10^{-7} = 50\ ^oC$
- Container with watch №1 was cooled with melting ice. Container with watch №2 was in an open atmosphere and did not heat up to that temperature. Heating to 50 ^oC is not possible.
- Even if we are mistaken in estimating the heating temperature of the microcircuits, then there are clearly no heat sources that can abruptly, in a few seconds, heat the microcircuit. There must be another reason for the watch leaving.

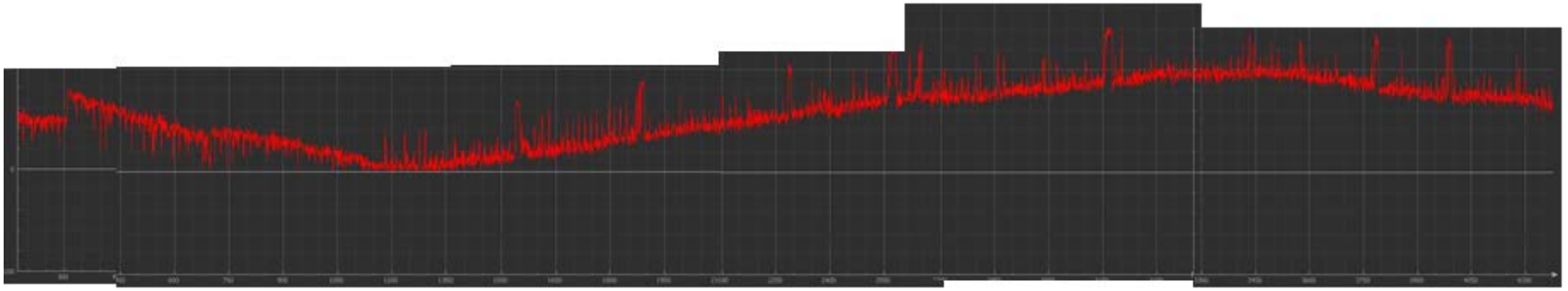
The rule for calculating the clock №2 drift per second in seconds

- $\Delta t = \Delta N / N_0 = \Delta N * 6{,}3 * 10^{-7}$
- Δt – clock №2 leaving in one second
- ΔN – plot ordinate data
- $N_0 = 15997310$ num/sec
- If $\Delta N > 0$, then $\Delta t > 0$ – the second interval for clock №2 is greater than that of hours №1
- If $\Delta N < 0$, then $\Delta t < 0$ – the second interval for clock №2 is less than that of clock №1

Resonant excitation of aether by a rotating dielectric disc



Low-frequency vibrations of the ether after resonant excitation

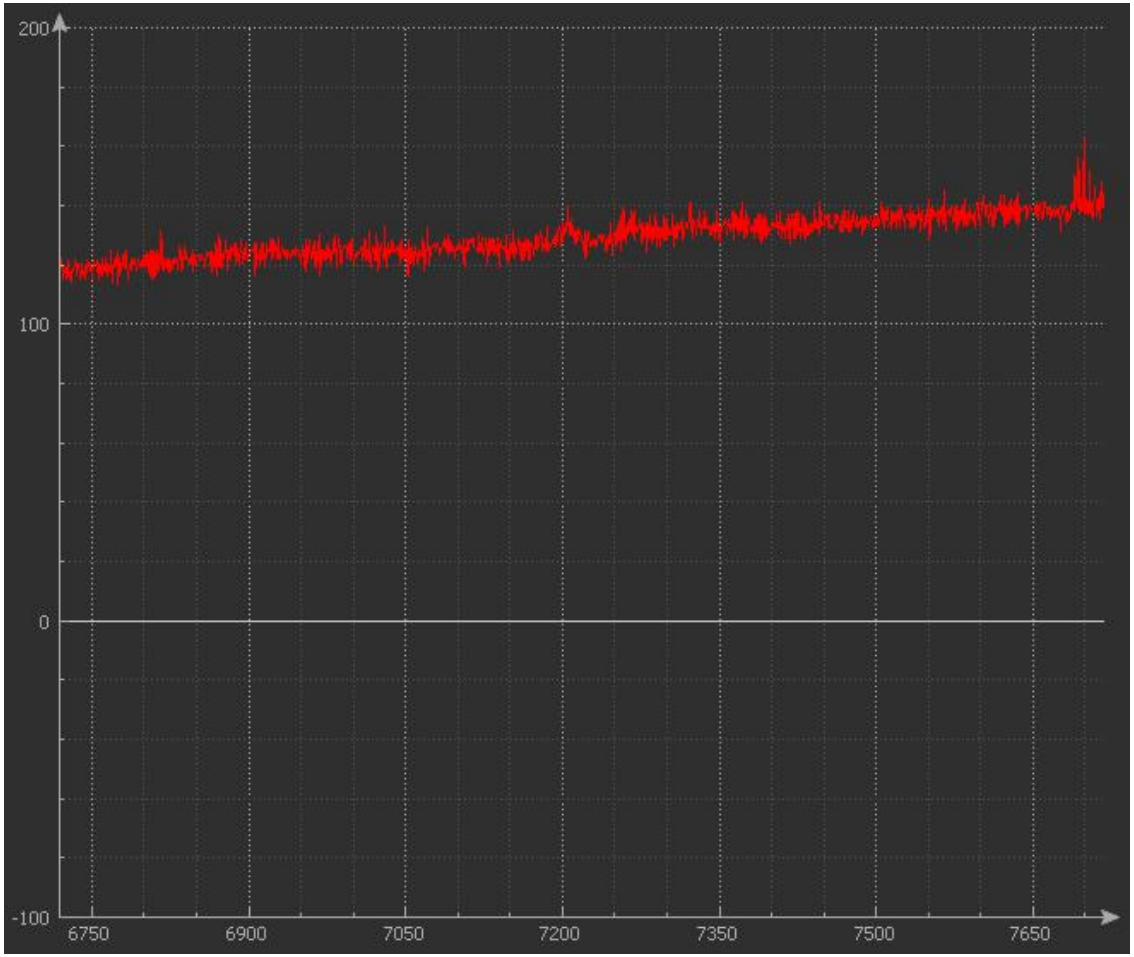


Oscillation period=
9000 sec = 2,5 hours

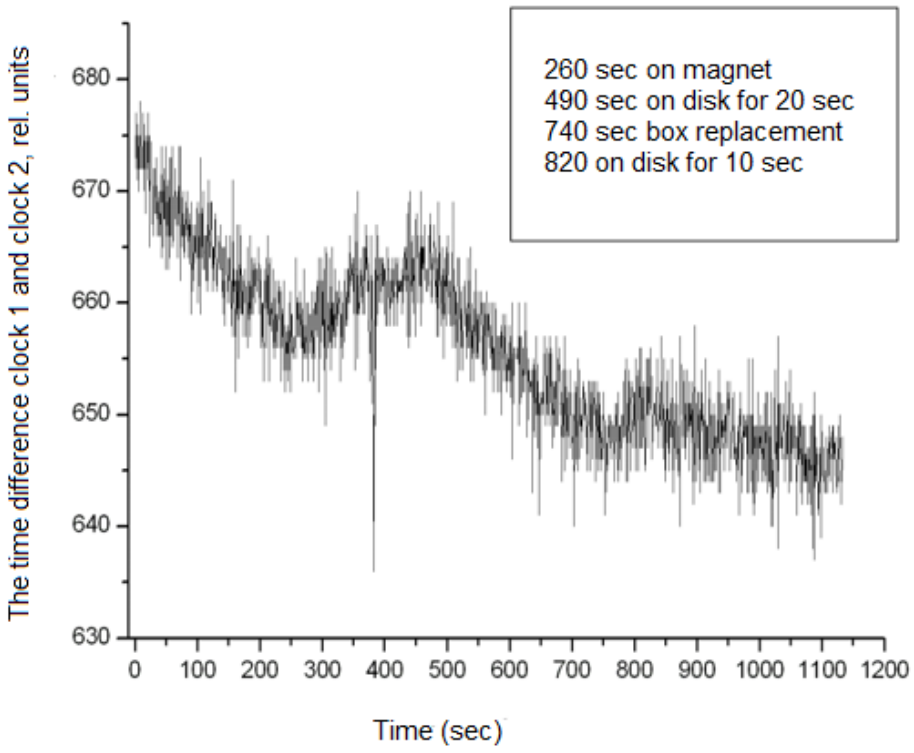
The speed of etheric particle = 0,1m/180sec = $5,5*10^{-4}$ m/sec

Time of flight of a particle through a room = 4m/$5,5*10^{-4}$ m/sec = 8000 sec

Continuation of the oscillatory process and disturbance by the magnet (7200 sec)



Nonresonant aether excitation



Estimation of the parameters of the oscillatory process in the "relict ether»

- $d^2X/dt^2 + 2\gamma\, d\,X/dt + \omega_0^2 X = F_0 \cos(\omega t)$
- $X(t) = A\exp(-\gamma t)\cos(\omega_0 t) +$

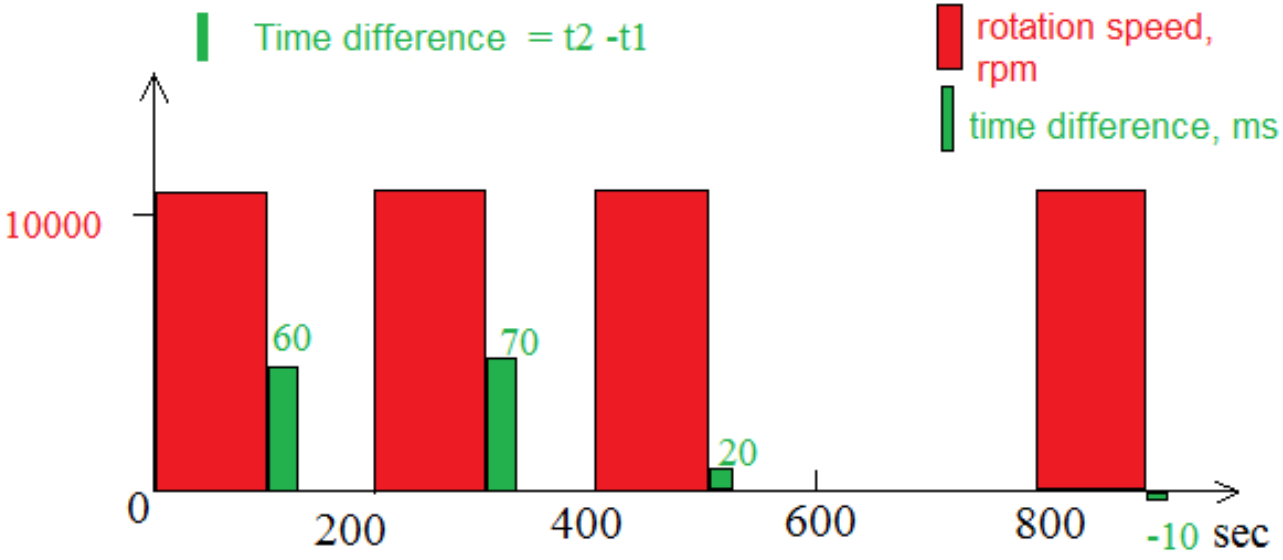
$$+ F_0 \cos(\omega t)/((\omega_0^2 - \omega^2)^2 + 4\gamma^2 \omega^2)^{0,5}$$

- $\gamma = 1/200 = 0{,}005 sec^{-1}$ – attenuation coefficient of the «relic ether»

(from expirement)

- $\omega_0 = 10^{12}$ rad/sec – «relic ether» frequency
- $Q = \omega_0/2\gamma = 10^{14}$ - Q-factor of the oscillatory process of the "relic ether". Q-factor can be used to calculate the viscosity of the "relic ether".

The third launch does not give results.



Conclusions

- It has been shown experimentally that accelerated translational motion and accelerated rotation of real bodies under electromagnetic action are related to each other through induced forces and moments.
- It is shown that the induced forces and moments are of an electromagnetic nature. It follows that the substance responsible for the electromagnetic interaction should not obey the equations of Newtonian mechanics.
- Nonlinear equations of a continuous medium are formulated that describe the motion of a vacuum as a space filled with matter having one more degree of freedom - its own rotation.
- It is found that classical electrodynamics are linearized equations of motion of incompressible matter filling the vacuum. For the name of this matter in the unperturbed case, the term "relic ether" is proposed.
- Electromagnetic vibrations - an oscillatory process for converting the kinetic energy of incompressible matter into rotational energy of vacuum matter.
- It has been experimentally established that the accelerated rotation of the dielectric disc leads to a change in the clock rate in its vicinity.
- It is assumed that the change in the clock rate reflects the change in the course of time in the vicinity of the rotating dielectric disk.

The main conclusion

If the physical characteristics (density, energy, momentum) change in the volume, then the unit of time changes in this volume.

The unit of measurement of time depends on other characteristics of the substance, and in particular on energy.

Why is this work important to understanding "cold fusion"

- There are two methods of obtaining "excess" energy in the CNS :
  - generation of a compact substance that acts as a catalyst for the CNF reaction,
  - the influence of electromagnetic in the reactor on the course of time in the reactor, and due to this, obtaining "excess" energy at a given power of an external source.
- CdT/adt = q – change in the temperature of the working substance of the reactor,
- C, T – heat capacity and temperature of the reactor substance
- a,dt - coefficient of change of time and time interval in the reactor volume
- q – external power source power
- CdT/dt = aq – from the point of view of an outside observer. Changing the course of time leads to the conclusion that the power of the external source has increased by a factor.

Some questions that have arisen

- If there is an electromagnetic correction for the unit of measurement of time, then most likely there is an electromagnetic correction for the unit of measurement of space, because.

$$\Delta x = c^* \Delta t$$

- Doesn't it mean that being in a space with a smaller unit Δt, we know the future for a space with a larger unit Δt.
- Is the quantum-mechanical uncertainty in measuring the parameters of small particles connected with the uniqueness of the state of the "relict ether" around us, as a medium with an infinite number of degrees of freedom.

- Does not the long-term independent existence of the “relict ether” disturbance (which follows from the experiment) with the possibility of the existence of the soul.

Ether and soul.

- It is clear that the electromagnetic field, or in other words the electromagnetic ether, is an entity that accompanies any charge.
- It is clear that a set of electric charges that make up any organism, structured in a special way, creates an electromagnetic etheric image, for example, a person, structured in a special way.
- From the experiment we see that a structured electromagnetic field (or, in other words, an electromagnetic ether) created by charges can exist in a dynamic form (move slowly) and without charges.
- The question arises, maybe the electromagnetic etheric image of a person can exist without the electric charges that make up a person.
- The question arises, how long can the electromagnetic etheric image of a person exist independently, without the electric charges that make up a person?.
- If the electromagnetic etheric image of a person can exist independently for a long time, then the question arises: «Perhaps the electromagnetic etheric image of a person is his soul?»
- Where is the ethereal image of a person located if the velocity of the ethereal disturbance is very low and it is reflected from the walls?

THANKS!