ON THE BEHAVIOR OF PHYSICAL PARAMETERS OF AQUEOUS SOLUTIONS AFFECTED BY THE INERTON FIELD OF TESLAR® TECHNOLOGY

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Abstract

We present studies of the behavior of the permittivity of such liquid systems as pure distilled water, alcohol and 50%-aqueous solutions of alcohol as affected by the inerton field generated by a special signal generator contained within a wrist-watch or bracelet made by so-called Teslar® technology. It has been found that the changes in fact are significant. The method employed has allowed us to fix the value of frequency of the field generated by the Teslar® chip. The frequency has been determined to be approximately 8 Hz. The phenomenological consideration and submicroscopic foundations of a significant increase of the permittivity are studied taking into account an additional interaction, namely the mass interaction between polar water molecules, which is caused by the inerton field of the Teslar® chip. This is one more proof of Krasnoholovets' concept regarding the existence of a substructure of the matter waves of moving/vibrating entities, i.e. the inerton field, which has been predicted in a series of his previous works.

key words: Teslar technology, permittivity, matter waves, mass, inertons, quantum mechanics

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1 Introduction

The influence of physical fields generated by sources of electromagnetic waves of the so-called non-Hertzian type (scalar waves), has been marked in operations of the medical and biologic profile [1-3] . In those experiments, the effect of generators of scalar waves on biological objects of various levels of organization was researched. The *Teslar® technology* is said to be of such a generator. Those authors put forward the supposition that the effect of energy of scalar fields on such nonlinear systems as biological objects was more essential than the influence of conventional vector electromagnetic fields.

Those medical and biological experiments have allowed other kinds of studies, namely, the examination of behavior of chemical and physical systems affected by the Teslar® technology. First of all such objects are liquids and crystals. Taking into account the nonlinear behavior of responses of biological objects to the Teslar® chip, we have decided to examine those temperature regions in which nonlinear properties of selected objects are most clearly observed. It seems that the first kind of phase transition of the system studied (for instance, the liquid-steam transition) is the most suitable for our purpose. That is why in our experiments we have decided to examine features of the influence of scalar fields of the Teslar® chip (the TC below) on the process of evaporation of components of the aqueous solution under examination. More exactly, our purpose has been the comparison of dielectric characteristics of aqueous solutions of organic substances, both under and independent of the influence of the TC. As model substances we have taken distilled water, pure ethyl alcohol C_2H_5OH, glycerin, and the aqueous solutions of alcohol and glycerin. The most significant results have been obtained during experiments involving the 50 %-aqueous solution of alcohol.

2 EXPERIMENTAL

2.1 Experimental conditions

Our experiments have been conducted in a special room shielded from electromagnetic interference, in accordance with the National Standards of Ukraine in support of unity of measurements. Namely, at such conditions, measuring equipment yields results with accuracy up to 10 nV. This level of measurement is quite sufficient for obtaining trustworthy information from our experiments. The National Standards of Ukraine on support of unity of measurements corresponds to the defined norms of international standard IEC (International Electrotechnical Committee). Moreover, a grounded metal box covered the cuvette with samples studied; the box was cube-shaped with equal sides of approximately 12 cm.

In the room, the following common conditions were maintained:
- Barometric pressure was controlled between 750 to 770 mm of mercury column,
- Temperature was maintained between 18 to 22 °C,
- Relative humidity of air was maintained between 65 to 75 %.
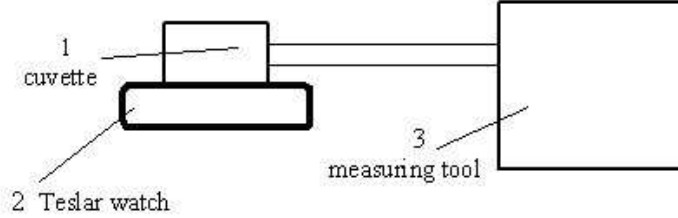The experiments were conducted during normal day working hours.

Figure 1: Scheme of the experiments of the kind *(a)*.

2.2   Measurements

Two kinds of experiments have been performed:
(a) the study of the behavior of capacity of the 50%-aqueous solution of alcohol affected by the TC in the course of evaporation of the solution components;
(b) the study of the behavior of capacity of the 50%-aqueous solution of alcohol affected by the TC and the modulated laser radiation in the course of evaporation of the solution components.

2.2.1   Measurements of scheme (*a*)

In the experiments of the kind *(a)* we used the set-up shown in Figure 1.

The experiments were carried out with the use of a measuring cell, i.e. the cuvette "1" with sizes $30 \times 4 \times 0.5$ mm^3. It was a typical capacitor: two plates made of high-quality nickel, which are jointed by thin teflon gaskets. The top surface of the capacitor was open for free evaporation of components of the solution. The capacity of the aqueous solution was measured by device "3" that is the measuring tool of impedance E7-15. The value of measuring field was equal to $U_{\mathrm{meas}} = 2$ V; the frequency of measuring field was chosen equal to $f_{\mathrm{meas}} = 100$ Hz (for the first series of experiments) and $f_{\mathrm{meas}} = 1$ kHz (for the second series of experiments).

In the experiments we have investigated how the capacity of the solution varies with time. We considered two cases: the aqueous solution without the TC (control) and the aqueous solution affected by the TC (test samples). The watch "2" has been placed as shown in Figure 1. The distance between the watch and the cuvette was equal to 1mm.

The residual solution was weighed and its volume measured to estimate the density.

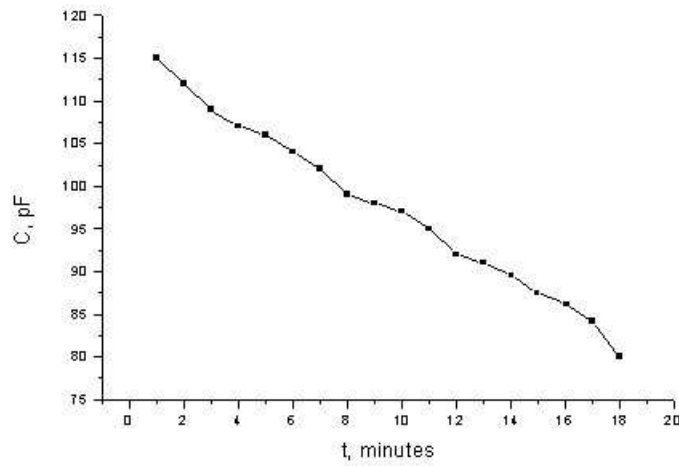The experimental results are presented in Figures 2 to 5.

Figure 2: Capacity of the 50%-aqueous solution of alcohol as a function of time at the frequency of measuring electric field $f_{meas} = 1$ kHz without the influence of the TC. However, a conventional quartz watch (an imitator) is used, under the cuvette, for the compensation of influence of the metal case of the Teslar Watch on the allocation of the strength of the measuring field in the experimental cell, i.e. cuvette.
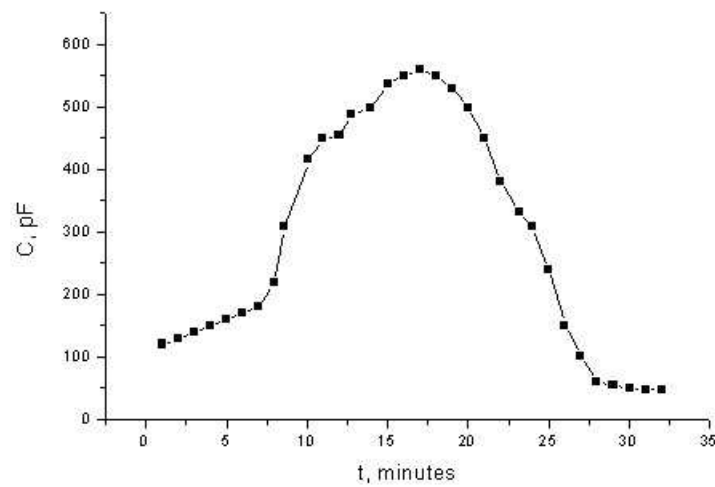

Figure 3: Capacity of the 50%-aqueous solution of alcohol affected by the TC as a function of time at the frequency of measuring electric field $f_{meas} = 1$ kHz.

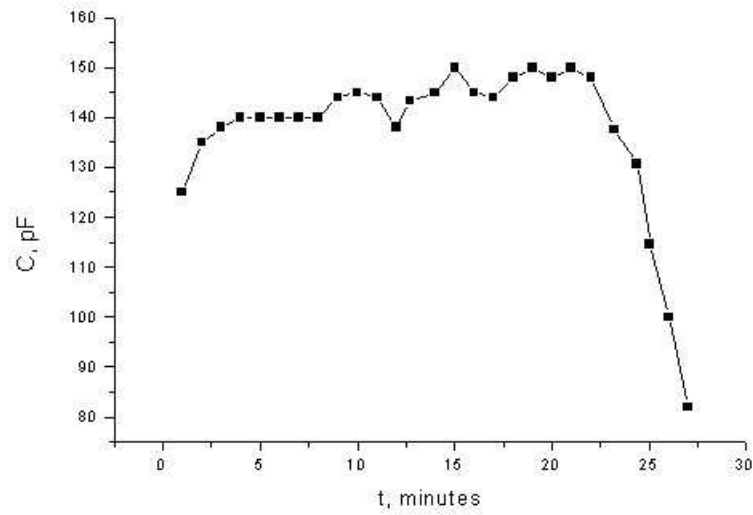Figure 4: Capacity of the 50%-aqueous solution of alcohol as a function of time at the frequency of measuring electric field $f_{\mathrm{meas}} = 100$ Hz without the influence of the TC but with the presence of an imitator.
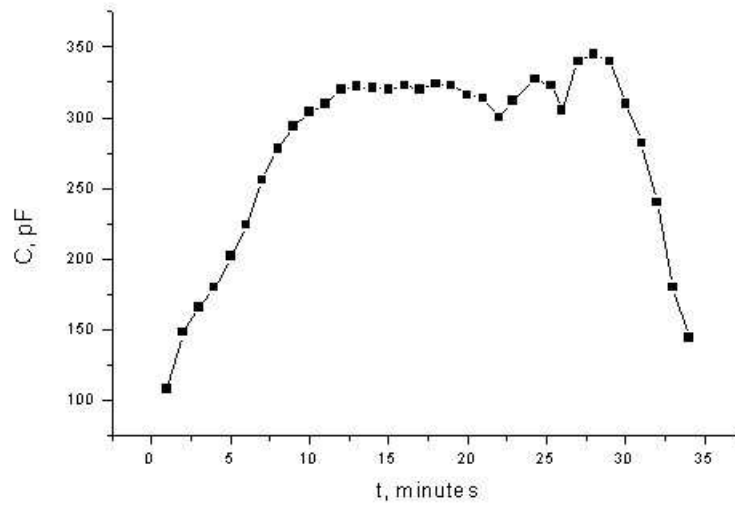

Figure 5: Capacity of the 50%-aqueous solution of alcohol affected by the TC as a function of time at the frequency of measuring electric field $f_{\mathrm{meas}} = 100$ Hz.
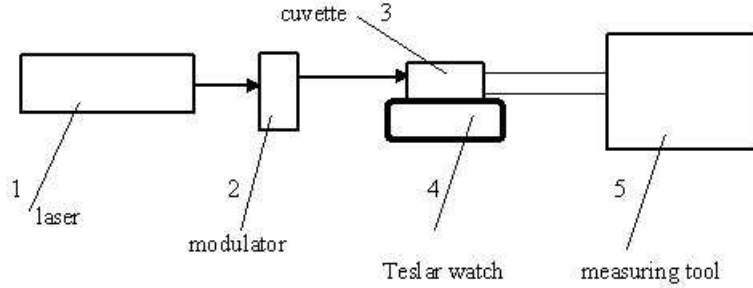
Figure 6: Scheme of the experiments of the kind *(b)*.

2.2.2 Measurements of scheme (*b*)

In the experiments of the kind *(b)* we used the set-up shown in Figure 6

Here the measuring cell "3" is a cuvette with sizes indicated above. Where the laser beam enters the cuvette, a gasket made not of teflon, but BaF_2, which is transparent to the laser beam with the wavelength $\lambda = 0.63$ μm.

The source of continuous radiation "1" was the gaseous He-Ne laser ЛГН-113, whose power parameters were controlled by the pyroelectric tester of power ПВЦ-2, worked out by our Institute of Physics. The instrument certified in Ukraine measures the power in the range of 10^{-7} to 1 W and in the spectral range of 0.3 to 15 μm. In the present experiments the power of laser beam was equal to $P = 8$ mW.

The flow of laser radiation was modulated by the mechanical modulator "2", which enters the makeup of the power tester ПВЦ-2. The frequency of modulation could be tuned between the range of 7 to 20 Hz with accuracy of 0.1 Hz.

It should be particularly emphasized the significance of this experimentation: it allows us to act upon the aqueous solution under examination in the frequency range close to 7 to 9 Hz, which as presupposed is distinctive for the non-specific radiation of the TC.

The capacity of the solution has been measured by device "5", the measuring tool of impedance E7-15. The same characteristics of this measuring tool as described in experiment (*a*) were exploited. Conditions at which our experiments were conducted, the technique and equipment set-up, were within the National Standards of Ukraine.

In the experiments, we have investigated how the capacity of aqueous solution varies with time both under the influence of the TC, and outside the influence of the TC. The watch "4" was placed as shown in Figure 6.

The distances between parts of the set-up shown in Figure 6 are the following.

6

The distance from the exit window of laser "1" to the modulator "2" was about 30 cm; the cuvette "3" was divided from the modulator "2" by 25 cm; the Teslar watch "4" was separated by 1 mm from the cuvette "3"; the measuring tool "5" was separated by 50 cm from the cuvette "3".

The experimental results obtained are presented in Figures 7 and 8.

2.3   Discussion of experimental results

The results of measurements presented above show an unusual behavior of dielectric properties of the 50%-aqueous solution of alcohol.

The key results of the experiments can briefly be stated as follows. Under the action of radiation of the TC the alcohol component is evaporated more intensively from the solution; this is evident from the study of the solution density. At the same time the water component is specified by a "frozen" state.

These results are associated with the behavior of the permittivity of the solution, because the capacity C is proportional to ε and the permittivities of the solution components are $\varepsilon_w = 81$ (water) and $\varepsilon_a = 26$ (alcohol). The real part of the permittivity ε of the solution increases remarkably with time, which is seen from Figures 3 and 5. The following decrease of ε is provoked by the evaporation of the remaining water. This is apparent from the experiments of the kind *(a)*.

A very similar behavior shows the aqueous solution of alcohol in the case of the experiments of the kind *(b)*, Figure 8. However, here, the change of ε strongly depends on the value of the modulating frequency f_{mod} of laser beam. In the range $7.6\,\mathrm{Hz} \leq f_{mod} \leq 9\,\mathrm{Hz}$ we observe a very peculiar restraining of the evaporation process. The increase of the value of f_{mod} leads to the increase of the real part of the permittivity ε, which in turn means the intensification of evaporation of the alcohol component.

The observed anomalies of the behavior of ε cannot be explained in the framework of classical electrodynamics in principle. Indeed, the capacity of our measuring cell filled with the aqueous solution has to be determined as the appropriate expression written for the plane capacitor,

$$C = \frac{\varepsilon_0\,\varepsilon\,S}{d},$$ (1)

where ε_0 is the dielectric constant, ε is the permittivity of the substance in question, d is the width of the capacitor and S the square of capacitor plate. One can say that at initial stages of measurements the increase in capacity C can be associated with the increase of ε of the aqueous solution. The rate of this increase exceeds the rate of the decrease of the square S. The value of S, which is defined by the quantity of aqueous solution that fills the capacitor, gradually diminishes due to several reasons: the natural evaporation of the alcohol component and the irradiation by the measuring field and the laser beam.

The relative dielectric constant of the 50%-aqueous solution of alcohol can be written in the form (see, e.g. Ref. 4)

$$\varepsilon = \frac{m_a}{m_a + m_w}\varepsilon_a + \frac{m_w}{m_a + m_w}\varepsilon_w$$ (2)
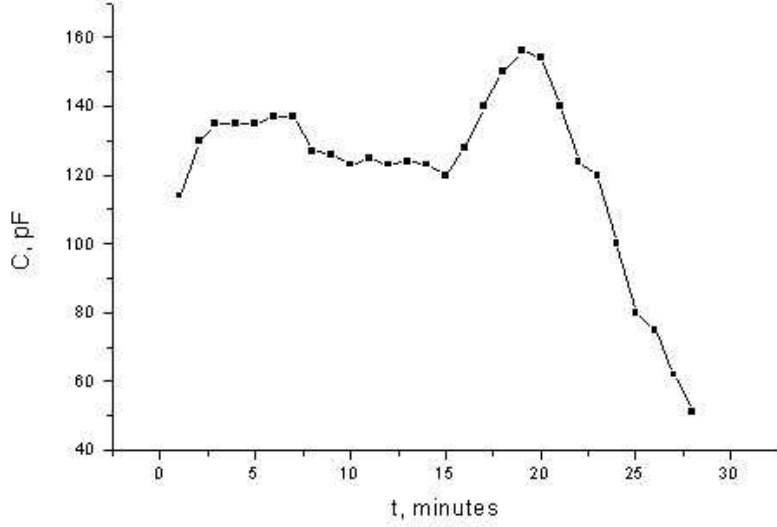
Figure 7: Capacity of the 50%-aqueous solution of alcohol as a function of time, without the TC, but in the presence of an imitator. The cuvette is scanned by the measuring electric field with the frequency $f_{\mathrm{meas}} = 1$ kHz and is irradiated by the laser beam. The frequency of mechanical modulation f_{mod} of the laser beam changes as follows: $f_{\mathrm{mod}} = 7$ Hz from the 1st to 10th minutes; $f_{\mathrm{mod}} = 8$ Hz from 11th to 13th minutes; $f_{\mathrm{mod}} = 9$ Hz from 14th to 19th minutes; and $f_{\mathrm{mod}} = 10$ Hz from 20th to 28th minutes.
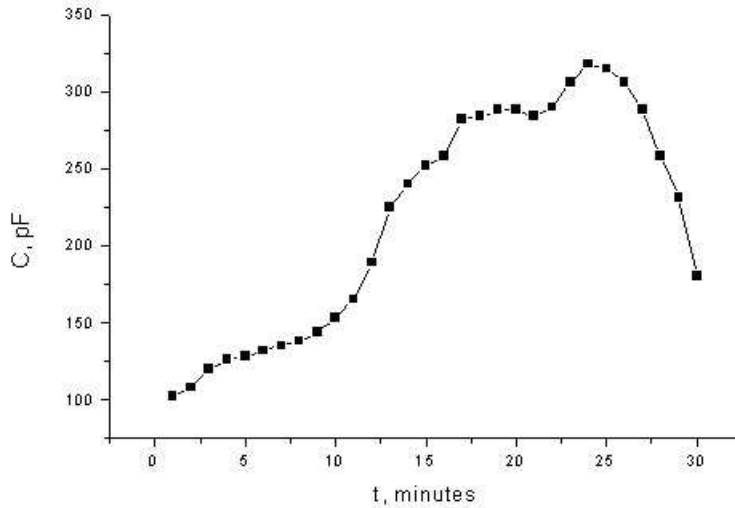
Figure 8: Capacity of the 50%-aqueous solution of alcohol affected by the TC as a function of time. The cuvette is scanned by the measuring electric field with the frequency $f_{\mathrm{meas}} = 1$ kHz and is irradiated by the laser beam. The frequency of mechanical modulation f_{mod} of the laser beam changes as follows: $f_{\mathrm{mod}} = 7.6$ Hz from the 1st to 8th minutes; $f_{\mathrm{mod}} = 8$ Hz during the 9th minute; $f_{\mathrm{mod}} = 9$ Hz during the 10th minute; $f_{\mathrm{mod}} = 10$ Hz from 11th to 16th minutes; and $f_{\mathrm{mod}} = 20$ Hz from 17th to 30th minutes.

where m_w and m_a are the water and alcohol masses in the aqueous solution, respectively; ε_w and ε_a are the relative dielectric constants of water and alcohol, respectively.

At the initial condition, the dielectric constant ε of the 50%-solution can be presented by the following expression

$$\varepsilon = 0.5\,\varepsilon_w + 0.5\,\varepsilon_a = 0.5 \times 81 + 0.5 \times 27 = 54 \tag{3}$$

where $\varepsilon_w = 81$ and $\varepsilon_a = 27$.

Owing to the evaporation, the maximum possible value of ε can reach is the value $\varepsilon = \varepsilon_w = 81$ (when the alcohol component is completely evaporated). Due to the evaporation, the liquid surface S of the capacitor decreases by a factor of two, $S/2$. Therefore, one can anticipate the reduction of the capacity by 25 %. However, contrary to the anticipation, we have observed a significant increase in the capacity, up to 5.5 times (see Figure 3). Clearly such a phenomenon must be associated only with the influence of the TC on the aqueous solution.

3 The Theory of the Phenomenon

3.1 Phenomenological consideration

The expression for dielectric permittivity ε can be written in the following general way

$$\varepsilon = \frac{dD}{dE}, \tag{4}$$

where E and D are the electric field strength and the electrical induction of the solution studied, respectively. In the linear approximation

$$D = \varepsilon_0 E + P \tag{5}$$

where P is the polarization of molecules, which is represented as the sum of electronic P_e, nuclear P_n and orientational P_o components [5]

$$P = P_e + P_n + P_o. \tag{6}$$

With an intensive evaporation, the structure of the aqueous solution of alcohol changes and obviously the major contribution to a change of P introduces the orientational polarization P_o. Let us consider the dependency of P_o on the side of the scalar field generated by the TC representing it as a superposition of two electromagnetic waves whose amplitudes are the same but are displaced in phase by $180°$, such that the electromagnetic polarization becomes compensated. In what way is such a resultant field able to interact with chaotically oriented dipole moments of molecules of the solution?

It is well-known that in an applied field $\vec{E}$ the potential energy U of a molecule with a dipole moment $\vec{p}$ is equal to

$$U = -\vec{p} \cdot \vec{E} = p\,E\,\cos\vartheta \tag{7}$$

9

where ϑ is the angle between vectors $\vec{p}$ and $\vec{E}$. If one changes the direction of the electric field $\vec{E}$ to the opposite one, $-\vec{E}$, then $\cos\vartheta$ must also change the sign. Therefore, two waves having opposing polarization, which are phase shifted by $180°$, will be characterized by the doubled potential energy (7), i.e. the energy of a dipole in these two waves will be specified by the value $2U$. Then following Ref. 5, we can write the resulting orientation polarization of the solution studied

$$P_{\mathrm{o}} = np\,L\,(2pE/k_{\mathrm{B}}T) \tag{8}$$

where k_{B} is the Boltzmann constant, T the temperature, n the concentration of molecules and $L(x)$ is the Langeven function determined as

$$L\,(2pE/k_{\mathrm{B}}T) = \coth\,(2pE/k_{\mathrm{B}}T) \; - \; k_{\mathrm{B}}T/2pE \tag{9}$$

At the room temperature, which corresponds to the experimental conditions, $2pE \ll k_{\mathrm{B}}T$ and hence $L\,(2pE/k_{\mathrm{B}}T) \approx 2pE/\,(3k_{\mathrm{B}}T)$. That is why the polarization becomes

$$P_{\mathrm{o}} = 2np^2E/\,(3\,k_{\mathrm{B}}T)\,. \tag{10}$$

In expression (10) the value of the field E should represent the time-averaged component of the scalar field. Averaged effective amplitude E of two superposed electric fields can easily be derived,

$$E = \bar{E} + \bar{E} = 2 \times \frac{1}{T/2} \int\limits_{0}^{T/2} E_0 \sin(\omega t)\,dt = \frac{4}{\pi}E_0 \tag{11}$$

where $\omega = 2\,\pi/T$ and E_0 is the amplitude of each of the two electromagnetic waves.

Thus we may suggest that the frequency of the scalar field is twice as larger in comparison with the frequency of each electromagnetic components, whose superposition forms the scalar wave in question. Therefore, expression (10) becomes

$$P_{\mathrm{o}} = 8np^2E_0/\,(3\pi\,k_{\mathrm{B}}T)\,. \tag{12}$$

A similar reasoning has to be true for the measuring field. That is, the contribution to ε on the side of the scalar field studied, which is determined as $\Delta\varepsilon = \Delta P_{\mathrm{o}}/\Delta E$, should be 4 times a conventional measuring field.

The large value of polarization (12) means a substantial growth of the dielectric permittivity. In other words, the scalar field "freezes" dipoles of water molecules, which results in the increase of the polarization P_{o} of the aqueous solution of alcohol.

3.2   Submicroscopic foundations

In the TC two flows of electromagnetic field, which spread in the same direction, are canceled and this creates a scalar low frequency wave that continues to transfer the energy stored in the electromagnetic field. That was the hypothesis of the authors of the invention.

One can ask whether this is possible. Although this would be accounted for in phenomenological terms, as has been described in the previous subsection, the answer of the conventional foundations of physics, which is based on orthodox quantum theory, is rather negative, because these foundations are not fundamental enough. At the same time, the submicroscopic concept of the foundations of physics [6-9] allows us to account for the cancellation of two electromagnetic waves that spread along the same line and whose electric (and magnetic) polarization is shifted on the phase 180°.

In Ref. 10 and Ref. 11 a detailed theory of the photon, which is an elementary carrier of electromagnetic waves, and the electric charge as such have been developed starting from first submicroscopic principles that consider the real physical space as a tessellation lattice (called the tessellattice) of primary elements, cell, balls, or superparticles. It has been argued that the electric and magnetic polarizations of a photon are associated with the surface profile of the photon, i.e. the electric and magnetic polarization are played on the surface of the primary cell of the tessellattice and this polarization is transferred from cell to cell by relay mechanism.

One more excitation of the tessellattice is the inerton: this is a local excitation of the tessellattice, located in a cell and which moves by relay mechanism, as well. The inerton is associated with the reduction of the volume of a cell. This is a mass excitation.

A photon is also characterized by the volume reduction, because this is the initial condition for an excitation to exist. Initially a fractal volumetric deformation emerges in a degenerate cell of the tessellattice and this is the mass excitation (see Ref. 7 and Ref. 8). The state of the surface of this excitation determines whether it is: 1) a pure mass excitation (the inerton), which does not have any surface polarization, or 2) a mass excitation that additionally is characterized by a special relief of the cell surface (the photon).

Thus if two photons, which are opposite in phase and are spreading along the same line touch each other, the polarizations pertaining to the photon surfaces should neutralize one another. This brings about neutral massive excitations of the space, i.e. inertons.

By this means it is quite possible the emergence of inertons owing to the cancellation of photons. These inertons will continue to move along the path of initial photons and will transfer the same energy that had been carried by photons.

3.3 Collective interaction of water molecules

In the case of the TC, setting for the frequency of the TC's inertons $\nu \approx 8$ Hz, we can write the relations

$$h\nu = m\,\tilde{c}^2 = 5.3 \times 10^{-38} \text{ J} \tag{13}$$

where m and $\tilde{c}$ are the mass and the velocity of the inerton.

As has been shown in Ref. 12, the vibratory potential of water molecules, which is associated with their elastic properties, is caused by the overlapping of inerton clouds of vibrating entities. This means that vibrating entities, which interact through the inerton interaction (a subsystem of the matter waves), are able to fall into the

interaction with an applied inerton field. Thus, in the aqueous solution, molecules of H_2O and C_2H_5OH engage with the external inerton field radiated by the TC (i.e. a flow of mass) and become the receptors of the inerton radiation.

The most interesting is the water molecule H_2O, because it can be treated as both the "mass dipole" and the electric dipole. In fact, the water molecule is asymmetric: one edge is heavy (oxygen) and the other edge is light (two hydrogen). Hence the heaviest edge should turn to the source of the inerton radiation (i.e. the TC) and the light edge should be oriented in the opposite direction. The electric dipole exactly superimposes on this "mass dipole" (oxygen has the negative charge and a pair of hydrogen has the positive charge).

It is important to note, the measuring electric field can introduce microscopic perturbations in the samples studied; in our case, the intensity of the measuring field was not small enough to avoid this; its intensity was in the range 10 to 100 mW/cm^2. Therefore among other flows in the cuvette one can distinguish a micro conventional flow that is characterized by the same value of frequency, namely, $\nu \approx 8$ Hz. This means in light of submicroscopic mechanics developed by Krasnoholovets [13-16] that in this flow, water molecules should be specified by the following kinetic parameters: the de Broglie wavelength of the molecule $\lambda \sim 10^{-5}$ m, the molecule velocity $\upsilon \sim 10^{-3}$ m/s and the frequency of spatial oscillations of the particle $\nu = 2\upsilon/\lambda \approx 8$ Hz.

If the inerton field radiated by the TC orders water molecules, we can then suggest that ordered water molecules begin to interact stronger. In other words, this should result in additional correlation between dipoles of water molecules. Figure 9 discloses this mechanism graphically.

Water molecules with these parameters begin to interact resonantly with the inerton field of the TC. Or more exactly, the inerton field stimulates all the water molecules in the cuvette to synchronic motion with the aforementioned parameters.

Let us put for the estimate the smallest value of the intensity of the inerton field that the TC can radiate, $I = 10^{-6}$ W/cm^2. Then in time $t = 100$ s each water molecule receives a dose of inerton energy equal to

$$E = It\sigma = 10^{-6} \text{ W/cm}^2 \times 100 \text{ s} \times 10^{-16} \text{ cm}^2 = 10^{-20} \text{ J} \tag{14}$$

where $\sigma = 10^{-16}$ cm^2 is the true cross-sectional area of a water molecule (recall the thermal energy at the room temperature is $k_BT = 4.25 \times 10^{-21}$ J). The energy (14) is used for the further generation of the synchronic motion of water molecules and partly the energy dissipates.

Since the inerton cloud surrounding each molecule is exemplified by the radius [13-15]

$$\Lambda = \lambda \tilde{c}/\upsilon, \tag{15}$$

inertons of each molecule completely cover all the other molecules in the cuvette (this follows from the meanings of the parameters above). On the other hand, the inerton cloud of a water molecule represents exactly the range of space topped by the wave ψ-function that is employed in the orthodox quantum mechanical formalism. The overlapping of inerton clouds of water molecules allows the transference of absorbed
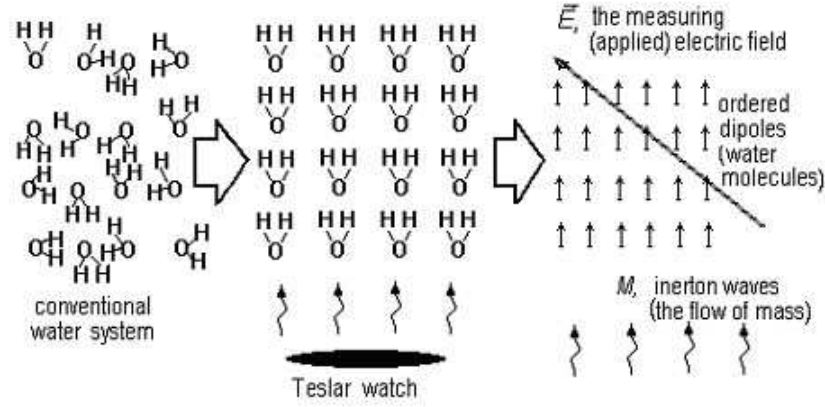
Figure 9: Behavior of the dynamic water system affected by the TC.

inertons irradiated by the TC to other molecules in the aqueous solution. During time $t = 100$ s a water molecule can absorb $N = E/(h\nu) \sim 10^{12}$ inertons. Then the mass of this molecule should obey the kinetic equation

$$\dot{m} = -\alpha m + \beta M \tag{16}$$

where the term αm describes the dissociation and the term βM depicts the growth of the molecule mass (due to the absorption of the mass M from the TC). The solution to equation (16) has the form

$$m = m_0 e^{-\alpha t} + \beta M \tag{17}$$

It is obvious that the behavior of absorbed energy E (14) should also follow the rule for the mass m (17) and, as it follows from our experiments, the relaxation time $1/\alpha$ can reach several tens of minutes.

The energy (14), which a molecule absorbs, expands to other molecules through the cloud of inertons. At the moment $t = 100$ s the energy (14) allocated to the ensemble of molecules already exceeds the thermal energy, $k_{\mathrm{B}}T$. Note this is the potential energy, i.e. the molecule re-allocating absorbed inertons induces a deformation of space, which then imbibes other water molecules. This signifies the appearance of an order parameter in the aqueous solution: Water molecules start to orientate themselves along the lines of the inerton field of the TC.

In the language of conventional physics this means that in the time $t \sim 100$ s the TC's field forms a potential well W for each water molecule in the cuvette and the depth of the well is no less than the value of the thermal energy, i.e. $|W| \sim |E| \geq k_{\mathrm{B}}T$.

The filament ordering of water molecules caused by the external inerton field should induce their additional dipole-dipole interaction in the same filament. Then in expression (8) the dipole moment p of a water molecule should be replaced by a more complicated expression that in the approximation of nearest neighbors can be

13

presented in the form

$$p \rightarrow p \times (1 + \chi(I) M/k_B T) \qquad (18)$$

where the matrix element of the energy of interaction of a pair of dipoles [17]

$$M = \frac{\sqrt{2/3}}{4 \pi \varepsilon_0} \frac{|\vec{p}_a||\vec{p}_b|}{r_{ab}^3}; \qquad (19)$$

here r_{ab} is the distance between the nearest dipoles a and b in the "filament". The dimensionless function $\chi(I)$ in expression (19) should be treated as a coupling parameter that makes an allowance for the influence of the external inerton field on the interaction of dipoles.

Substituting p from expression (18) (with regard to (19)) into expression for the permittivity we finally obtain

$$\varepsilon = \frac{np^2}{3 k_B T} \times \left(1 + \sqrt{2/3}\, \chi(I) \frac{p^2}{4 \pi \varepsilon_0 g^3}\right)^2 \qquad (20)$$

where the indices are omitted and the designation for the lattice constant g (the distance between the nearest molecules) is introduced, p is the dipole moment of water molecule, n is the concentration of water molecules.

Let us assign now numerical values to the parameters in expression (20): $p = 6.2 \times 10^{-30}$ C·m, $g = 0.281$ nm, $k_B T = 4.25 \times 10^{-21}$ J and $\varepsilon_0 = 8.85 \times 10^{-12}$ F/m. If we put for the coupling parameter $\chi(I) = 0.45$, we can easy calculate the expression in the parentheses to the power 2; the outcome of the calculation is equal to 5.5, which exactly corresponds to the experimental result discussed above (once again, see Figure 3).

4   Conclusion

Our experimental results show that in a water system exposed to the Teslar® technology, a substantial increase of the permittivity occurs. The radiation of the Teslar® technology "freezes" dipole water molecules, which leads to the induction of an additional value of the dipole moment in a water molecule.

We also have proposed a theory of this interesting phenomenon. The theory is very new and is based on submicroscopic principles of the constitution of nature. The submicroscopic concept is the most fundamental one and can readily be introduced as the basis for the orthodox quantum mechanical formalism [6-16]. This concept could already explain some other unusual physical effects (see in Ref. 7 and Ref. 14). This allows us to state that the submicroscopic concept lends credibility to the theoretical analysis of experimental data obtained in section 3 of the present report.

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