

The study of the influence of physical fields of *Teslar*[®] technology on liquids in a critical range

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Abstract. We have studied changes in the permittivity of such liquid systems as pure distilled water, alcohol and 50%-aqueous solutions of alcohol as affected by *Teslar*[®] technology, a special signal generator contained within a wrist-watch or bracelet. 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*[®] watch; the frequency has been determined to be approximately 8 Hz. The submicroscopic theory of a significant increase of the permittivity is developed in which an additional interaction between polar water molecules caused by the *Teslar*'s field is introduced. The *Teslar*'s field is associated with the inerton field, a substructure of the matter waves of moving entities, which has previously been introduced by V. Krasnoholovets in a series of works.

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

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 kind of 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 C₂H₅OH, 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 on support of unity of measurements. Namely, at such conditions, measuring equipment yields results with accuracy up to 10 nV (nanovolts). This level of measurement is quite sufficient for obtaining of 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.

2.2. Measurements

Two kinds of the experiments have been performed:

- 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;
- 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 by the scheme (a)

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

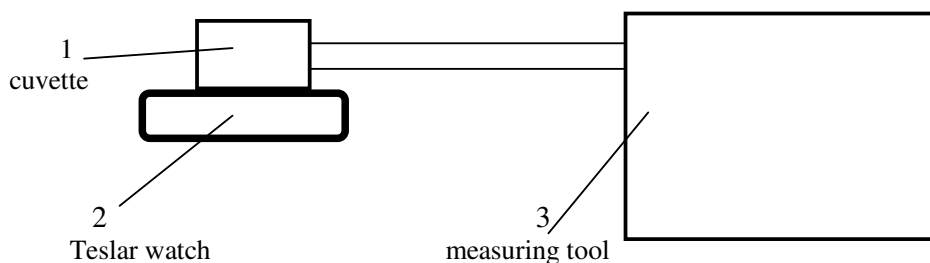


Figure 1. Scheme of the experiments of the kind (a).

The experiments were carried out with the use of a measuring cell, i.e. the cuvette "1" with sizes $30 \times 4 \times 0.5 \text{ mm}^3$. 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 $U_{\text{meas}} = 2 \text{ V}$; the frequency of measuring field was chosen equal to $f_{\text{meas}} = 100 \text{ Hz}$ (for the first series of experiments) and $f_{\text{meas}} = 1 \text{ kHz}$ (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.

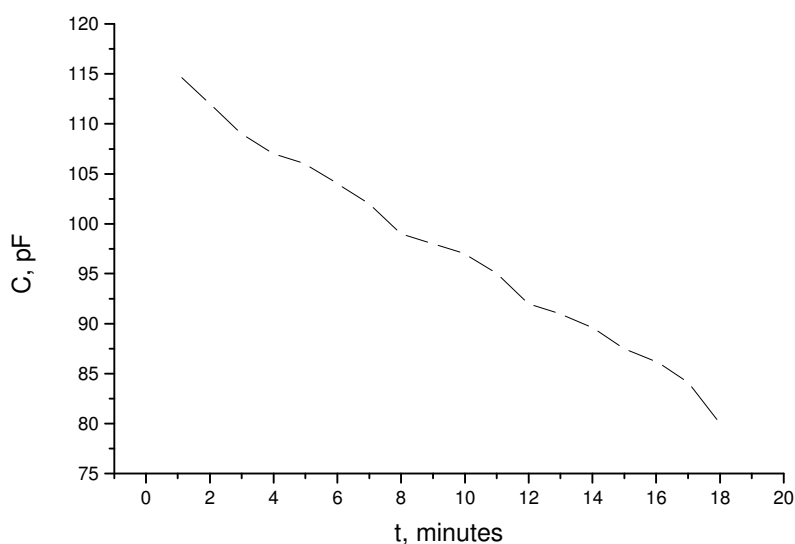


Figure 2. Capacity of the 50%-aqueous solution of alcohol as a function of time at the frequency of measuring electric field $f_{\text{meas}} = 1 \text{ kHz}$ without the influence of the TC. However, a conventional quartz watch (an imitator) is used, under the cuvette, for the compensation of influence 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.

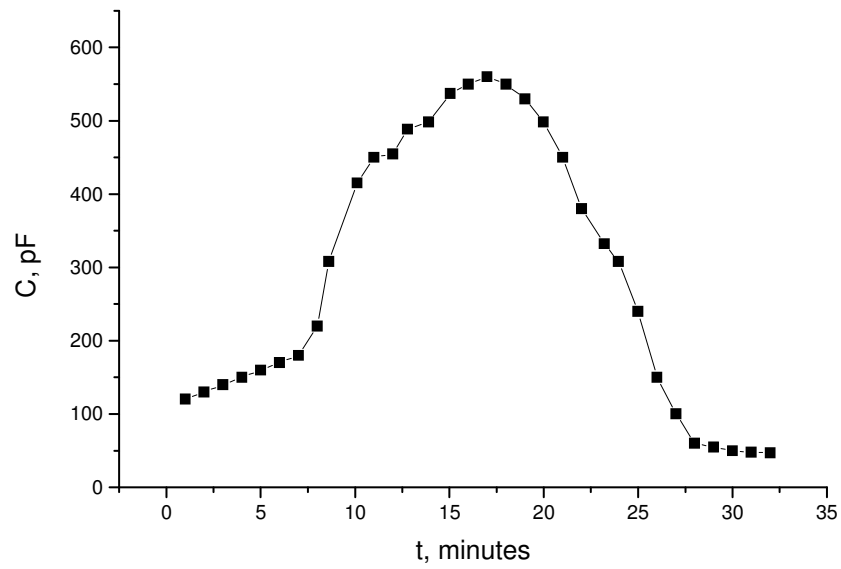


Figure 3. Capacity of the 50%-aqueous solution of alcohol affected by the TC as a function of time at the frequency of measuring electric field $f_{\text{meas}} = 1 \text{ kHz}$.

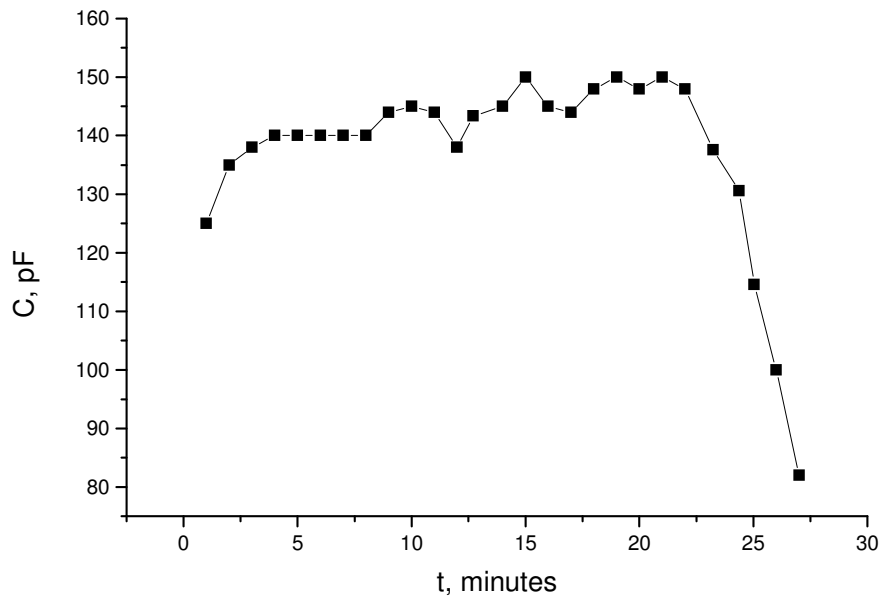


Figure 4. Capacity of the 50%-aqueous solution of alcohol as a function of time at the frequency of measuring electric field $f_{\text{meas}} = 100 \text{ Hz}$ without the influence of the TC but with the presence of an imitator.

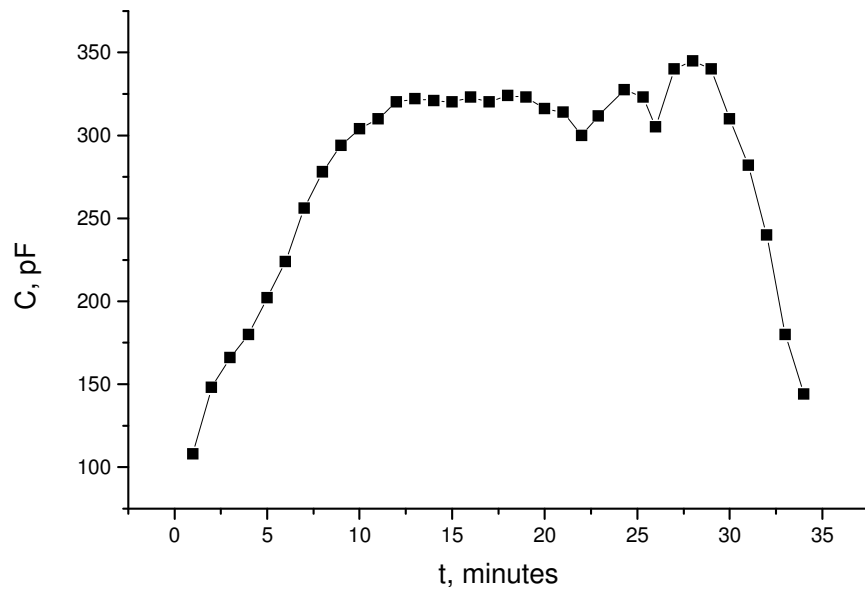


Figure 5. Capacity of the 50%-aqueous solution of alcohol affected by the TC as a function of time at the frequency of measuring electric field $f_{\text{meas}} = 100$ Hz.

2.2.2. Measurements by the scheme (b)

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

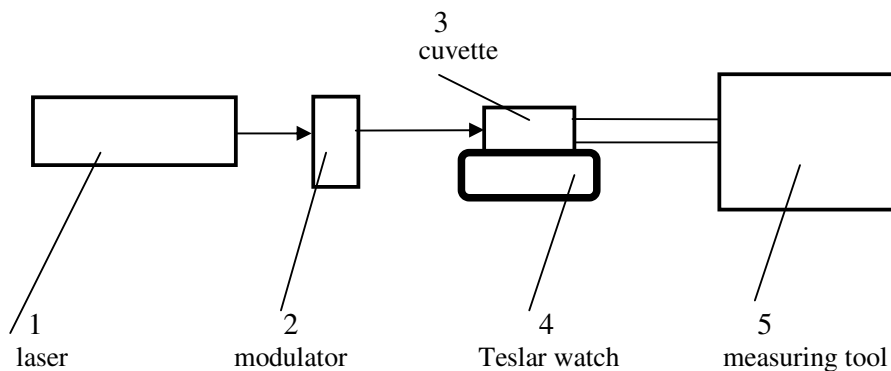


Figure 6. Scheme of the experiments of the kind (b).

Here the measuring cell "3" is a cuvette with sizes indicated above. In the place of entering of the laser beam we used a gasket made not of teflon, but BaF_2 , which is transparent for the laser beam with the wavelength $\lambda = 0.63$ μm (micrometers).

The source of continuous radiation "1" was the gaseous He-Ne laser, J1FH-113, whose power parameters were controlled by the pyroelectric tester of power, ПБИЦ-2, worked out by

our Institute of Physics. This is an instrument certified in Ukraine, which measures the power in the range 10^{-7} to 1 W and in the spectral range 0.3 to 15 μm . In the present experiments the power of laser beam was equal to $P = 8 \text{ mW}$ (milliwatt). The optical length of the path of laser beam from the laser up to the measuring cell was equal to 250 mm.

The flow of laser radiation was modulated by the mechanical modulator "2", which enters the makeup of the power tester, ПБЦ-2. The frequency of modulation could be tuned between the range of 7 to 20 Hz with accuracy 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. 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 50 cm; the Tesla 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.

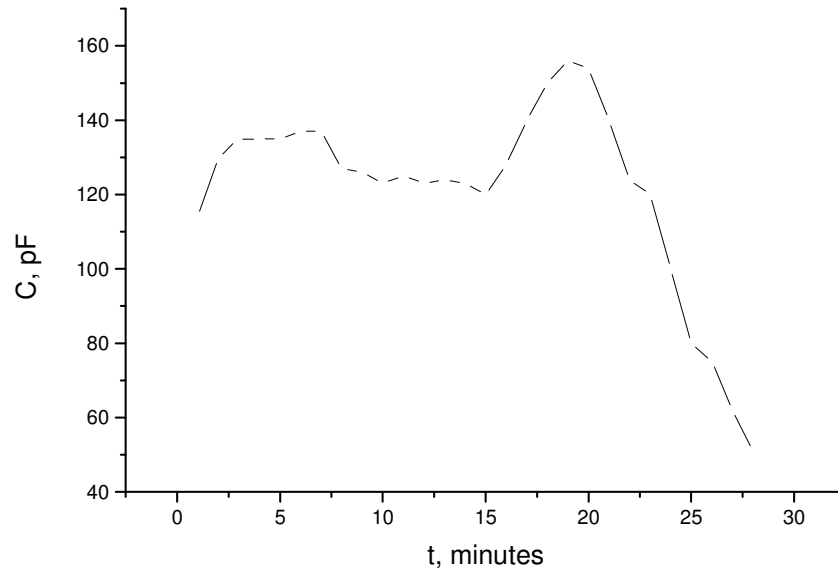


Figure 7. Capacity of the 50%-aqueous solution of alcohol as a function of time, without the TC, but in the presence of an imitator. The cuvette is scanned by the measuring electric field with the frequency $f_{\text{meas}} = 1 \text{ kHz}$ and is irradiated by the laser beam. The frequency of mechanical modulation f_{mod} of the laser beam changes as follows: $f_{\text{mod}} = 7 \text{ Hz}$ from the 1st to 10th minutes; $f_{\text{mod}} = 8 \text{ Hz}$ from 11th to 13th minutes; $f_{\text{mod}} = 9 \text{ Hz}$ from 14th to 19th minutes; and $f_{\text{mod}} = 10 \text{ Hz}$ from 20th to 28th minutes.

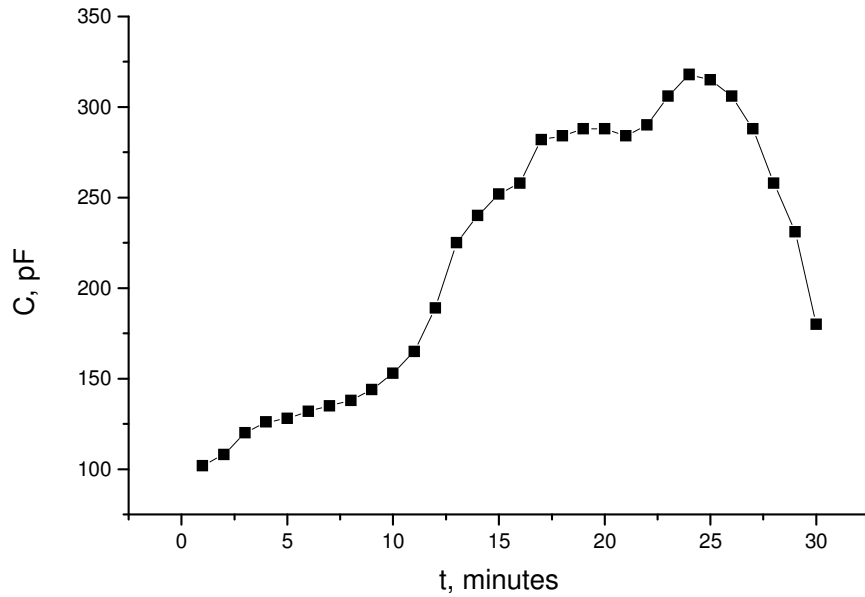


Figure 8. Capacity of the 50%-aqueous solution of alcohol affected by the TC as a function of time. The cuvette is scanned by the measuring electric field with the frequency $f_{\text{meas}} = 1$ kHz and is irradiated by the laser beam. The frequency of mechanical modulation f_{mod} of the laser beam changes as follows: $f_{\text{mod}} = 7.6$ Hz from the 1st to 8th minutes; $f_{\text{mod}} = 8$ Hz during the 9th minute; $f_{\text{mod}} = 9$ Hz during the 10th minute; $f_{\text{mod}} = 10$ Hz from 11th to 16th minutes; and $f_{\text{mod}} = 20$ Hz from 17th to 30th minutes.

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. In the Appendix we show similar unusual results obtained on pure distilled water and pure 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 ϵ of the solution, because the capacity C is proportional to ϵ and the permittivities of the solution components are $\epsilon_{\text{water}} = 81$ and $\epsilon_{\text{alcohol}} = 26$. 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 $7.6 \text{ Hz} \leq f_{\text{mod}} \leq 9 \text{ Hz}$ 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,

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

where $\varepsilon_0 = 8.85 \times 10^{-12}$ F/m 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

$$\varepsilon = \frac{m_a}{m_a + m_w} \varepsilon_a + \frac{m_w}{m_a + m_w} \varepsilon_w \quad (2)$$

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

$$\varepsilon = 0.5 \varepsilon_w + 0.5 \varepsilon_a = 0.5 \times 81 + 0.5 \times 27 = 54 \quad (3)$$

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. Expression for the permittivity

In connection with expressions (1) and (2), the capacitance C of the aqueous solutions studied depends on masses and permittivities of the components. Masses of two components of the solution gradually decrease with time and hence they cannot induce such an enlargement of ε (over 5 times).

Let us now concentrate on the classical determination of ε . The expression for the dielectric permittivity, in the general case is determined as

$$\varepsilon = \frac{dD}{dE} \quad (4)$$

where E is the intensity of applied electric field in a solution and D is the electrical induction of the solution, which in the linear approximation has the form

$$D = \varepsilon_0 E + P \quad (5)$$

where $\varepsilon_0 = 8.85 \times 10^{-12}$ F/m is the dielectric constant and P is the polarization of molecules of the solution in question. P is composed of three contributions [5]: P_e (the electronic polarization of molecules), P_i (the ionic polarization of molecules) and P_o (the orientational polarization of molecules), i.e.

$$P = P_e + P_i + P_o. \quad (6)$$

In the case of a low frequency applied electric field, the orientational polarization P_o introduces the major contribution to the polarization P (6) [4,5]. The applied electric field \vec{E} begins to put in order chaotically oriented molecules that possess the dipole moment \vec{p} . The potential energy of a molecule in this field is determined as

$$U = -\vec{p} \cdot \vec{E} = -pE \cos \theta \quad (7)$$

where θ is the angle between the vectors \vec{p} and \vec{E} . Then the averaged value of $\langle \cos \theta \rangle$ yields the polarization P_o of the solution (see, e.g. Ref. [5]),

$$P_o = npL(pE/k_B T) \quad (8)$$

where the Langeven function

$$L(pE/k_B T) = \coth(pE/k_B T) - pE/k_B T. \quad (9)$$

Here n is the concentration of molecules in the solution, k_B the Boltzmann constant and T the absolute temperature. At the room temperature the inequality $pE \ll k_B T$ holds, which allows the following expression for the polarization P_o instead of (8)

$$P_o = \frac{np^2 E}{3k_B T}. \quad (10)$$

Then we obtain from Eqs. (4), (5) and (10)

$$\varepsilon \rightarrow \varepsilon + \frac{np^2}{3k_B T}. \quad (11)$$

However, this well-known simple expression in which p designates the dipole of H_2O molecule fails to elucidate the experimental results represented in the section 2.

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. 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 π .

In papers [10,11] 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, or cell, or 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 Refs. [7,8]). 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

$$h\nu = m\mathcal{E} = 5.3 \times 10^{-33} \text{ J} \quad (12)$$

where m and \mathcal{E} are the mass and the velocity of the inerton.

In the aqueous solution, molecules of H_2O and $\text{C}_2\text{H}_5\text{OH}$ fall into the inerton field (i.e. a flow of mass) and become the receptors of the inerton radiation of the TC. 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/cm². 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 [12-15], 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 $v \sim 10^{-3}$ m/s and the frequency of spatial oscillations of the particle $\nu = 2v/\lambda \approx 8$ 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/cm². Then in time $t = 100$ s each water molecule receives a dose of inerton energy equal to

$$E = It\sigma = 10^{-6} \text{ W/cm}^2 \times 100 \text{ s} \times 10^{-16} \text{ cm}^2 = 10^{-20} \text{ J} \quad (13)$$

where $\sigma = 10^{-16}$ cm² is the true cross-sectional area of a water molecule (recall the thermal energy at the room temperature is $k_B T = 4.25 \times 10^{-21}$ J). The energy (12) is used for the further generation of the synchronic motion of water molecules and partly the energy dissipates.

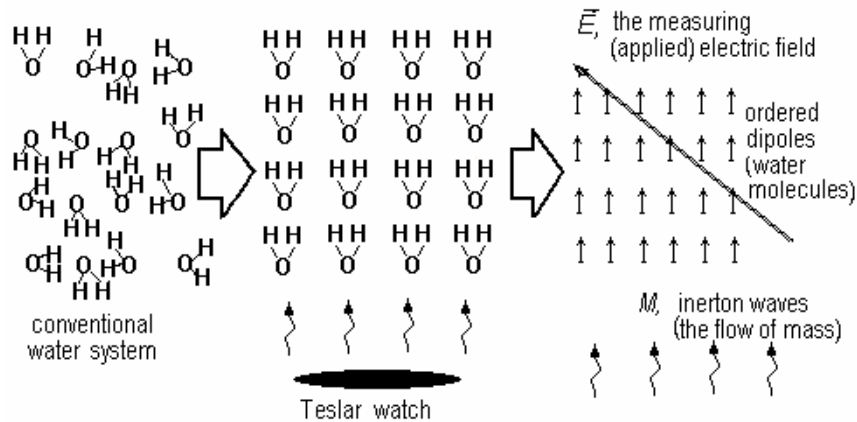


Figure 9. Behavior of the dynamic water system affected by the TC.

Since the inerton cloud surrounding each molecule is exemplified by the radius [12-14]

$$\Lambda = \lambda \mathcal{E} v, \quad (14)$$

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 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

$$\dot{m} = -\alpha m + \beta M \quad (15)$$

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 (15) has the form

$$m = m_0 e^{-\alpha t} + \beta M \quad (16)$$

It is obvious that the behavior of absorbed energy E (13) should also follow the rule for the mass m (16) and, as it follows from our experiments, the relaxation time $1/\alpha$ can reach several tens of minutes.

The energy (13), which a molecule absorbs, expands to other molecules through the cloud of inertons. At the moment $t = 100$ s the energy (13) allocated to the ensemble of molecules already exceeds the thermal energy, $k_B T$. 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. $|W| \sim |E| \geq k_B T$.

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 (7) 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 presented in the form

$$p \rightarrow p \cdot (1 + \chi(I) M / k_B T) \quad (17)$$

where the matrix element of the energy of interaction of a pair of dipoles [16]

$$M = \frac{1}{4\pi\epsilon_0} \sqrt{\frac{2}{3}} \frac{|\vec{p}_a| |\vec{p}_b|}{r_{ab}^3}; \quad (18)$$

here r_{ab} is the distance between the nearest dipoles a and b in the "filament". The dimensionless function $\chi(I)$ in expression (17) 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 (17) (with regard to (18)) into expression for the permittivity (11) we finally obtain

$$\varepsilon = \varepsilon_0 + \frac{np^2}{3k_B T} \left(1 + \chi(I) \frac{1}{k_B T} \sqrt{\frac{2}{3}} \frac{p^2}{4\pi\varepsilon_0 g^3} \right)^2 \quad (19)$$

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: $p = 6.2 \times 10^{-30}$ 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 easily 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 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 [6-15]. This concept could already explain some other unusual physical effects (see in Ref. [7,13]). 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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APPENDIX

We present here the results of the measurements of pure distilled water and alcohol, which show that the TC significantly changes characteristics of the liquids studied.

1. The results of the study carried out by scheme (a), Figures A1 to A6

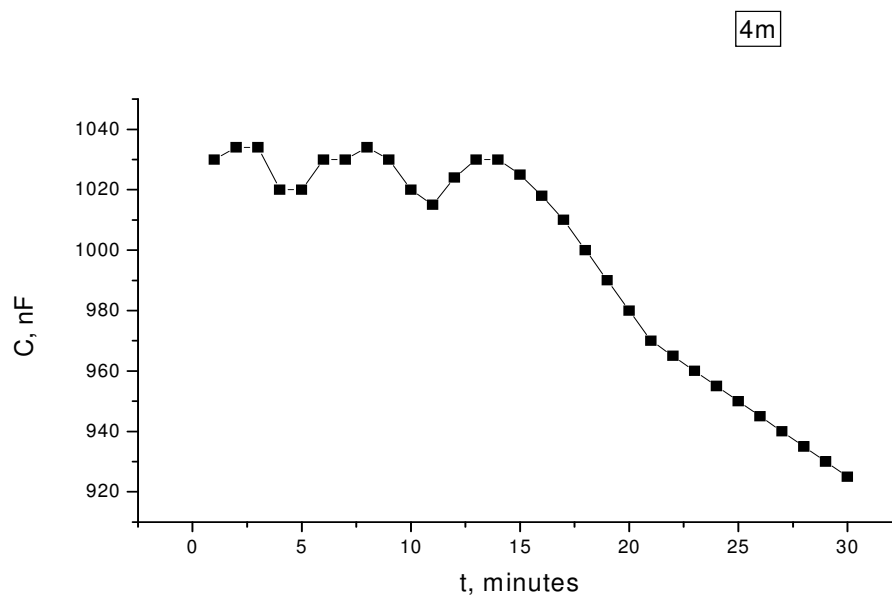


Figure A1. Capacity (C , nanofarad) of pure alcohol as a function of time. The cuvette is found in the external (measuring) electric field with the frequency $f_{\text{meas}} = 1$ kHz, without the TC, but in the presence of its imitator (a conventional electric quartz watch has been used as an imitator, which allows us to exclude the influence of the metal case of the Teslar watch and its quartz crystal circuit on the distribution of the intensity of the measuring field in the cuvette).

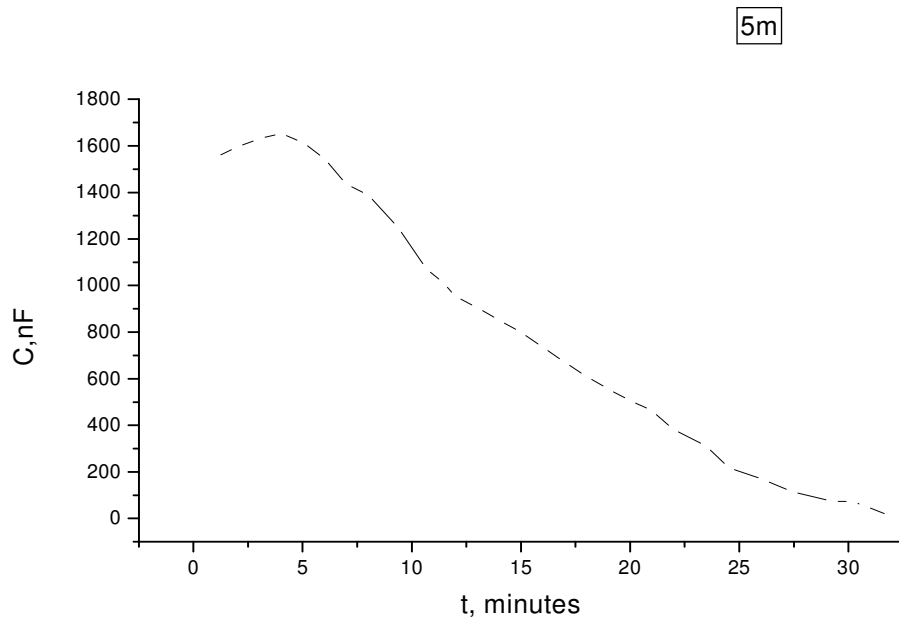


Figure A2. Capacity of pure alcohol as a function of time. The cuvette affected by the TC is found in the external (measuring) electric field with the frequency $f_{\text{meas}} = 1$ kHz.

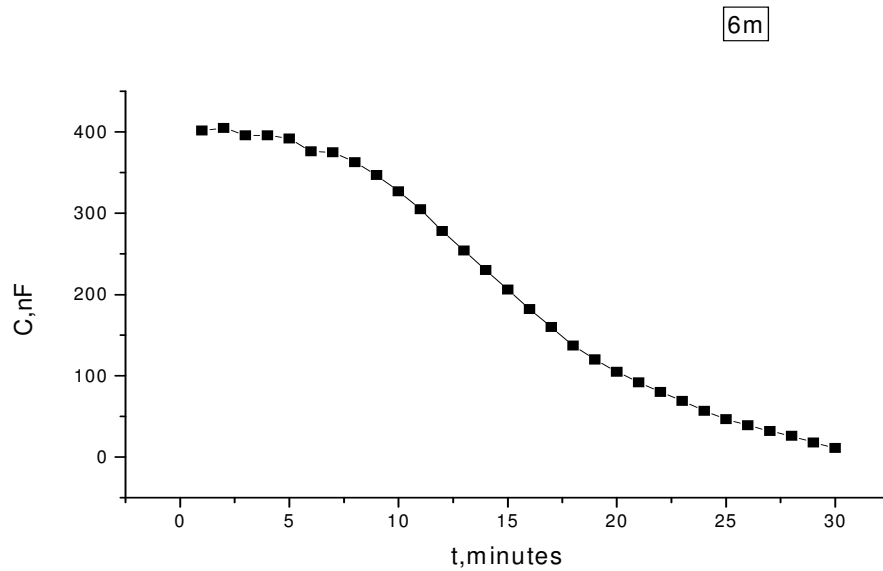


Figure A3. Capacity of pure alcohol as a function of time. The cuvette is found in the external (measuring) electric field with the frequency $f_{\text{meas}} = 100$ Hz, without the TC, but in the presence of its imitator.

7m

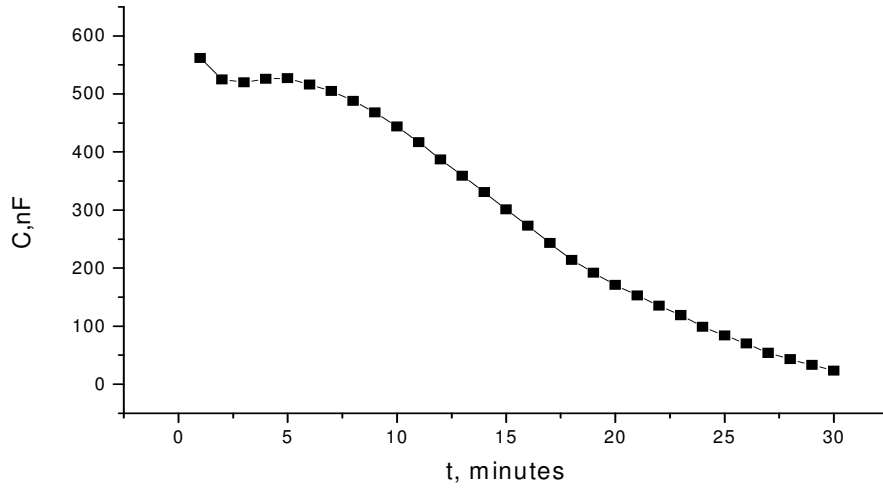


Figure A4. Capacity of pure alcohol as a function of time. The cuvette affected by the TC is found in the external (measuring) electric field with the frequency $f_{\text{meas}} = 100$ Hz.

13m

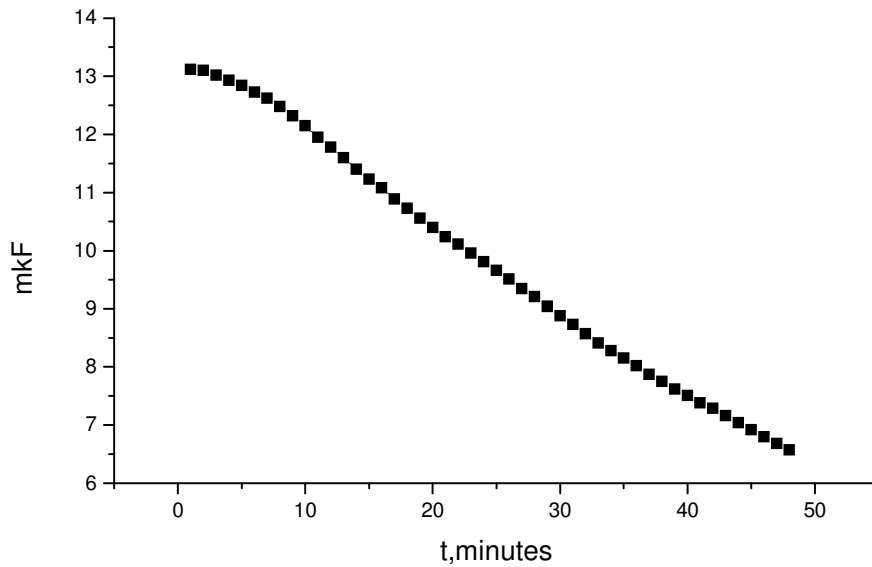


Figure A5. Capacity of pure distilled water as a function of time. The cuvette is found in the external (measuring) electric field with the frequency $f_{\text{meas}} = 100$ Hz, without the TC, but in the presence of its imitator.

12m

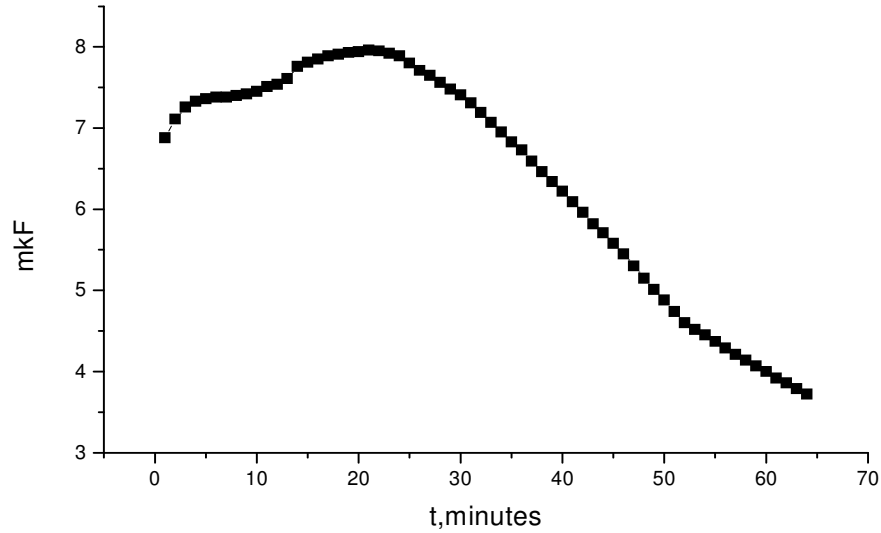


Figure A6. Capacity of pure distilled water as a function of time. The cuvette affected by the TC is found in the external (measuring) electric field with the frequency $f_{\text{meas}} = 1 \text{ kHz}$.

2. The results of the study carried out by scheme (b), Figures A7 to A17

14m

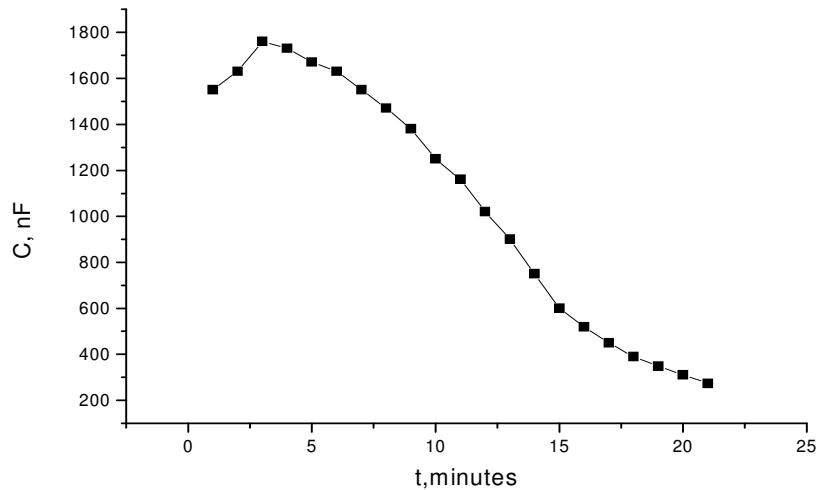


Figure A7. The capacity of pure alcohol as a function of time, without the TC, but in the presence of its imitator. The cuvette is found in the external (measuring) electric field $f_{\text{meas}} = 1 \text{ kHz}$ and is irradiated by the laser beam. The frequency of modulation of the laser beam has been stable and equal to $f_{\text{mod}} = 7 \text{ Hz}$.

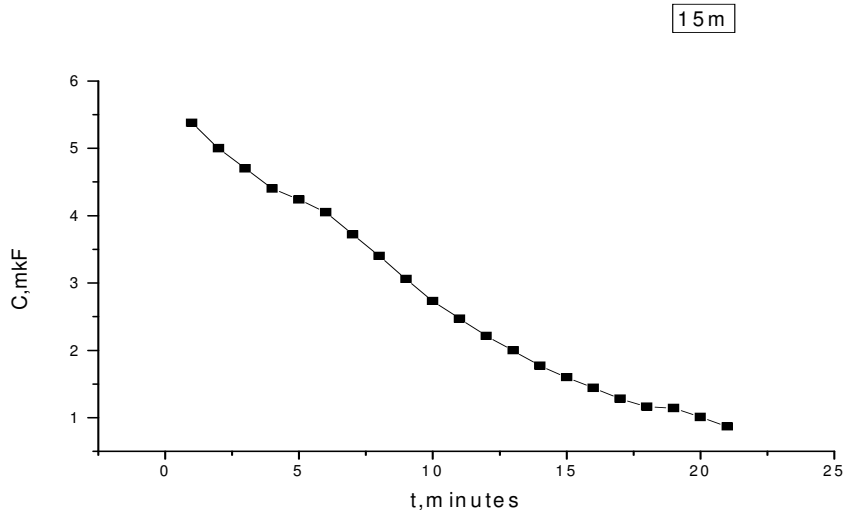


Figure A8. Capacity of pure alcohol as a function of time, without the TC, but in the presence of its imitator. The cuvette is found in the external (measuring) electric field $f_{\text{meas}} = 100$ Hz and is irradiated by the laser beam. The frequency of modulation of the laser beam has been stable and equal to $f_{\text{mod}} = 7$ Hz.

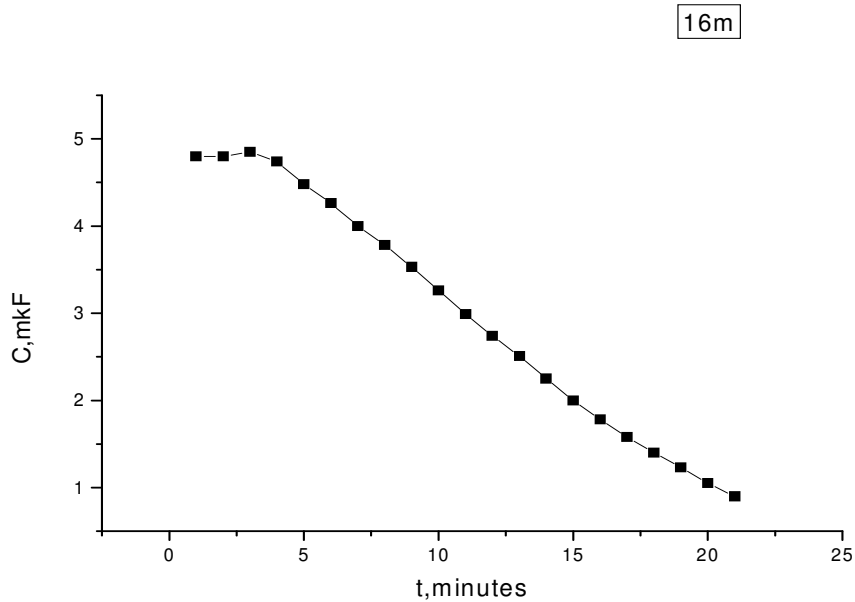


Figure A9. Capacity of pure alcohol as a function of time. The cuvette affected by the TC is found in the external (measuring) electric field $f_{\text{meas}} = 100$ Hz and is irradiated by the laser beam. The frequency of modulation of the laser beam has been stable and equal to $f_{\text{mod}} = 7$ Hz.

17m

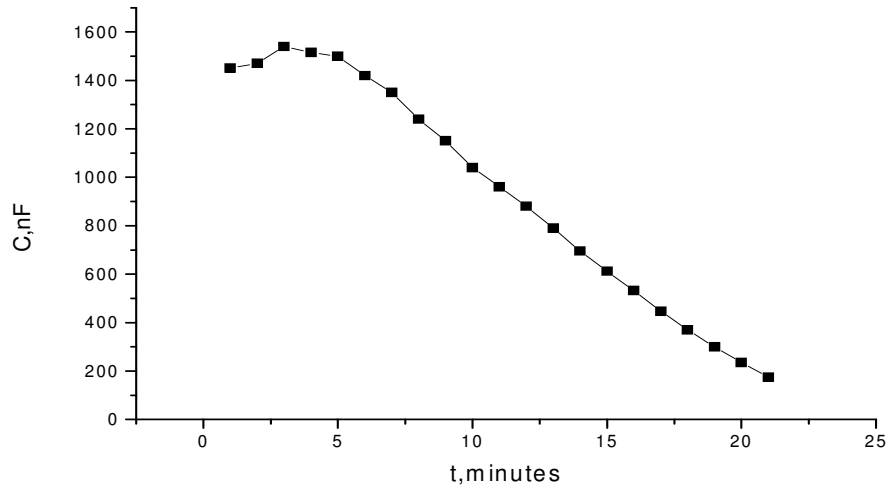


Figure A10. Capacity of pure alcohol as a function of time. The cuvette affected by the TC is found in an external electric field $f_{\text{meas}} = 1$ kHz and is irradiated by the laser beam. The frequency of modulation of the laser beam has been stable and equal to $f_{\text{mod}} = 7$ Hz.

18m

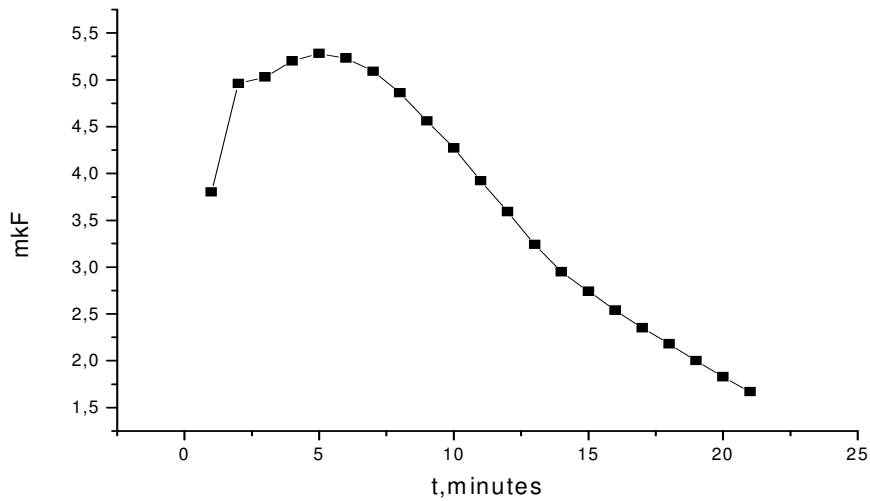


Figure A11. Capacity of pure alcohol as a function of time, without the TC, but in the presence of its imitator. The cuvette is found in the external (measuring) electric field $f_{\text{meas}} = 100$ Hz and is irradiated by the laser beam. The frequency of modulation of the laser beam has been stable and equal to $f_{\text{mod}} = 7.8$ Hz.

19m

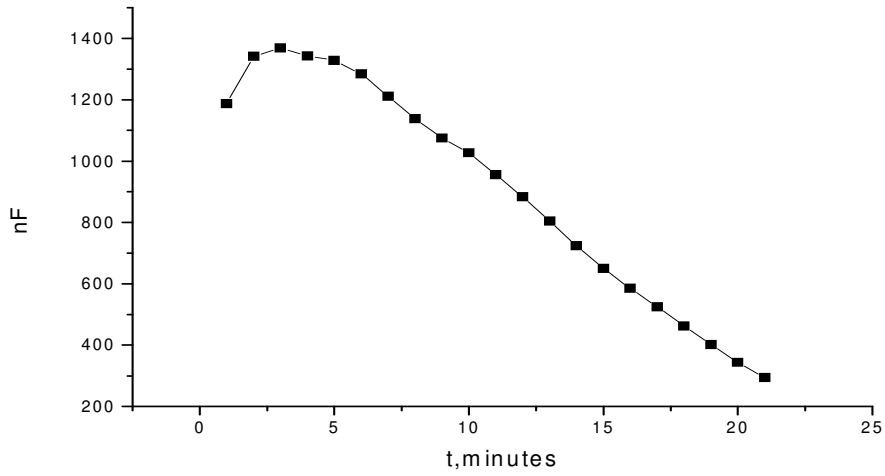


Figure A12. Capacity of pure alcohol as a function of time, without the TC, but in the presence of its imitator. The cuvette is found in an external electric field $f_{\text{meas}} = 1 \text{ kHz}$ and is irradiated by the laser beam. The frequency of modulation of the laser beam has been stable and equal to $f_{\text{mod}} = 7.8 \text{ Hz}$.

20m

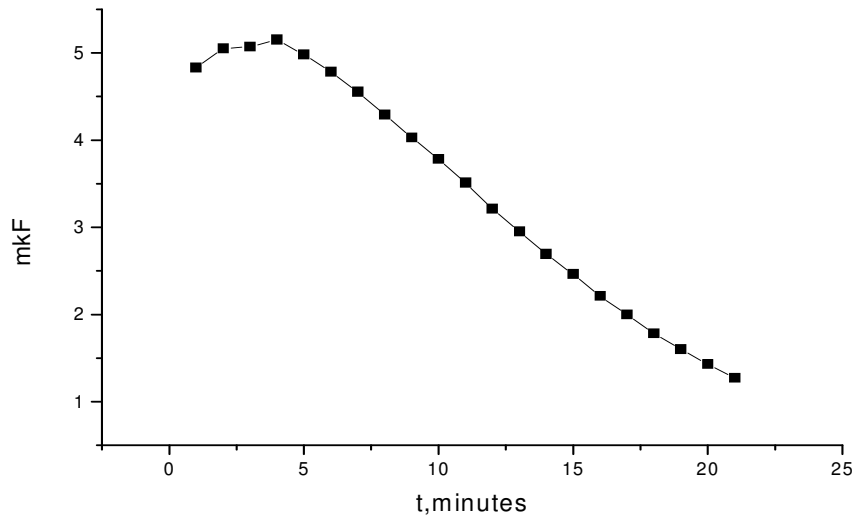


Figure A13. Capacity of pure alcohol as a function of time. The cuvette affected by the TC is found in the external (measuring) electric field $f_{\text{meas}} = 100 \text{ Hz}$ and is irradiated by the laser beam. The frequency of modulation of the laser beam has been stable and equal to $f_{\text{mod}} = 7.8 \text{ Hz}$.

21 m

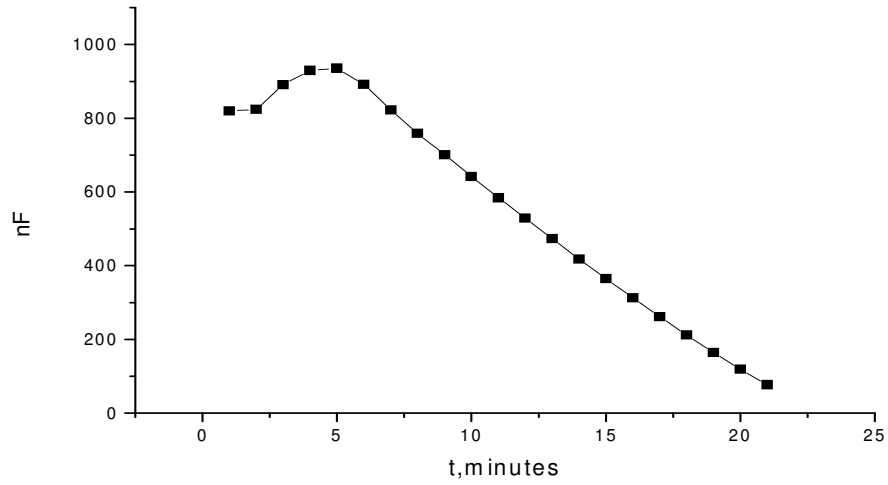


Figure A14. Capacity of pure alcohol as a function of time. The cuvette affected by the TC is found in the external (measuring) electric field $f_{\text{meas}} = 1$ kHz and is irradiated by the laser beam. The frequency of modulation of the laser beam has been stable and equal to $f_{\text{mod}} = 7.8$ Hz.

22 m

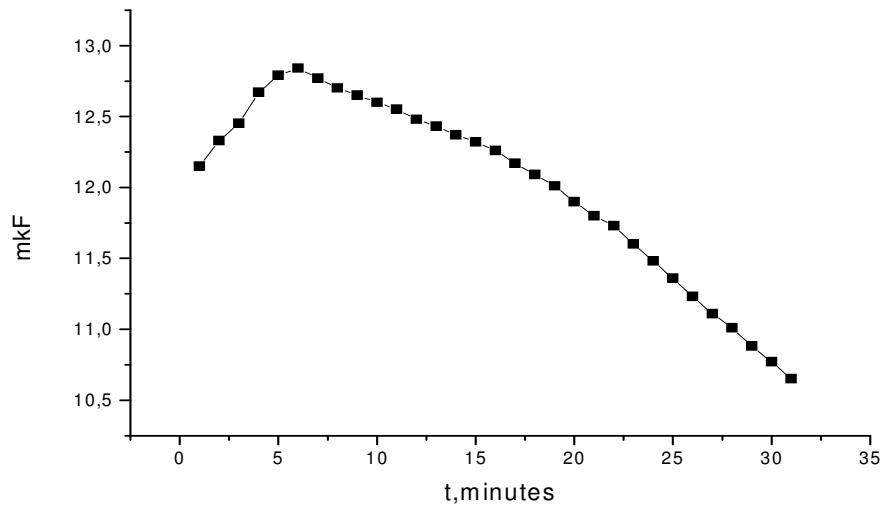


Figure A15. Capacity of distilled water as a function of time, without the TC, but in the presence of its imitator. The cuvette is found in the external (measuring) electric field $f_{\text{meas}} = 100$ Hz and is irradiated by the laser beam. The frequency of modulation of the laser beam has been stable and equal to $f_{\text{mod}} = 7.8$ Hz.

23m

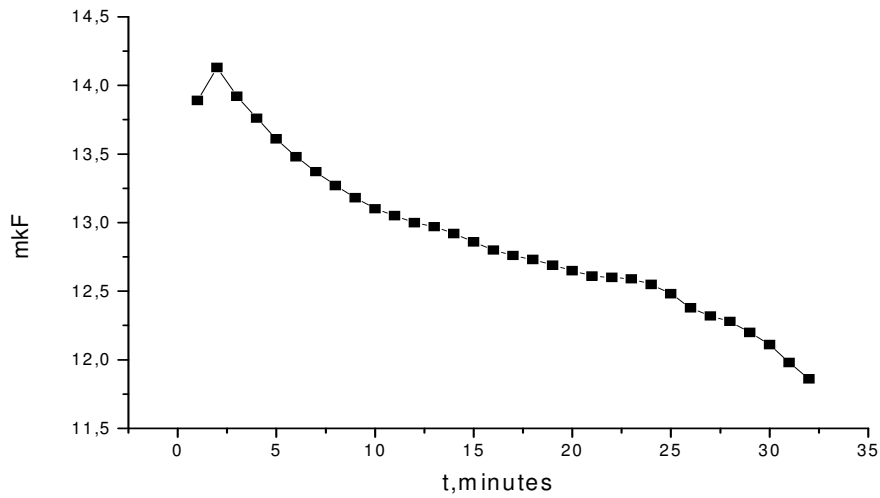


Figure A16. Capacity of distilled water as a function of time. The cuvette affected by the TC is found in the external (measuring) electric field $f_{\text{meas}} = 100$ Hz and is irradiated by the laser beam. The frequency of modulation of the laser beam has been stable and equal to $f_{\text{mod}} = 7.8$ Hz.

24m

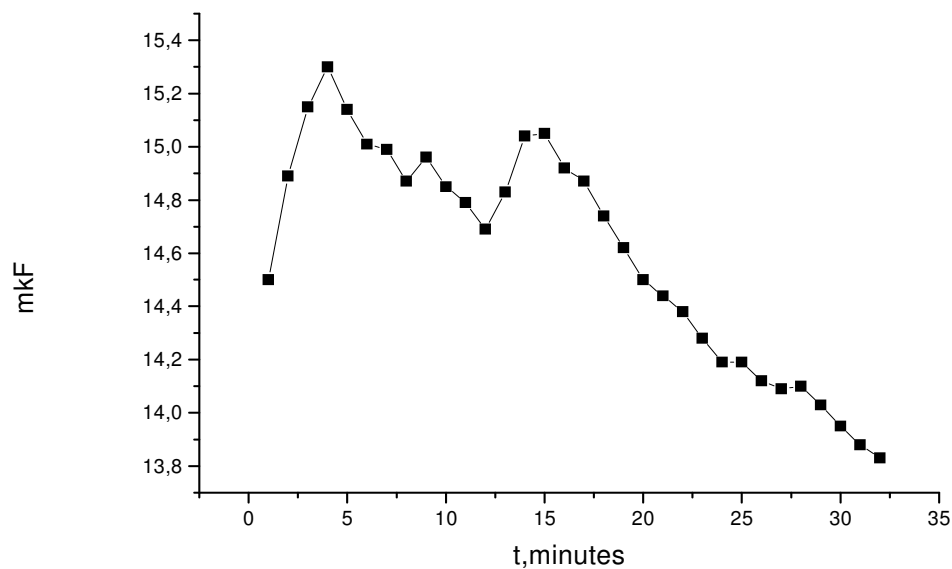


Figure A17. Capacity of distilled water as a function of time. The cuvette affected by the TC is found in the external (measuring) electric field $f_{\text{meas}} = 100$ Hz and is irradiated by the laser beam. The frequency of modulation of the laser beam has been stable and equal to $f_{\text{mod}} = 20$ Hz.