Stability of electronic matching of macroscopic quantum objects

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Abstract. It is shown that water, the associated phase which possesses the properties of a collective quantum oscillator, is capable of transmitting electronic excitations to conjugate quantum objects detected by a quantum sensor based on the superconductivity of NV-centres from changes in the emission of water by the Bose-condensate of electrons. The obtained regularities of the behaviour of quantum conjugate water allow studying the state of human body systems non-locally, based on quantitative estimates of the efficiency of translation of Bose-condensate electrons excitations to quantum-conjugated objects.

1. Introduction

The problem of quantum nonlocality, which has received not only theoretical but also experimental confirmation from quantum physics in recent years, casts doubt on the credibility of locally realistic thinking and requires a rethinking of the nature of physical reality. When assessing the possibility of observing quantum nonlocality in natural processes, it is necessary to take into account the state of the natural background of Bose-condensate of electrons, introduced into the scientific vocabulary of R. Avramenko [1], and developed in recent years by Italian physicists [2].

According to the cited works, the physical vacuum is considered as a superfluid medium that combines gravitational and quantum effects. In accordance with the developed theory, excited states of a three-dimensional (3D) quantum vacuum can be considered as real bridges between gravitational and quantum effects of matter, which are controlled by the quantum potential, which determines the fundamental property of nonlocality of quantum processes.

The problems of observing nonlocality are largely associated with the dependence of the state of a quantum system on measurement procedures, considered, in particular, within the framework of the relational interpretation of quantum mechanics by Rovelli [3].

For this reason, the leading and lagging quantum responses of the Bose system depend on the measurement procedures – with frequent modulation of the quantum system, quantum energy tends to temporal compression; on the contrary, the long absence of perturbation is accompanied by lengthening of the time intervals of the initiating reduction of the delocalized wave packet of electrons.

At the same time, the nature of the signals of a quantum detection system depends on the processes occurring during interference with other quantum systems: a quantum-correlated object or with the natural background of a Bose condensate (BC) of electrons.
The dependence of the body’s adaptation processes on the efficiency of metabolic electronic interactions with the environment, revealed in previous studies [1], makes it necessary to study the mechanisms of maintaining their stability since disruptions of exchange electronic interactions would determine subsequent pathologies of the body. Exchange electronic interactions are due to the quantum properties of the associated water phase [2]. It is because of the non-local connections that health and disease have a significant dependence on the electrophysical state of the environment. The organism is connected with the environment through the exchange interaction of electronic quantum oscillators, which result in a charge transfer (electrons) and information in the form of self-similar wave electrons packets.

Breakings of quantum bonds are a little-known phenomenon, the biological significance of which is enormous since the flow interruption of electrons between external donors and the body’s cells leads to metabolic disorders, and in the absence of electrons, sources mean the diseases. In this regard, it is necessary to study the non-local interaction stability of delocalized electrons supported by the associated water phase, which also actualizes the search for methods and equipment for its research.

The developed instrument-methodical complex for registration of BC electrons provides such capabilities [4-6]. The research is aimed at studying the changes in the system quantum state of non-locally coupled quantum oscillators from spaced water samples of the same composition.

2. Methods
To observe changes in the quantum potential of non-locally coupled quantum oscillators, we used the equipment for measuring the quantum potential based on nitrogen-vacancy NV centres [4], which has two independent sensors that are about 2 metres apart. The sensors are a combined detector of an electron BC: the first sensor (based on the superconductivity of nitrogen vacancy NV centres in diamond) provides conditions for mixing the quantum states emitted by the second sensor (water). A water sensor, having the ability to nonlocal quantum correlation with a quantum-conjugate object (for example, with water of the same composition), provides the possibility of changing the quantum state of a nonlocally conjugated object as a result of quantum interference (interference in accordance with the transactional interpretation of quantum physics) with a nonlocal quantum object.

The measuring equipment was located in a basement room with a stable room temperature, and the equipment used to excite a non-locally conjugated water sample (a diode matrix [1, 4]) was located in a laboratory room. With non-local photoexcitation of water (measurements were made on a quantum-coupled sample being far away from the sample subjected to photoexcitation), the emission intensity of BC electrons increased, which was accompanied by a decrease in the main generation frequency of the associated water quantum system [6]. In this case, the response of the coupled system was not linear. The nonlinear response of a superconducting system to excitation is due to its critical behaviour, in which the kinetic energy of electrons in a heated thermostat has the property of induced self-amplification, which can be accompanied by bifurcation (decay) of the state [1, 2]. However, the intensity of BC electrons emission by water increased due to the energy redistribution from leading and retarded quantum states of the system, as well as due to the acceptance of electrons from quantum-coupled objects.

In general, the coupled quantum system in the process of a non-local interaction begins to oscillate not only at the carrier frequencies of the on/off intermittency of the superconducting state [4, 5], but also at ultralow frequencies, which determine the long-term dynamics of both the associated water phase structural reorganization and BC electrons emission. The increased involvement of coupled quantum objects in the collective interaction is accompanied by shifts of the main generation frequencies towards lower frequencies. At the same time, a spontaneous shift of a quantum system generation frequencies to the short-wavelength region may indicate a reduction in the quantum object size, or a decrease in its charge density, which is equivalent to an interruption of the quantum interaction.
3. Results

The stability of the quantum coupling of macroscopic objects, including water, is not constant. The stability of the quantum interaction can be estimated by the example of changes in the main generation frequencies recorded by two independent quantum potential sensors (Fig. 1).

![Figure 1. Dynamic changes in the generation of main frequencies of the electronic system of a water associates during its non-local photoexcitation by LED matrix (the date of water treatment is indicated in the figure by arrows).](image)

From the baseband frequency change data shown in the histogram, it follows that, under certain conditions, quantum sensors begin to react with water differently. So, sensor 2 experiences "breakdowns" (bifurcation transitions) of the generation frequency on June 18 and June 27, and in the next four days, restoring its initial activity in the future. However, sensor 1 is also subject to the bifurcation behaviour of generation activity, but its generation «breakdowns», as a rule, occur at other time intervals. Such behaviour of the water generation activity (Table 1), recorded by two quantum sensors separated from each other, testifies to a water competitive interaction when electron-deficient states of a coupled macroscopic quantum system appear in the relaxation process of activated water.

**Table 1.** Changes in the parameters of electrons Bose-condensate generation activity (quantum potential, dB) in water during a spontaneous reduction of a quantum object size caused by the interruption of quantum communication with its conjugate parts in the second detector channel (data as of June 27)*.

| Signal parameters | Bose-condensate of water electrons |
|-------------------|-----------------------------------|
|                   | 1 channel (quantum coupling) | 2 channel (failure of quantum coupling) |
| Maximum amplitude, dB | 43.40 | 26.46 |
| The arithmetic mean value of the signal amplitude, dB | 25.11 | 10.72 |
| Main frequency, Hz | 0.0242 | 0.0550 |

* – conjugate part of a quantum object is spatially distant water subjected to photomodulation
In the reverse process, the restoration of the quantum coupling between interacting objects, almost multiple decrease in the main generation frequency, and a slow increase in the intensity of the envelope of the quantum generation signal occurs. In this case, the quantum connection restoration can be caused not only by internal processes in the quantum-coupled water system, but also by external factors. The latter include the appearance near the sensors (not closer than 2 metres) of operators who were in contact with the conjugated water.

4. Conclusion
Water, the associated phase of which has the properties of a collective quantum oscillator, can transfer electronic excitations to conjugated quantum objects. The equipment for measuring the quantum potential based on superconducting NV-centres in diamonds makes it possible not only to measure the quantum potential, including nonlocally coupled objects (water), but also to evaluate the stability of the quantum coupling of objects from jump-like changes in the frequency of the main generation in the on/off-intermittency spectrum phases of associated water.

The obtained regularities of the nonlocal quantum coupling realized by the superconducting state of the associated water phase make it possible not only to study exchange electronic interactions between interacting objects, but potentially between the human body and the external environment. It follows that the external environment as a source of electrons is an active participant in the homeostatic regulation of the body's systems, which forms its epigenesis. The management of epigenesis, carried out by a change in the structural and energy state of the associated water phase [1], makes it possible to compensate for undesirable (pathological) external stimulating and inhibiting effects on regulatory mechanisms, maintaining the body's homeostasis at an optimal level.

Maintenance of quantum-correlated states is also important in technologies for the long-term preservation of the bioenergetic activity of drinking water and food products [4]. It is obvious that the consumption of naturally incompatible food products reflects their biological inertness, since, ultimately, their long-term consumption leads to electronic blocking of the human body with the environment with possible subsequent cell degeneration or other pathologies. The use of the methodology of quantum-correlated states also provides the possibility of non-local control of the quantum state of technological processes of water treatment, non-local activation of quantum-conjugated objects (drinking water), the state of the electronic component of the systems of the human and animal body, as well as solving scientific problems of studying non-local interactions and monitoring the Bose background condensate of electrons in the environment.

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