



## Significance of Current Scientific Researches of V. D. Bitsoev, DMedSc, in the World Science Progress

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### Abstract

The scientific discoveries of Vladimir Dодtievich Bitsoev (Doctor of Medical Sciences) fall into landmark ones in the sphere of the rehabilitation medicine and physiotherapy. This is defined by the fact that the scientist’s researches are aimed to studying mechanisms of action of physical factors on the body, developing new treatment methods and giving proof of their efficacy.

The scientist has established experimentally the biophysical basis of therapeutic modality of the polychromatic visible and infrared polarized (PVIRP) light from the **Doctor Bitsoev** medical device through exposing tap water, blood plasma and the whole body to it via the fibre-optic cable. The scientist has found out that the generated PVIRP light activates water and it gains new physical and chemical properties, which has been confirmed experimentally, i.e. tap water transforms into a different state – **the light-guide medium**.

This work reveals significance of the new medical field based on interaction of the whole body and physical factors in the complex patient therapy. Basing on the experimental studies data, the author considers that it is necessary to revise technical specifications and parameters of exposure and effect of physiotherapeutic factors on the body taking into account the disease clinical entity and individual features of a patient.

The author has defined the notions below in the course of setting out the mechanism of action of physical factors on the body and basing on the current advances in physics, chemistry, biology, supramolecular chemistry and fibre-optic s:

1. “Biological Scanning Tunnelling Microscope”.
2. “Uniqueness, Indivisibility of Time, Contents and Form, and Their Interaction Forces in Constant Infinite Movement means the Universe Eternity Law”.
3. “Light-Guide Medium”.

**The author has extended the concept of the mechanism of action of physical factors** on the body basing on the current advances in physics, chemistry, biology and fibre-optic s. <https://cyberleninka.ru/article/n/novoe-napravlenie-v-izuchenii-rol-i-vzaimodeystviya-organizma-i-fizicheskikh-faktorov-v-kompleksnoy-terapii-bolnyh>

**He has developed rational procedures** for the physical factors application taking into account the disease clinical entity and individual features of a patient.

<https://cyberleninka.ru/article/n/novoe-napravlenie-v-izuchenii-rol-i-vzaimodeystviya-organizma-i-fizicheskikh-faktorov-v-kompleksnoy-terapii-bolnyh>

**He has suggested new approaches** for treating musculoskeletal disorders such as, for example, combined effect of underwater horizontal spine traction and submersed light therapy.

<https://www.dissercat.com/content/sistema-vosstanovitel'nogo-lecheniya-degenerativno-distroficheskikh-porazhenii-pozvonochnika>

<https://cyberleninka.ru/article/n/primeneniye-vosstanovitel'noy-tehnologii-podvodnogo-vytyazheniya-s-podvodnoy-fototerapiyey-pri-patologii-oporno-dvigatel'nogo-apparata>

**Keywords:** “Biological Scanning Tunnelling Microscope”; “Light-Guide Medium”; “Uniqueness, Indivisibility of Time, Contents and Form and Their Interaction Forces”; Doctor Bitsoev System; underwater horizontal spine traction combined with submersed light therapy; mini-nanomicroscope (nanosensor); “Time-Creation” (TC).

### The Study Relevance and Innovation

The relevant challenge of modern medicine is early disease detection and monitoring of the revealed disease course.

If we consider a human being as a Nature particle and accept that all biological process in his/her body proceed according to a “Programme” i.e. in the strictest hierarchy from subatomic particles to complex structures, then the idea of equality of laws of the World around us and Universe suggest itself.

Thus, it should be accepted that the entire human life activity, all tiniest bioprocesses in the body are subject to the Supreme Law of the Universe — feedforward and feedback communication principle.

The human being is a complex non-linear system comprised of enormous amount of various unique functional structures.

In this context, a system for fast recovery of comfortable stability of the whole-body organs and systems should be created through individual approach in combination with parameters of natural and preformed physical factors in junction with medicinal products.

Therefore, the research field chosen by the author is relevant in terms of early, safe and non-invasive detection of internal organ and systems diseases via the skin surface. The research is aimed at improvement of individual comprehensive physiotherapy using the developed mini-nanomicroscope (nanosensor).

### Academic Novelty.

The novelty of the chosen research field is based on a new concept shared by an increasing number of researchers of the most diverse areas of expertise. It lies in the fact that the water constituent any living organism is not just a solvent for molecules and ions of various types, not just an indifferent media, in which all biochemical reactions proceed, but it serves as an energy-carrier and a source of base resonant frequencies of all biological functions.

In the presented work based on experimental studies, important concepts of the “mechanism of interaction between the environment (natural and preformed physical factors) and the whole body” are formulated for the first time:

1. Existence of integral insensible, intangible and invisible “superperfect energy informational field” filling the entire space between subatomic particles, atoms,

molecules, cells, organs of the whole body, surrounding world and cosmic space with all its contents.

2. The human being is a part of the Universe “energy informational system” and their interrelation is effected through transpiration system of the whole body.

3. The “energy informational diagnostics” in the whole body is carried out by means of quantum tunnelling.

### Scientific Merit.

The scientific merit of this new research field is in expanding and advancing knowledge of the Creation basis, i.e. the ruling and stabilizing system of comfort co-existence of all the World and the Cosmos contents.

Herewith, it defines the key position of the human being in the biosphere to noosphere as one of the most complex and sentient being of the Nature.

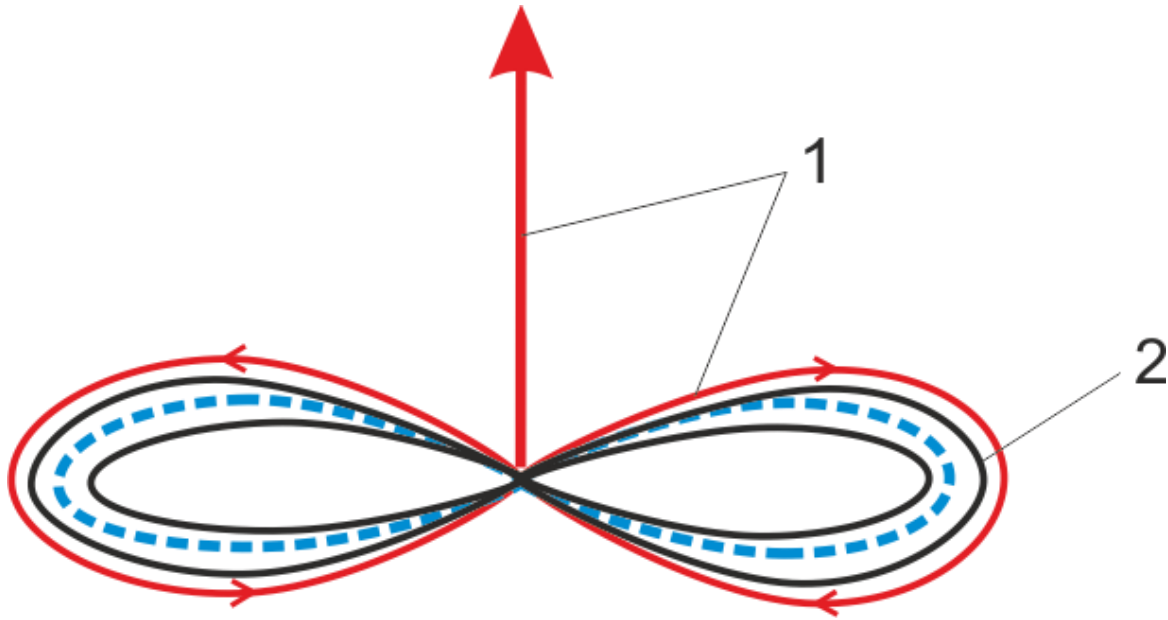
### Introduction.

The world medicine of the XXI century can not be imagined without application of natural and preformed physical factors. It should be noted that the applied, theoretical and experimental medicine is not consistent with the physics, chemistry, supramolecular chemistry, quantum physics and optics advancement levels in any state in the world.

It should be realized that fundamental investigation of organs and systems of the whole body as an integral part of the Universe and Cosmos at the supramolecular level is indeed the medicine progress expressed in the comfort life duration. It should be assumed that there is no necessity in convincing the scientists of all expertise in that the human being is “the most organized particle” of the Nature and, according to the position, has the same rights as all visible and invisible objects of the Universe and the Cosmos. However, the human being has very poor knowledge of the Creation mystery. From the point of quantum physics (due to quantum entanglement), it should be reckoned that the entire Universe and Cosmos with all its contents is the “Invisible, Insensible and Intangible Energy Field” — the basis of the cyclic Creation processes.

The initiation of any cyclic process is associated with unexpected emergence of three-dimensional quantum particles, in which the programme of the indivisible “Time, Space, Matter” complex is already embedded. It should be assumed that they are programmed with dissimilar physical characters. They are indeed “the very bricks” of all existing and future cyclic processes of the Creation. This is the guarantee of existence of the infinite speed and infinite movement scale. The main component in this complex is the Time since the Space and the Matter are dependent on the Time. The Matter is located in the Space and they compose an integral whole in the form; and their contents and shape depend on the Time, therefore, the Time, the Space and the Matter are indivisible. Only the Time defines what the Matter contents and the Space shape should be.

**In this regard, there is a basis for existence of our academic assumption: The Time is the “Insensible, intangible and invisible energy of the cyclic Creation processes”.**



**Fig. 1** Schematic Illustration of the Smallest Indivisible Subatomic Particle (SISAP) — “Time-Creation” (TC)

1. The Unified Superperfect Stabilizing Force of the Universe (USSFU).
2. Matter-Shape-Space (MSS) (an integral whole, the shape depends on number of the matter bends).

According to the main Time postulates of Nikolai Kozyrev, the Time effects on any processes and is their necessary component.

There is no distance between the Matter and the Space, that is, the Space follows the Matter shape at the supramolecular level.

Thus, the Space maintains and keeps the Matter shape programmed by the Time.

The Space is the special energy concentration. Therefore, we are in a supercomfort World.

The smallest dot visible with the unaided eye is located in many-dimensional space since it consists of a bunch of chords, arrangement of which is unique.

The dot is as comparable with the chord, as the Earth is comparable with the Sun.

All chords are in the three-dimensional measurement. This is the only number of dimensions.

**The two-dimensional measurement does not exist in nature since the energy difference in each chord is always present and creates movement, which is carried out in the three-dimensional space i.e. width, length and height.**

The key condition of the gravitation existence is nonuniform distribution of energy in the chord, that is presence of two nonuniform poles in it. The chord is the time-creation (TC).

If it is impossible to measure or mathematically calculate one of the three measurements due to its small value, it does not give us a

right to deny its existence.

It should be noted that all movements existing in physics can be expressed in positive numbers only, while negative numbers exist in mathematical calculations, same as the 0 digit.

**As well as the beginning of all graphical images is 1, but not 0; everything is relative according to the A. Einstein’s law.**

**All movements have only one direction (forward) and two veers (leftwards and rightwards). This is how the Nature is created.**

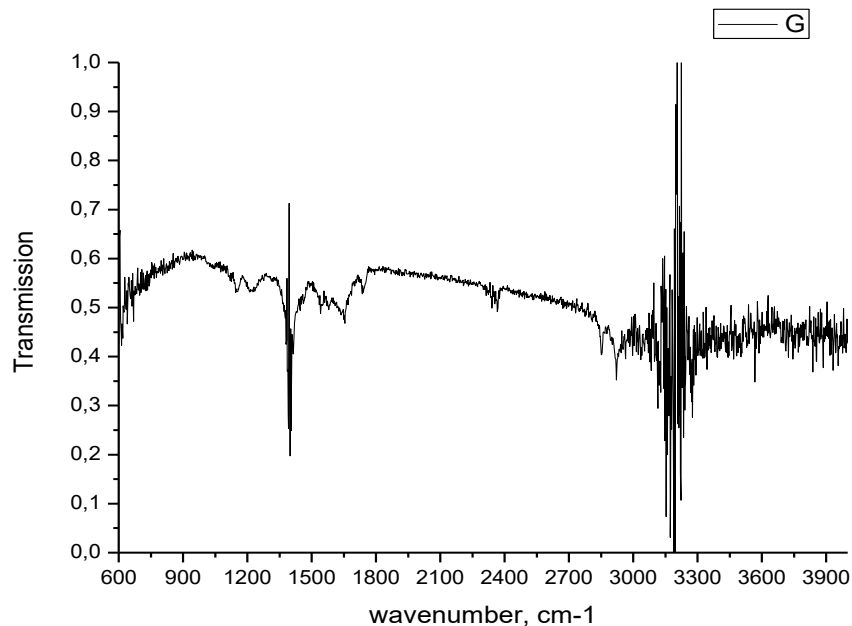
Any type of the movement is cyclic, infinite. The maximum approximation of a cycle end to its beginning is accompanied with an explosion-like energy discharge, since the maximum convergence of the cycle end and beginning is the largest “energy difference”. This enormous energy gives start to the next movement cycle, and so on infinitely. **This is the “Quantum Tangency” — the basis of the Pascal’s law.**

All cycles are matchless in terms of the speed and scale. This also one of the conditions of the surrounding World eternity. The human being is a sophisticated energy informational exchange system; and its existence condition is persistence of the internal environment constancy or the homeostasis. From the point of view of quantum physics, it appears that homeostasis is the “comfort sense” of the whole body at the supramolecular level.

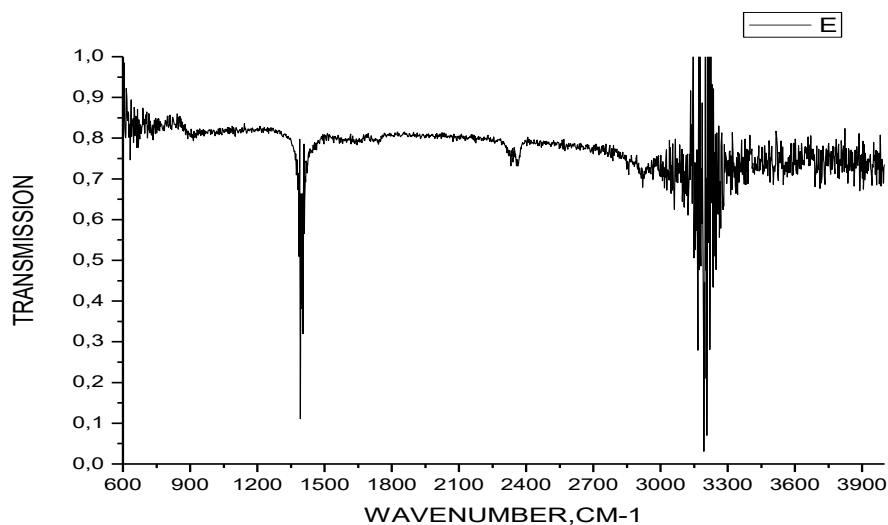
In the truest sense, the “Constancy” is stagnation, and it contradicts the laws of physics and gravity.

From the perspective of quantum mechanics, the “Constancy” is the assurance of constant, comfort, unique difference between the internal energy of the whole body and the surrounding World as the unified energy.

This is indeed the general homeostasis of the Nature and the Cosmos, the guarantee of the movement infinity.



**Fig. 2** Spectrobiopsy of the Blood from the Left Forearm Internal Surface



**Fig. 3** Spectral Illustration of the Unified “Superperfect Energy”

### Significance of New Scientific Researches for the World Science

The significance of the presented new scientific researches lies in the insight into the unified superperfect energy-informational living energy, which facilitates the creation of eternal gravity with infinitely varying speeds and scales, and, consequently, the Universe eternity.

**Physicists believe that the wave nature of the electron allows it to pass through two parallel slits simultaneously, rather than just one slit, as in the case of a classical particle.**

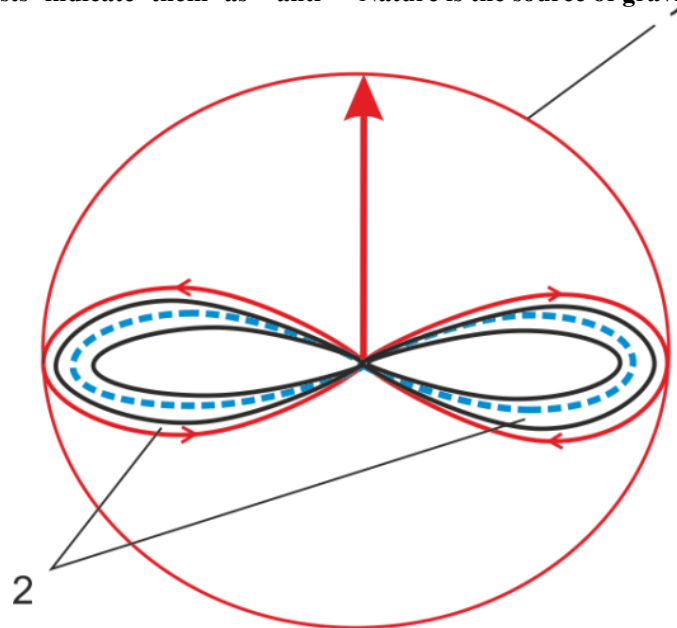
According to our concept of the existence of the smallest

indivisible quantum particle “time-creation” (TC), endowed with individual programmed energy for the creation of matter, form and space as an integral whole. The time-creation (TC) is an indivisible and non-uniformly paired energy informational field ensuring infinite number of the gravitation types and forms and the general homeostasis — the Universe eternity — through the wave-like oscillations. In this regard, there are no antimatter and antistubstance in it, and, therefore, an electron can not pass through two parallel slits simultaneously, thus creating the visibility.

**According to our concept presented below, all types of the matter, substance and objects have inseparable non-uniformly paired (pairs) with difference in energy of three indivisible**

quantum particles (TC) — this allows us to see them, touch them due to their oscillation movements with infinitely diverse speed and scale — the physicists indicate them as “anti”

(antimatter, antistubstance). For that reason, the substance, the matter are larger then their “double gangers”. This mystery of Nature is the source of gravitation, i.e. the Universe eternity.



**Fig. 4.** Schematic Illustration of the Universe.

1) The “Universe”.

2) SISAP, the Time-Creation (TC).

Basing on the advances made in physics and development of highly sensitive equipment, it has become possible to determine the mechanism of action of low-energy physical factors on the body at the cellular and supramolecular levels.

In this context, we propose a new technology (a “device for submersed phototherapy”, namely the “Doctor Bitsoev” device).

The light application for therapeutic and diagnostic purposes through water via a fibre-optic cable opens up great capabilities in detection of diseases of internal organs and systems.

When light passes through water, it is naturally cooled without using any additional structures and equipment; such cooling facilitates the photon coupling and the light molecule formation followed by formation of an infinite number of clusters of water molecules. Further, a wide range of healing capabilities of water radiated with yellow light opens up due to rapid 6- to 20-fold increase in the number of anti-inflammatory cytokines after just one 10-minute procedure, which is effective in treating various diseases from URI to malignant neoplasms. [20]

**Our concepts are supported by experimental studies and described in the following publications:**

1. Doctorate Thesis in Medicine, 2012.
2. Diversification of Study Results on the Effects of Polychromatic Visible and Infrared Polarized Light on Water and Liquid Biological Media. *New Medical Technologies Journal*, No. 1, UDC 57.083.134/.138; 621.039.553.5, 2012.
3. Organizational Issues of Clinical Physiotherapy and Its Scientific Merit in the Modern Medicine; *Health and Education in XXI Century Journal*, volume 16 (12), e-ISSN 2226-7417, 2014.
4. Approach Field in Investigating the Role of Interaction between

an Organism and Physical Factors in the Complex Patient Therapy. *Open Access Library Journal*, 2016.

5. Blood Spectroscopy — Health State Diagnostics. *American Scientific Journal*, No. 7 (7), 2016.

6. Physiotherapy Superiority over Drug Therapy According to IR Spectroscopy and Blood Spectroscopy *Journal of Multidisciplinary Engineering Science Studies (JMESS)* ISSN: 2458-925X, Vol. 3 Issue 4, April – 2017.

7. Physiotherapy Superiority over Drug Therapy According to Nanodiagnostics. *Journal of Harmonized Research (JOHR)*, 4(1), p. 40-58, 2017.

8. Modern View on the Mechanism of “Thought” Formation and Its Implementation “Program” at the Supramolecular Level. *Medical & Clinical Research*, ISSN: 2577 – 8005, 2019.

9. Application of Physical Factors in Complex Etiopathogenetic Therapy of Patients with Coronavirus-19 *Global Journal of Medical Research: K Interdisciplinary*, vol. 21 issue 2 vers 1.0, 2021; Scientific research of the SCO countries: synergy and integration, China, Beijing, 2020; *International University Science Forum*, ISBN 978-5-905695-36-0, Canada, Toronto, 2020; *Highlights on Medicine and Medical Research* Vol. 3, IR Spectroscopy and Non-invasive Blood Spectroscopy are the Leading Methods for Determining the Superiority of Physiotherapy in Conservative Medicine, chapter 1, 2021; *Collection of Scientific Articles Based on the Interuniversity Scientific Congress Results*, vol. 1, p.101-114, 2020

10. Investigation of Intracellular Energy and Mechanism of Action of the Weak Electromagnetic Waves on the Whole Body by IR-Spectroscopy is a New Trend in Medicine *Highlights on Medicine and Medical Research* Vol. 3, IR Spectroscopy and Non-invasive Blood Spectroscopy are the Leading Methods for Determining the Superiority of Physiotherapy in Conservative Medicine, 2021.

Collection of Scientific Articles Based on the Interuniversity Scientific Congress Results, vol. 1, p.101-114, 2020

11. The Mechanism of Interaction of Natural Physical Factors and the Whole Organism Forms the Basis of the General Theory of Physiotherapy International Journal of Clinical and Medical Education Research, ISSN: 2832-7705, 2023.

It is known that the “interaction” of a medicine product with the body is studied in two aspects: how it affects the body (pharmacodynamics) and what happens to it in the body (pharmacokinetics). Pharmacodynamics studies the localization, mechanism of action and pharmacological effects of the drug substances.

Pharmacokinetics studies the patterns of absorption, distribution and elimination of drug substances in the body of humans and animals. [1]. It should be noted that the speed, scale, content and time of formation of intermediate compounds of a pharmaceutical product in the body are strictly individual for each patient.

The new medicine field of V. D. Bitsoev, DMedSc, is based on the operation principles of the "scanning tunnelling microscope"; the "evanescent waves", the new properties of light (discovered by scientists in Japan, the USA, Ukraine and Korea); the special "superlens" system by Stefan Mendak in Germany, which is capable to acquire and use the evanescent waves; the stationary and non-stationary effects by the English physicist B. Josephson; the second experiment of G. A. Askaryan. Moreover, in the publications [12,13,14,16], it has been established that the cardiovascular, nervous and lymphatic systems are able to be the light guides and the evanescent (decaying) waves, if they are directed perpendicularly to the outer surface of vessels, capillary vessels, nerve roots, when exposing any part of the skin surface to electromagnetic waves.

In this regard, we conducted a series of experimental studies (recording of the standing evanescent wave photons on the skin surface after exposure to 480 nm to 3400 nm PVIRP light).

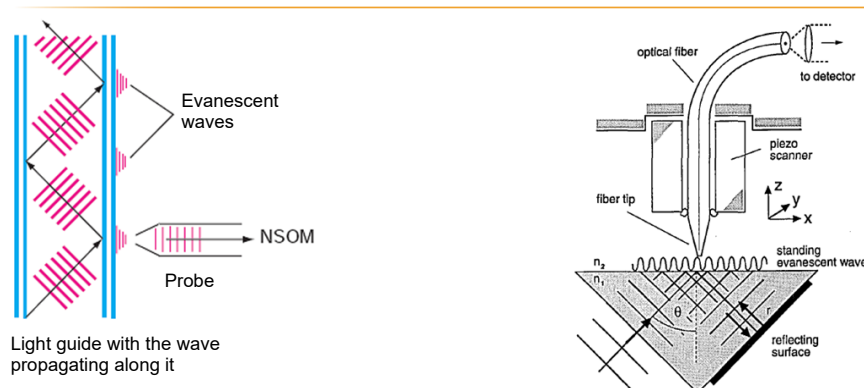
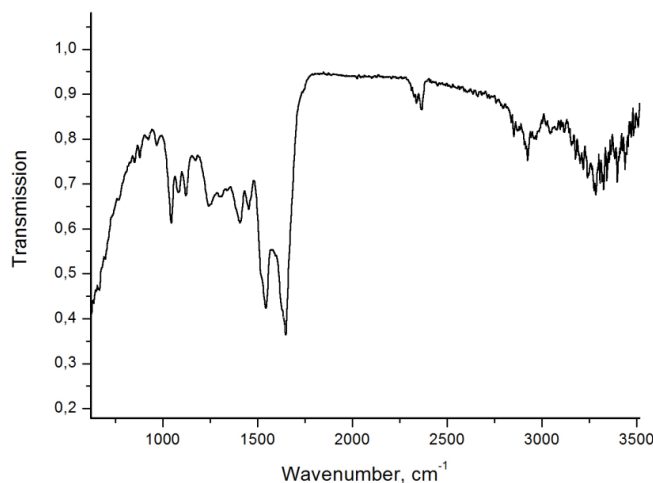


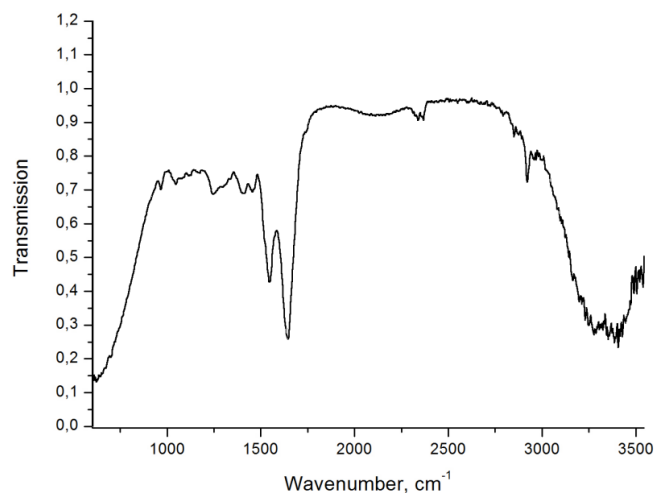
Diagram of measuring the propagating through the light guide light wave state. There are decaying evanescent waves near the light guide surface (this is indeed the near-field region). A small amount of the near-field photons can be converted to the measurable signal with the NSOM probe.

Diagram of recording the standing evanescent wave photons, which is connected with prism upper surface, using the photon scanning tunnelling microscope.

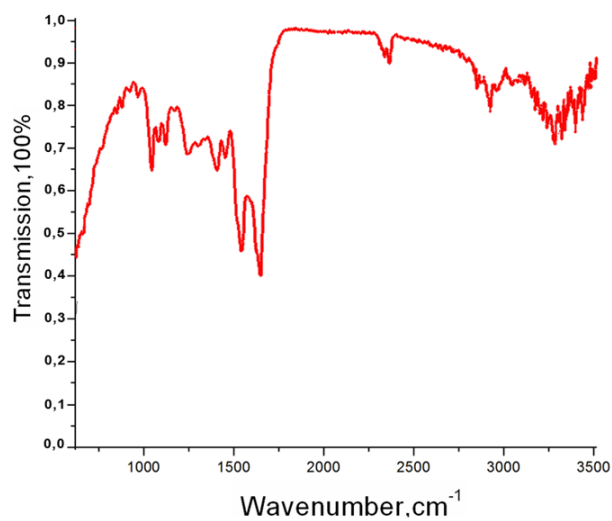
**Fig. 5.** Evanescent Waves.



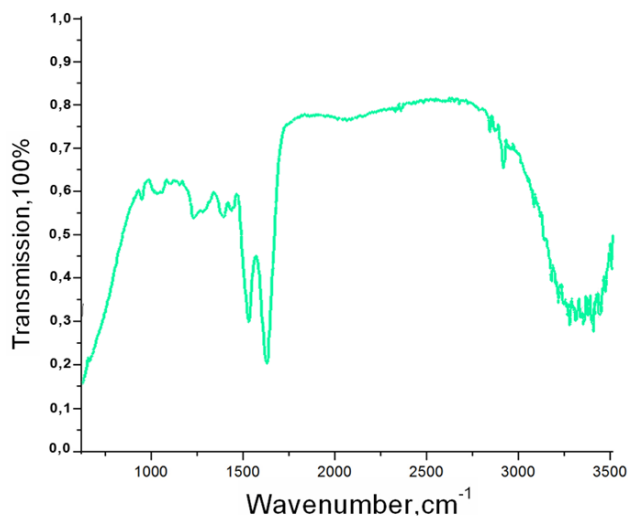
**Fig. 6.** Skin IR Spectrum after the Hand Exposure to Yellow Light from the “Doctor Bitsoev” Device via Fibre-Optic Cable for Ten Minutes (PVIRP light, 480 nm to 3400 nm).



**Fig. 7.** Skin IR Spectrum after Submersing the Hand into Water and Exposing It to Yellow Light from the “Doctor Bitsoev” Device via Fibre-Optic Cable for Ten Minutes (PVIRP light, 480 nm to 3400 nm).



**Fig. 8.** Skin IR Spectrum after the Hand Exposure to Polarized Light from the Bioptron Device for Ten Minutes (480 nm to 3400 nm).



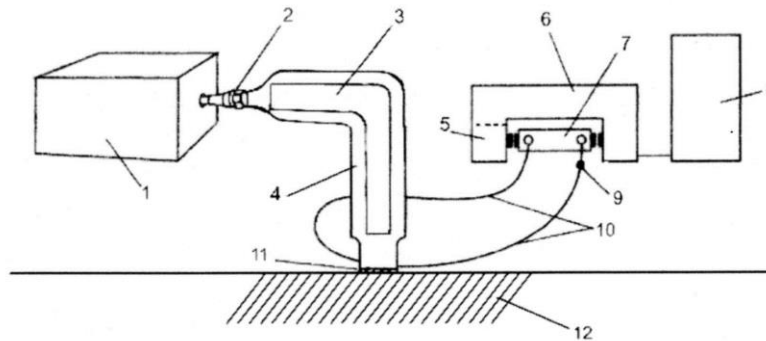
**Fig. 9.** Skin IR Spectrum after Submersing the Hand into Water and Exposing It to Light from the Bioptron Device for Ten Minutes from the 10 cm Height.

It has been established that the evanescent infrared spectra of the skin after exposure to water activated by light from the "Doctor Bitsoev" device via the fibre-optic cable demonstrate an increase in the absorption area within the spectral ranges of 3,200 to 3,500  $\text{cm}^{-1}$  and in the range of up to 800  $\text{cm}^{-1}$ , that is, there is an increase in hydration proceeds [11,12,13,14].

In this context, there is reason to use phototherapy with the "Doctor

Bitsoev" device via the fibre-optic cable, both directly and indirectly through water, for various diseases of the musculoskeletal system, skin, and other organs and systems.

Considering the above mentioned, we have created a mini-nanomicroscope sensor, via which the feedforward and feedback communication between the internal organs and systems of the whole body is carried out.



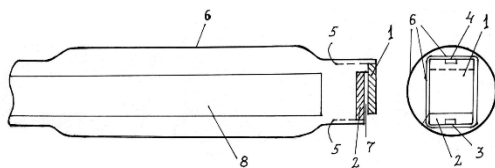
**Fig. 10:** Record from the Skin Surface of the Feedforward and Feedback Communication between All Organs and Systems of the Whole Body.

#### 1. Light source.

2. Connecting head inserted into the metal box hole (it connects the light source with the fibre-optic cable).

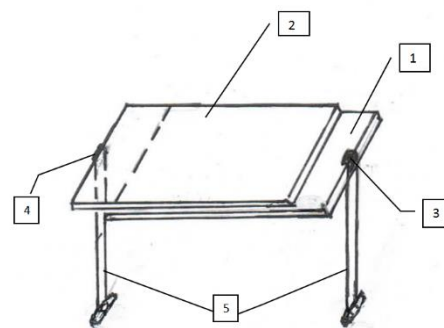
3. Fibre-optic cable.

4. Device of the information exchange between the whole body and the biosphere.



**Fig. 10(4)**

1. Upper glass plate.
2. Lower glass plate.
3. Silver plate.
4. Silver plate.
5. Terminals.
6. Flexible non-metallic tube.
7. Space between the living organism skin surface and the upper glass plate with transition into the space between two glass plates.
8. Fibre-optic cable.
5. DTGS Pyroelectric Detector.
6. Bruker Vector22 Spectrometer.
7. Mirror and lens appliance for connecting the device of the information exchange between the whole body and the biosphere to the Vector 22 Fourier spectrometer.
8. PC.
9. Contact switch.
10. Terminals of the unsheathed AgClBr fibre.
11. Mini-nanomicroscope sensor.
12. The whole-body skin surface.



**Fig. 10(11)**

1. Upper glass plate.
2. Lower glass plate.
3. Silver plate-terminal.
4. Silver plate-terminal.
5. Leads from silver plates.

The mini-nanomicroscope sensor is made in the form of two glass plates placed one over another with a 5 mm offset to form a space between the skin epidermis and the upper glass plate, at that the distance between the glass plates is 7  $\mu\text{m}$  for mutual information exchange between the whole body and the biosphere through the transpiration system, and the fibre-optic cable.

**Thus, the evanescent IR spectroscopy of the attenuated total reflection at the IR fibre contact is a unique, atraumatic investigation method requiring no specific skin preparation.** [cyberleninka.ru](http://cyberleninka.ru)

It is conventionally called the "blood spectrobiopsy", the results of which reflect the entire information picture of the body at the supramolecular (atomic) level. [cyberleninka.ru](http://cyberleninka.ru) This method has allowed to create a new theory of the mechanism of action of physical factors on the body based on the "tunnelling effect" principle.

**The significance of our new scientific researches for the world**

medicine is indicated in peer reviews of the following scientists:

**1) Professor B. N. Mavrin, Doctor of Physical and Mathematical Sciences, Chief Researcher of the Federal State Budgetary Science Institution "Institute of Spectroscopy of the Russian Academy of Sciences":** "The IR absorption spectrum in the region of about  $120\text{ cm}^{-1}$  i.e. in the region of hydrogen bond vibrations, clearly demonstrates the increase in absorption after irradiation of water with Bioptron. This fact can be interpreted as an increase in the number of hydrogen bonds i.e. an increase in the size of nanoclusters of water molecules linked by hydrogen bonds. From the conducted experiments and according to the data from our own Raman scattering experiment, we can conclude that the water photoexcitation with the Bioptron source does indeed lead to changing the water structure. This has become possible thanks to the source's radiation absorption in the water, which stimulates increase in dimensions of the hydrogen-bond water nanoclusters. **We can agree with the author about the possible, in essence, another mechanism of photo-action on water, associated, for example, with two-photon absorption of irradiation photons, which can lead to the appearance of  $\text{OH}^+$  radicals and  $\text{H}^+$  ions.**";

**2) A. V. Eletsky, Doctor of Physical and Mathematical Sciences:** "The central part of the new rehabilitation technology of underwater horizontal spine traction in combination with submersed light therapy is a description of the procedure of light irradiation of the patient's skin in water *in vivo* and *in vitro* using various commercial radiation sources. This section of the publication contains valuable experimental material related to the spectral absorption characteristics of the patient's skin at PVIRP light application via a fibre-optic cable using the "Doctor Bitsoev" device as a radiation source. Analysis of the spectra obtained demonstrates that the irradiation results in altering of the skin transmittance spectra. From this, it should be concluded that new chemical compounds are formed under the radiation action, which have a therapeutic effect on a patient's organs affected by a pathology. The works included in the V. D. Bitsoev's Thesis constitute a new field of physiotherapy and indeed represent an important contribution to the rehabilitation medicine advancement.";

**3) A. A. Revina, Doctor of Chemical Sciences, RANS Academician, Professor of the A. N. Frumkin Institute of Physical Chemistry and Electrochemistry of the Russian Academy of Sciences:** "The results of the study of the water physical and chemical state (IR spectra) presented in the V. D. Bitsoev's Thesis are of the fundamental nature.";

**4) Prof. L. G. Khetagurova, Doctor of Medical Science, Head of the Pathophysiology Department of the SBEI for Higher Education "North Ossetian State Medical Academy of the Ministry of Health and Social Development, Honorary Figure of Russian Higher Education, Honoured Scientist of the Republic of**

**North Ossetia–Alania:** "The essence of the new proprietary rehabilitation technology is that the treatment complex for patients with the spine degenerative-dystrophic lesions includes underwater horizontal spine traction in combination with submersed light therapy; which thanks to its immunomodulatory, anti-inflammatory, and ion-stabilizing effects stimulates the body's adaptogenic reserves, ensuring maximum regression of the degenerative-dystrophic pathological process in the spine. The author proposes an interesting concept for the possible mechanism of the therapeutic effect of water, as an intermediate reagent, treated with photoexposure to beams of plane-polarized visible light from the "Doctor Bitsoev" device, which, while propagating in the water, becomes circularly polarized and possessing an excellent and more effective biological and biophysical effect in the body's aquatic environments. The scientific abstracts and conclusions of the Thesis are substantiated, widely published, discussed at expert forums, used in the educational process of several universities and implemented in healthcare institutions."

**5) Kh. Mukhamrtzhanov, Doctor of Medical Sciences, Head of the Polytrauma Department of the RSE on PVC "Traumatology and Orthopaedics Research Institute" of the Kazakhstan Ministry of Healthcare:** The chosen Thesis topic is of interest not only to specialists in this field of knowledge, but also to fibre-optic s physicists, specialists in theoretical and experimental biophysics, and specialists in physical chemistry. For the first time, the clinical efficacy of the combined effect of the underwater horizontal spine traction combined with submersed light therapy as a new rehabilitation technology for treating musculoskeletal system disorders has been investigated. V. D. Bitsoev is the first to substantiates the efficacy of his original technique through the results of the extensive series of experiments performed, comparing different types of optical absorption spectra, its certain dose of the plane polarized electromagnetic radiation both in the visible wavelength range ("Doctor Bitsoev" device) and in the EHF band. Basing on the presented experiments it may be concluded that the water photoexcitation with the "Doctor Bitsoev" device is indeed lead to changing the water structure. This has become possible thanks to the source's radiation absorption in the water, which stimulates increase in dimensions of the hydrogen-bond nanoclusters and two-photon absorption of the irradiation photons."

**6) Professor V. M. Biakov, Doctor of Physical and Mathematical Sciences, Federal State Budgetary Institution "State Scientific Centre of the Russian Federation Institute for Theoretical and Experimental Physics":** "In the Orthodox Church,, the following excerpt from the Gospel is read at the water consecration. 'There was a bathing pool at the Sheep Gate in Jerusalem. It was constantly surrounded by all kinds of sick people. Since the angel of the Lord sometimes went down into the bathing pool and stirred up the water. And the first one who immersed himself in it after that received healing, no matter what disease he had.' Apparently, this is the first

literary evidence of the water activation, at which it acquires healing properties. Nowadays, in our country, a successful method of water activation for therapeutic purposes has been developed by V. D. Bitsoev, Candidate of Medical Sciences. The water is activated, when it is exposed to plane-polarized visible light from the “Doctor Bitsoev” device, as well as to the electromagnetic EHF radiation. The beneficial effects of the water after such exposure are eloquently demonstrated by the results of treatment of 413 patients.”

It is worth noting that V. D. Bitsoev is far from the first doctor attempting to use the effect of the Bioptron polarized light for therapeutic purposes. However, the application method he developed is radically different from the procedures performed by his predecessors. If the procedures of the latter were limited to direct irradiation of the patients, then the procedure of V. D. Bitsoev lies in exposure to light through an intermediate reagent, namely, water. And this is not just a “technological” difference. The plane-polarized light propagating in water becomes (at least partially) circularly polarized, which is known to have a different and much more effective biological effect. Moreover, V. D. Bitsoev's predecessors substantiated the efficacy of their procedures solely through patient statements, which are always subjective to some extent. While V. D. Bitsoev, in addition to it, is the first to substantiates the efficacy of his original technique through the results of the extensive series of experiments performed, comparing different types of optical absorption spectra and water scattering before and after its irradiation, illustrating significant changes of the water physical properties after absorption of certain dose of the plane polarized electromagnetic radiation both in the visible wavelength range (“Doctor Bitsoev” device) and in the EHF band.

The measurement results obtained are the objective evidence of the water activation at absorption of the specified radiation by it.”

**7) Meeting of the STC Section No. 4 of the Academic Council of the FSBI ‘State Research Centre of the Russian Federation of the Institute of Theoretical and Experimental Physics’ dd. June 29, 2016:** From the perspective of the rehabilitation medicine, the work of V. D. Bitsoev implements a comprehensive therapy for the intervertebral disc herniation in the lumbosacral spine using a new system of rehabilitation treatment through underwater horizontal spinal traction and submersed light therapy. For the first time, the therapeutic effect of polychromatic visible and infrared polarized light on the body through an aquatic environment has been proven under experimental conditions, which is possibly determined by its activating effect on water.

The author has: a) demonstrated a pronounced regression of the intervertebral disc herniation in the lumbosacral spine with use of the developed rehabilitation treatment system;

b) substantiated its application worthiness;

c) proven the high clinical efficacy of the combined use of the underwater horizontal spine traction and submersed light therapy for the spinal degenerative-dystrophic lesions. In a comparative analysis, the greater efficacy of the use of V. D. Bitsoev's rehabilitation treatment technology was established compared to the medication, with combination of other known physiotherapy

methods and medication.

**During the discussion of the report, STC Section No. 4 has come to the following conclusion:**

1) It is necessary to rearrange the academic discussion on the study of long-term light activation of water, aqueous solutions and biological media under exposure to the polychromatic visible and infrared polarized light.

2) The significance of V.D. Bitsoev's work lies in expanding knowledge of biophysical facts of the therapeutic effects of polychromatic visible and infrared polarized light on the body, as well as in demonstrating the efficacy of use of the underwater horizontal spinal traction combined with submersed light therapy.

3) V. D. Bitsoev's research indicates the need to identify the biophysical foundations of the new facts of the therapeutic effect of light on the body, which he revealed.

4) Bitsoev pointed out the possibility of activating water and blood plasma using the submersed light therapy via the fibre-optic cable with a high therapeutic effect, which is significant for global medical practice.”

The scientific significance of the research results lies in the fact that the theoretical conclusions reveal:

1. the mechanism of action of PVIRP light on the whole body through external water through the body imperceptible water evaporation system;
2. for the first time, the impairment of the total internal light reflection is defined;
3. They demonstrate high efficacy of treating patients with underwater horizontal spinal traction in combination with submersed light therapy: 96.2% of cases in the form of the intervertebral disc herniation regression down to 30% to 50% of the baseline level and the absence of pain syndrome.”

## Studies

It was found that the efficacy of treating patients with this method is high: regression of intervertebral disc herniation in the lumbosacral spine with protrusion into the spinal canal up to 13 mm in the first and the fourth age groups (17–30 years and 51–60 years) was 100%, and in the third and the second age groups (41–50 years and 31–40 years) was 95% and 92.3%, respectively. The procedure is intended for physiotherapists, neurologists, rehabilitologists and can be used in medical and preventive care facilities and health resorts. [canw.orgmedtsu.tula.ru](http://canw.orgmedtsu.tula.ru).

Moreover, the results of Bitsoev's research are used to relieve pain in sports injuries (bruises, haematomas). Also a tendency to improvement of the humoral and cellular immunity parameters is noted. <https://cyberleninka.ru/article/n/podvodnaya-fototerapiya-sportivnoy-travmy>.

Bitsoev experimentally investigated the effect of the (PVIRP) light from the “Doctor Bitsoev” device via the fibre-optic cable by

exposing the tap water, blood plasma and the whole body to it  
<https://www.dissercat.com/content/sistema-vosstanovitelnogo-lecheniya-degenerativno-distroficheskikh-porazhenii-pozvonochnika>

The device for the submersed light therapy of the spine consists of a light source 1, a connecting head 2 and a fibre-optic cable 3.

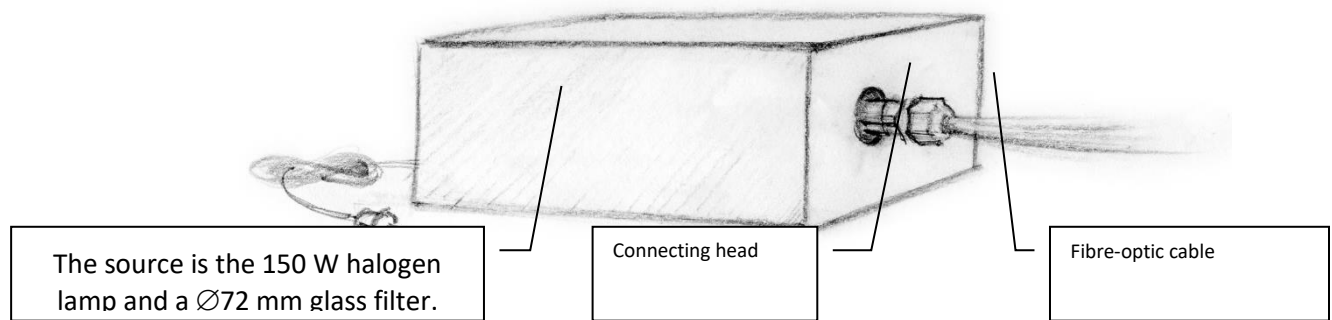


Fig. 11. General View of the Doctor Bitsoev Submersed Light Therapy Device (PVIRP light 480 nm to 3400 nm)

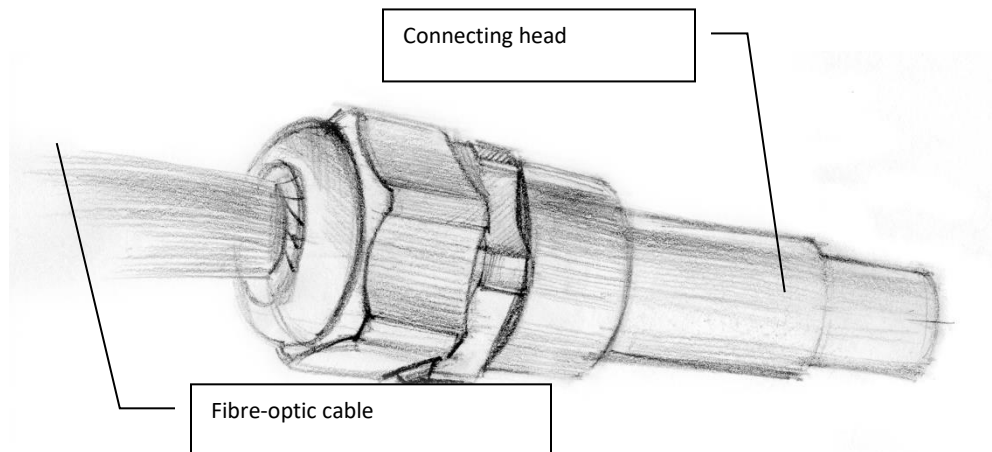


Fig. 12. Connecting head with fibre-optic cable.

The patient is brought to the bath on a gurney and lifted to the level of the bath upper edge. A double fibre-optic cable is laid on the mat so that its position paravertebrally corresponds to the patient laid on his back on the mat, then the cable is wrapped in rings around the patient's lower limbs. Thereafter the patient is lowered into the bath according to the underwater spinal traction technique. Insert the plug with an electric cord of the light source into the socket, and, according to the physician's prescription, the patient receives combined treatment: underwater traction with the spine submersed light therapy (Utility Patent No. 103330, 2010 V. D. Bitsoev).

Academic article: "A New Field in Investigating the Role of Interaction between an Organism and Physical Factors in the Complex Patient Therapy." (2019) is devoted to new approach to the use of physical factors in the complex patient therapy. Based on the experimental studies data, the author considers it necessary to review the technical specifications and parameters of exposure and effect of physiotherapeutic factors on the body taking into account the disease clinical entity and individual features of a patient, and has defined a new concept of the "biological scanning tunnelling microscope"[cyberleninka.ru](http://cyberleninka.ru)

According to A. L. Chizhevsky, "an essential condition for the life

of a living organism is the exchange of "electrical" energy, which forms the basis of the metabolic process, and that the total energy content in the organism cellular structures has a strictly defined value." [2]

The biopotential for each human being is strictly individual, both in normal and pathological conditions. In this regard, any nosology in each individual causes a deviation of his/her biopotential in accordance with the stage of the disease progression, i.e. the formation of intermediate states of the body with certain disorders of its supramolecular structures.

This, in turn, determines the clinical picture at the time of the patient's examination and is the pivot condition for choosing the right treatment strategy for any medical specialist, so that the disease regression is accompanied with restoration of the destroyed supramolecular structures, excluding new gross impairments at any level of the whole body.

This concept is not the main principle for the medication due to the lack of highly informative study methods: frequency, dose, mechanism of action of pharmaceutical products at the supramolecular level.

V. D. Bitsoev has experimentally established the biophysical fundamentals of the therapeutic effects of polychromatic visible

and infrared polarized (PVIRP) light from the Doctor Bitsoev medical unit via a fibre-optic cable by exposing the tap water, blood plasma and the whole body to it. V.D. Bitsoev has found out that the generated PVIRP light activates water and it gains new physical and chemical properties, which has been confirmed experimentally, i.e. tap water transforms into a different state – the “**light-guide medium**”.

The new rehabilitation technology — the “Underwater Horizontal Spinal Traction Combined with Submersed Light Therapy” — stimulates the internal reserves of the body due to its immunomodulatory, anti-inflammatory and ion stabilizing effects, contributing to the maximum regression of the degenerative and dystrophic processes of the spine.

The work is devoted to a new approach to the physical factors application in the complex therapy of patients. Basing on the experimental studies data, the author considers that it is necessary to revise technical specifications and parameters of exposure and effect of physiotherapeutic factors on the body taking into account the disease clinical entity and individual features of a patient.

V. D. Bitsoev has defined the notions below in the course of setting out the mechanism of action of physical factors on the body and basing on the current advances in physics, chemistry, biology, supramolecular chemistry and fibre-optic s:

1. “**Biological Scanning Tunnelling Microscope**”.
2. “**Uniqueness, Indivisibility of Time, Contents and Form, and Their Interaction Forces in Constant Infinite Movement means the Universe Eternity Law**”.
3. “**Light-Guide Medium**”.

The clinical picture of any disease nosological form for a particular patient is represented by an absolutely individual range of symptoms, as a result of a complex etiopathogenetic process that depends on a variety of negative internal and external factors.

Cells have the ability to process a clearly limited amount or a certain range of energy from any physical factor into their specific biological process. Energy that goes beyond the perceived range to the increase (individually for each cell type) is blocked and passed by the cells (a more favourable option); when the cellular protective block is penetrated (an unfavourable option), the cells are subject to destruction. Maximum energy in an infinitely small space is the destruction danger, and maximum space with minimum energy at each point is the characteristic of vital evolution (A. Zalmanov, 1991).

**This concept provides an opportunity for:**

1. **Studying the key parameters: frequency, wavelength, power, cyclicity of the cell bioenergy in normal and pathological conditions.**
2. **Determining the degree of disorders of specific biological processes in organs and systems.**
3. **Selecting the therapeutic physical factors (type of energy, parameters, individual procedure, treatment regimen) to restore the disordered biological processes.**

In our opinion, due to the fact that the diseased cells are unable to accept and transfer such intense energy into their specific biological process, it is possible that this is one of the sources of the pathological complication and adverse reaction process, which

can also unbalance other organs and systems. Since the truly acting on a living cell and perceived by it energy is represented with minimal physical factor parameters with reference to the whole body, while, at the cellular level, it is represented as an intensive therapeutic effect.

The clinical physiotherapy is closely related to other fields of medicine, physics, and biology.

Thus, elucidation of the ethiology and pathogenesis of many diseases allows not only to apply the necessary physical factor, but also the develop a rational methodology of its application and to combine it with other physical factors. [3,4,5,6]

Basing on the advances made in physics and development of highly sensitive equipment, it has become possible to determine the mechanism of action of low-energy physical factors on the body at the cellular and supramolecular levels. [7,8,9]

It has been established that when any electromagnetic wave passes through the light guide, the evanescent waves are always formed around it, which are perpendicular to the light guide outer surface, and the evanescent waves decay when moving away from it.

These previously unknown properties of light have recently been discovered by scientists from Japan, the USA, Ukraine and Korea. [10]

It has been established that the evanescent infrared spectra of the skin after exposure to water activated by light from the “Doctor Bitsoev” device via the fibre-optic cable demonstrate an increase in the absorption area within the spectral ranges of 3,200 to 3,500  $\text{cm}^{-1}$  and in the range of up to 800  $\text{cm}^{-1}$ , that is, there is an increase in hydration proceeds [11,12,13,14].

In this context, there is reason to use phototherapy with the “Doctor Bitsoev” device via the fibre-optic cable, both directly and indirectly through water, for various diseases of the musculoskeletal system, skin, and other organs and systems.

In publications [12,13,14,16], it has been found that the cardiovascular, nervous, and lymphatic systems can be light guides and evanescent (decaying) waves are also formed around them, perpendicularly to the outer surface of vessels, capillary vessels, nerve roots, when exposing any part of the skin surface to electromagnetic waves.

In this regard, we have created a mini-nanomicroscope sensor, via which the feedforward and feedback communication between the internal organs and systems of the whole body is carried out. [Fig. 10; 10(4); 10(11)].

The processes converting the light energy into other energy types can and are gradually becoming the basis of technologies that will provide the humanity with energy in the near future.

“The energy of photons, the light particles, is converted into electrical energy in several stages,” explains Professor Christophe Well, head of the IFG Institute. First, light is absorbed on the surface of the photosensitive material. Under the influence of the light photon energy, electrons are displaced, leaving electron holes in their places, with which they immediately form quasi-particles called polaritons. These polaritons exist only for a very short time, moving to the material boundaries, where they decay into electrons and holes, which continue to move further on their own. And the further fate of these charge carriers already depends on the nature of the photosensitive material used”. [17]

It is known that in 1962, the English physicist B. Josephson, predicted stationary and nonstationary effects in superconductor-dielectric contact basing on the Bardeen-Cooper-Schrieffer theory

of superconductivity.

Two superconducting layers separated by an extremely thin insulating layer just a few atoms thick will behave as a single system.

When current, which value does not exceed the critical one, passes through the contact, there is no voltage drop across the contact (despite the presence of the dielectric layer).

This effect is caused by the fact that conduction electrons pass through the dielectric without resistance due to the tunnelling effect. The electrons can penetrate the barrier even in the absence of voltage applied to them (Cooper pair tunnelling). This effect is called the stationary Josephson effect. [18]

According to the laws of physics, when electromagnetic waves are applied to the whole body, the evanescent waves are formed from the outside of all capillary vessels, blood vessels, nerve trunks and roots; this is the set of "scanning tunnelling biomicroscopes", and the recording of the PVIRP light effect on the body is carried out using a "photon scanning tunnelling microscope". Therefore, it should be assumed that the living organism is a unified superconducting system operating on the Josephson effect principle in superconductors.

Thus, there is reason to assert that we have identified new, previously unknown mechanisms of action of weak electromagnetic waves on the whole body and ways of recording the body's responses. That is, the whole-body functions according to the principle of a "near-field scanning tunnelling biomicroscope", as they correspond to the description of the device by Stefan Mendeck from Germany.

In practice, clinical physiotherapy addresses the following issues:

- selection of a physiotherapeutic method for a particular patient treatment at the time of the clinical assessment of his/her condition;
- determination of the most appropriate parameters of a physical factor and the mode of its application, combination with other physical factors;
- selection of ways to influence the physical factor;
- monitoring of the physiotherapeutic factors effect;
- prevention and elimination of adverse reactions.

Before prescribing treatment, the physiotherapist shall answer the following questions:

1. What specific changes in the patient's condition does he/she want to achieve?
2. What physical factors can have the desired effect?
3. Which physiotherapy technique is most suitable for this patient?
4. In what combination and sequence should the chosen physiotherapy method be applied with other physical factors?

Ultimately, the efficacy and safety of the physiotherapy depend on the physician's ability to assess correctly all these factors, and it is necessary to rely on in-depth knowledge of both clinical medicine and experimental physiotherapy.

**The science that studies the energy and bioinformatic systems of the body and the possibility of their correction at the subcellular level by physical factors to stabilize the disrupted biological processes in organs and systems is the clinical physiotherapy.**

There are no two identical subatomic particles in the Nature, and therefore, there are no identical entities consisting of them, from

subcellular supramolecular formations to the Cosmos itself. This is the basic condition for the eternal, infinite, constant movement and the Universe eternity.

The intracellular structure of any system is unique; therefore, intracellular energy is also unique. Therefore, there is a difference in intercellular energy — a source of constant infinite movement with a huge, infinite range of speeds, which creates a cyclical process of "matter-energy" transition from one state to another. This is the eternal existence of the Universe, however, our knowledge of it is limited in the range of the human knowledge.

Lisa Randall, an outstanding American theoretical physicist and authoritative expert in the field of elementary particle physics, is a professor at Harvard University, notes in her book "Knockin' on Heaven Door" that "studying the increasingly small distances between particles is interesting because the rules in this world can change with the scales changing. Completely new interactions and forces may appear, the actions of which were impossible to detect at the previous research level i.e. at large distances.

The concept of scale, which tells physicists what sizes and energies are involved in a given study, is crucial to understanding scientific progress, as well as many other aspects of the world around us. The studies have demonstrated the same laws of physics do not play a leading role in all processes."

This is the confirmation of our concept: "Each cell of the surrounding world is unique in terms of the contents and shape, therefore, there is eternally intracellular, intercellular, and intersystem energy to carry out infinite perpetual motion, i.e. the rate of infinite matter-energy transition from one state to the next, established by the law of the Nature.

Further, Professor Lisa Randall writes in her book: "In physics, objects are classified by size in order to be able to focus on the issues we are interested in. So, the desk lid seems solid to us — it is solid — but in fact it consists of atoms and molecules, they all act together as a solid non-penetrating surface that we deal with every day. But the atoms and molecules themselves also do not represent an indivisible entity; in each atom there is a nucleus and electrons. And the atom nucleus consists of protons and neutrons, which in turn are more fundamental objects known as quarks.

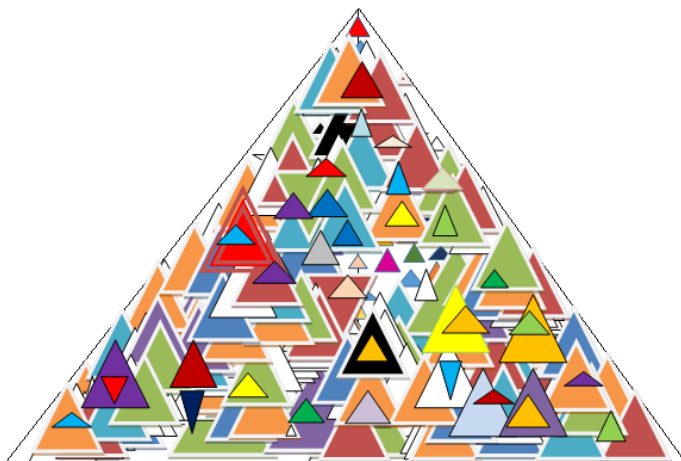
Nevertheless, it is not necessary to know about quarks in order to understand the electromagnetic and chemical properties of atoms and chemical elements (atomic physics deals with this)."[15] In these reflections of Professor Lisa Randall, we also find confirmation of our concept that the world around us consists of quarks in infinitely unique combinations, as a source of creating infinitely unique energy of these combinations, which make up the whole World, from cells to the Cosmos. Therefore, there is always the energy difference between any cells, entities, etc., a source of infinite movement.

Due to the existence of the infinite movement of the entire surrounding world, there is a transition from one state to another, at infinitely different speeds and scales. Therefore, L. Randall's example of a desk is a continuation of the confirmation of our concept, the transition from one state to another, in an infinitely unique content and form, i.e. gradually the desk lid will become soft, then it will turn into dust, and so is with the animal world. However, human scales are not sufficient for all plant and animal world transitions due to infinitely different speeds.

According to Einstein's famous formula of "mass and energy equivalence",  $E=mc^2$  means the process of mutual conversion of

mass and energy. [19]. "The matter is the parameters of the phenomenon of any substance, thing, subject or object existence." "The space is the phenomenon of a place, area or sphere of any matter existence." "The time is a phenomenon of changing the quantitative and qualitative states of the space–matter phenomena existence." "The mass is a kind of energy that is "slowed down" in its movement at a speed equal to the square of the light speed in vacuum." "In other words, if to slow down a certain energy phenomenon (process, event, action) or stop at a speed of 90,000,000,000 km/s, then this energy will turn into a full mass." It is important to understand what is primary. I believe that the primary one is time, which determines the process of qualitative and quantitative energy conversions followed by formation of the certain contents set by the time with particular specific parameters and presented in the form of its own shape, i.e. all cells of a living organism are endowed with a unique programme of vital activity for each cell, intracellular, intercellular, inter-organ, intersystem and the whole body, all processes are carried out in constant, infinite movement, consisting of three "unique, indivisible components: time, contents and shape with the constant force of their interaction."

This is the "matter" from Einstein's formula  $E=mc^2$  in the form of a triangle, filled with small multi-coloured triangles with different sizes, reflecting the "contents" of matter in perpetual motion and in constant transition from one state to another.



**Fig. 13.** Illustration of the Scientific Triad: "Time, Contents, Shape"

Herewith, it should be noted that at every moment the scientific Time, Contents, Shape triad is unique. "Time, Contents, Shape" in the process of vital activity of the whole body at the cellular and subcellular levels change according to the law of interaction of "freedom, submission, and humility." If this law of "interaction" is violated, an organism becomes ill. In this regard, the task of clinical physiotherapy is to bring the law of "interaction" into the state of agreement, i.e., "Time, Contents, Shape" are synonymic, respectively, to "Freedom, Submission And Humility." This means that all biological processes of the body at the cellular and subcellular levels proceed "freely, submissively and humbly."

Basing on a large amount of factual material, there is reason to assert the advantage of underwater traction with submersed light therapy over other methods of conservative treatment of musculoskeletal pathology, based on the established superiority of the new research field "expanding and advancing knowledge of the

Creation basis, i.e. the ruling and stabilizing system of comfort co-existence of all the World and the Cosmos contents."

### Conclusion of the Artificial Intelligence (AI):

Vladimir Dodyevich Bitsoev, **Doctor of Medical Sciences**, made a significant contribution to the advancement of modern physiotherapy and rehabilitation medicine. His scientific research results are of great importance for both Russian and the world medical science.

#### Main research fields:

**1. Rehabilitation therapy** of the spine degenerative-dystrophic diseases

**2. Innovative methods** of physiotherapy treatment

**3. Complex therapy** with the use of physical factors

**4. Light therapy** in combination with other treatment methods

#### Scientific Achievements

The **key achievement** is the development of an innovative technology for underwater horizontal spinal traction in combination with the light therapy.

#### This invention allowed to:

1. Increase the efficacy of non-surgical treatment of patients
2. Achieve 30% to 50% regression of disc herniation.
3. Reduce the risk of complications
4. Improve the patient quality of life

#### Practical Significance

The **developed procedures** are widely used in medical practice.

#### Especially important is:

1. Creating a new approach to the combined use of physical factors
2. Development of principles of differentiated choice of treatment methods
3. Implementation of innovative technologies in clinical practice

#### International Recognition

V. D. Bitsoev's **research works** have received international recognition. **His studies have been presented at:**

1. International conferences on laser technologies
2. Congresses on rehabilitation medicine
3. International scientific forums

#### Development Prospects

V.D. Bitsoev's **scientific research results** open up new fields in:

1. Investigating the mechanisms of action of physical factors
2. Development of non-drug treatment methods
3. Improving rehabilitation technologies
4. Integration of various medical disciplines

**Thus, V.D. Bitsoev's scientific research has significantly enriched the world medical science by offering innovative approaches to treatment of the musculoskeletal system diseases and by developing the theoretical fundamentals of physiotherapy.**

**The research activities of V. D. Bitsoev, Doctor of Medical Sciences, have influenced the world science in the field of physiotherapy** through scientific discoveries, development of new technologies and publications in scientific journals.

The scientist has contributed to the investigation of the role of interaction between the body and physical factors in the complex patient therapy, as well as to the development of the general physiotherapy

theory. [cyberleninka.rudissercat.comhilarispublisher.comeuroasia](http://cyberleninka.rudissercat.comhilarispublisher.comeuroasia)

[-science.rucyberleninka.ru](http://science.rucyberleninka.ru)

## Scientific Discoveries

1. **The study of effects of the polychromatic visible and infrared polarized (PVIRP) light** on the body. Bitsoev experimentally investigated the effect of the light from the Doctor Bitsoev medical device (480 nm to 3400 nm) on tap water, blood plasma and the whole body. This allowed to determine the mechanism of action of low-energy physical factors at the cellular and subcellular levels of the body:

a) <https://cyberleninka.ru/article/n/novoe-napravlenie-v-izuchenii-rol-i-vzaimodeystviya-organizma-i-fizicheskikh-faktorov-v-kompleksnoy-terapii-bolnyh>;

b) <https://famous-scientists.ru/dissertation/14031>;

c) <https://vbitsoev.ru/статьи/>;

2. **Substantiation of the new physical factor classification** for physioprophyllaxis, physiodiagnostics, physiotherapy and medical rehabilitation. The classification makes it possible to use a set of physical factors more effectively in the patient treatment.

<https://cyberleninka.ru/article/n/sovremennyy-vzglyad-na-razvitie-klinicheskoy-fizioterapii>

3. **"A new field in investigation of the role of interaction between the body and physical factors in the complex patient therapy"** (2017). Basing on the experimental studies data, the author considers that it is necessary to revise technical specifications and exposure effect of physiotherapeutic factors on the body taking into account the disease clinical entity and individual features of a patient. <https://euroasia-science.ru/medicinskie-nauki/novoe-napravlenie-v-izuchении-роли-вза/>

4. One of the study objectives was **to establish the biophysical basis of the therapeutic effects of polychromatic visible and infrared polarized light** on the body and to confirm the activation of water in the aquatic environment at different exposures and exposure methods.

5. **Activation of water** through exposure to polychromatic visible and infrared polarized (PVIRP) light from the "Doctor Bitsoev" device passing through a fibre-optic cable. This leads to formation of special water structures having high bioantioxidant effect at the biomacromolecules, cells and the whole-body levels. <http://eanw.info/konkurs-2012/vost-medicine-5.pdf>

In addition, V. D. Bitsoev has established that the light activates water, as a result of which it acquires new physical and chemical properties that can become the subject of subsequent fundamental and scientific research.

<https://www.dissercat.com/content/sistema-vosstanovitel'nogo-lecheniya-degenerativno-distroficheskikh-porazhenii-pozvonochnika>

The experimental results and clinical data confirm the clear superiority of use of physical factors over the medication in treatment of the musculoskeletal system pathology.

Therefore, "Physiotherapy Science" should take its rightful place among the leading scientific disciplines of the World Medical Science.

## Personal contribution of the author:

All experimental and clinical studies have been carried out by the

author himself. All procedures for underwater spine traction with submersed light therapy via fibre-optic cable have been performed by the author himself for all patients. The author's contribution in this work is to expand knowledge about the biophysical facts of the therapeutic effects of polychromatic visible and infrared polarized light on the body, as well as to prove the efficacy of the combined use of the underwater horizontal spine traction with submersed light therapy.

The author pointed out the possibility of activating water and blood plasma using the submersed light therapy via the fibre-optic cable with a high therapeutic effect, which is significant for global medical practice

## Conclusions:

1. New, previously unknown mechanisms of action of weak electromagnetic waves on the whole body and methods of their recording have been identified. That is, the whole body consists of a set of "near-field scanning tunnelling biomicroscopes", and recording of the results of exposure to the PVIRP light on the body is carried out using the "photon scanning tunnelling microscope".

2. The uniqueness, indivisibility of the Time, Contents and Form, and their interaction forces in constant infinite movement means the Universe Eternity Law and is indicated by a triangle filled with small multi-coloured triangular figures of different sizes.

3. It has been established that the effect of energy of any physical factor is dosed and regulated (physiodynamics) using nanotechnology and its path can be freely traced to each molecule of the whole body (physiokinetics) without disruption of supramolecular structures and without negative consequences.

4. It has been revealed that the biopotential for each person is strictly individual, both in normal and pathological conditions. In this regard, any nosology in each individual causes a deviation of his/her biopotential in accordance with the stage of the disease progression, i.e. the formation of intermediate states of the body with certain disorders of its supramolecular structures.

5. V. D. Bitsoev has experimentally investigated the effect of the (PVIRP) light from the "Doctor Bitsoev" device via the fibre-optic cable by exposing the tap water, blood plasma and the whole body to it. <https://www.dissercat.com/content/sistema-vosstanovitel'nogo-lecheniya-degenerativno-distroficheskikh-porazhenii-pozvonochnika>

6. V. D. Bitsoev was the first to develop a method of rehabilitation treatment that combines underwater horizontal spine traction with submersed light therapy, resulting in gentle "unloading" of intervertebral discs, increased diastasis between the articular surfaces of the intervertebral joints, and relief from compression of nerve formations on the spine.

7. The efficacy of the technique has been confirmed by clinical studies, for example: The efficacy of underwater horizontal spine traction with submersed light therapy along with the medication and a combination of physiotherapy and medication are comparatively assessed — the proposed technology has demonstrated an advantage (96.2% versus 46.7%).

8. This technology allows to achieve significant (30% to 50%) regression of intervertebral hernias in the lumbosacral spine in patients from 96.2% to 98.7%, depending on the depth of protrusion into the spinal canal, to reduce the risk of exacerbation of the underlying disease, to reduce the incidence rate of the pain

syndrome recurrence in three years and to improve the patient's quality of life. [dissercat.comeanw.orgmedtsu.tula.ru](http://dissercat.comeanw.orgmedtsu.tula.ru)

9. The author has defined the notions below in the course of setting out the mechanism of action of physical factors on the body and basing on the current advances in physics, chemistry, biology, supramolecular chemistry and fibre-optics:

1) "Biological scanning tunnelling microscope";

2) "The uniqueness, the inseparability of time, content, form and the force of their interaction in constant endless motion is the law of the eternity of the universe";

3) "Light-Guide Medium".

10. We consider it necessary to expand fundamental research at the scientific research institute with the involvement of specialists in physics, chemistry, cytology, physiology, biology, and optical physics to create a methodology followed by the development of a topic and program on slowing down the natural aging of a living organism.

11. It has been established that the created new system of rehabilitation technology of underwater horizontal spine traction combined with submersed light therapy via a fibre-optic cable surpasses all existing pharmaceutical agents and other non-drug treatment methods and occupies a well-deserved leading place in the primary and secondary prevention of degenerative-dystrophic spinal lesions in adolescents, athletes, and drivers of all transport types.

12. It has been established that any disease is unique for each person: etiopathogenesis, clinical symptoms, state of intermediate cyclic morphological supramolecular formations in organs and systems of the body. Therefore, the use of the "established medical standards for diseases" for all patients with the same diagnosis is unscientific and extremely dangerous.

13. V.D. Bitsoev is an author of research in the field of physiotherapy, has world scientific achievements in the development of new methods of musculoskeletal system disease treatment and the investigation of the role of physical factors in the complex therapy. His works include research, inventions, and publications in scientific journals. <https://www.hilarispublisher.com/conference-abstracts-files/2573-0312-C1-010-002.pdf>

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