The Concept of Consciousness and Unconsciousness in the View of Quantum Processes

Adam Grzegorz Adamski

ABSTRACT

Human biological system in order to transmit information does not only use biological channels but also electromagnetic, acoustic and soliton waves; electric, electromagnetic and torsion fields as well as bioplasma. Each of these channels can be a carrier of information for a biological system or it can function as a team in bioplasma system. Although biochemistry takes into consideration the presence of electrons, it still ignores the role of photons, phonons, solitons, spins, electromagnetic fields, and bioplasma in the life processes of the organism. It is difficult to explain the process of regeneration of biological structures as well as mental processes taking into consideration only the ionic conductivity since its speed is too slow and it equals 120 m/sec. The bioelectronic model assumes that protein structures, DNA, RNA, and melanin have the properties of an electronic material in which local and nonlocal quantum processes can occur. In this paper an author uses a hypothetico-deductive method in order to explain the nature of consciousness and formulates the thesis that the nature of consciousness is located in quantum processes.

Key Words: bioelectronic processes, bioplasma, consciousness, perception

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1. Bioelectronic concept of human biological system

In bioelectronic terms an organism is understood as a circuit integrated by biological piezoelectrics, pyrooelectrics, ferromagnetics and semiconductors, and filled with bioplasma. This organism is directed electronically by quantum processes. In this integrated circuit designated as a human body there is a central system in the brain that can control and coordinate the psychosomatic structure. This control is accomplished by a grid of informative channels such as electron, photon, phonon, soliton, spin, ionic and bioplasma channels. Each of these channels may be a carrier of information to a biological system, or may function as a team in bioplasma (Sedlak, 1984; Adamski, 2011).

This system is capable of transforming mechanical, thermal, electromagnetic and chemical energy into electric potential energy. The electric field generated from such transformations is needed for the body to:

- record information coming from the sensory perception in the brain,
- regenerate the damaged tissues, enzyme's function and the synthesis of melanin,
- create bioplasma, which is responsible for the integration of the entire biological system (Athenstaedt, 1987; Adamski, 2006).

Corresponding author: Adam Grzegorz Adamski
Address: University of Silesia in Katowice, Faculty of Ethnology and Educational Science in Cieszyn, Poland.
Phone: + 512-919-626
✉ a_adamski@o2.pl
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The concept of bioplasma is understood as a dynamic system of fields and particles with positive and negative charge that mutually interact in a piezoelectric semiconductor of an organic matter (Sedlak, 1979). Bioplasma changes its electrical state under the influence of electromagnetic, acoustic, soliton waves as well as, gravitational, electromagnetic and spin fields. The result of bioplasma existence is a biofield. Bioplasma can also occur outside the body. Its presence outside the physical body can be seen in the form of a biological field which is a carrier of information to noosphere, biosphere and cosmosphere (Sedlak, 1967).

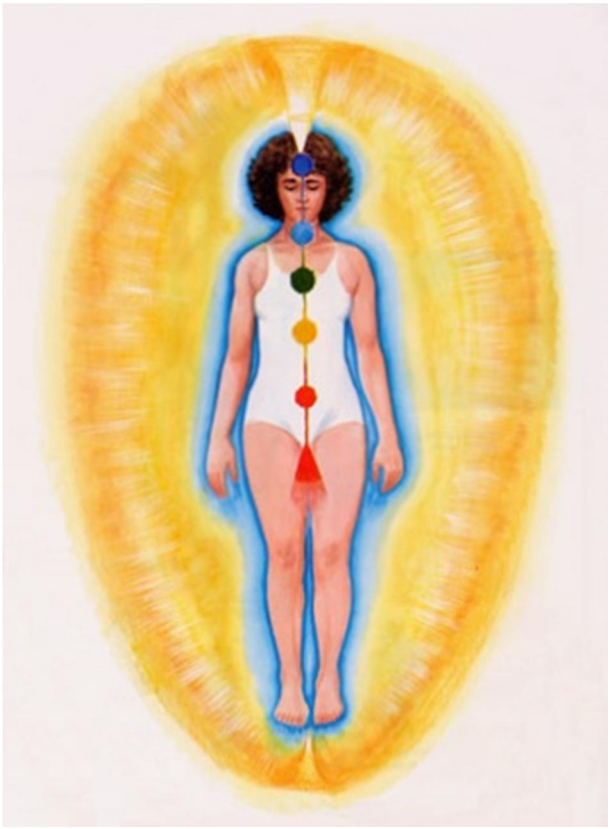

Figure 1. Shows the human biofield which is the result of the bioplasma.

Bioplasma concentration takes different values in different parts of the body, as particles forming it can move across the whole biological system. However, bioplasma task is to keep balance of carriers' condensation in the specified proportions for particular parts of the system. The greatest concentration of electron-piercing and electron-proton plasma as well as and saturation of wave processes are visible in the brain, spinal cord, peripheral nerves and receptor cells (Iniuszin, 1971, p.35).

The main task of bioplasma is to integrate, store and manage the energetic and information processes in the human biological system. According to Sedlak, bioplasma has its own diffraction grating and due to this fact, any energetic disturbance of this grid is information for the biosystem. Bioplasma "knows" what's going on in and around it; it informs about the energetic situation of the whole and of the part. Bioplasma is a state of matter, which is a unity in its diversity and integrates information. It is a generator of information, a coordinator, a carrier and a transformer. It is a material medium of life and a basis of consciousness (Sedlak, 1979, p.265).

The nature of bioplasma is characterized not only by the electric and magnetic symmetry but also by the symmetry of continuity, degradation and generation. Plasma does not last, it is formed and it disappears. In this process, an important role is played by the energetic factors from the outside. Reception of information from the outside (where the information is understood as the acceptance of energy transfer) forces the body to change its own energy. The energetic transmission, in order to achieve the specified information for a biosystem, must be transformed by a uniting factor within the system otherwise it is a random accumulation of random changes in the environment (Sedlak, 1980).

2. The structure and the way of visual perception

An eye is an organ of vision. Light entering the eye passes through the cornea, the anterior chamber of the eye, the lens and vitreous to complete its journey on the retina causing visual impression transmitted to the brain through the nerves connecting to the optic nerve. Cornea, with watery fluid, lens and vitreous body form a system which focuses the light rays so that there appears a clear image of the observed object on the retina and that image gives the sharpest visual impression. This fact allows focusing on the retina the objects located at different distances from the eye. This ability is called accommodation. Acute vision is achieved when the image point coincides with the retina. If the eye is not able to focus light precisely on the retina we can talk about the defects of vision. Each rod in the retina contains a light-sensitive pigment called rhodopsin. Absorbed light energy causes the

conversion of rhodopsin. Transformed biochemical process is transmitted through the optic nerve to the brain by ions (Wolska, 1998, p.135).

The human eye receives only part of the spectrum of electromagnetic waves occurring in nature. It is the electromagnetic wavelength ranging from 380 nm to 740nm. Both the infrared that is formed over the length of 750 nm and ultraviolet formed below the length of 380 nm are invisible for a human eye. Moreover, the gamma rays, *x*-rays and others such as infrared and radio waves are included into the electromagnetic waves (Demidov, 1989).

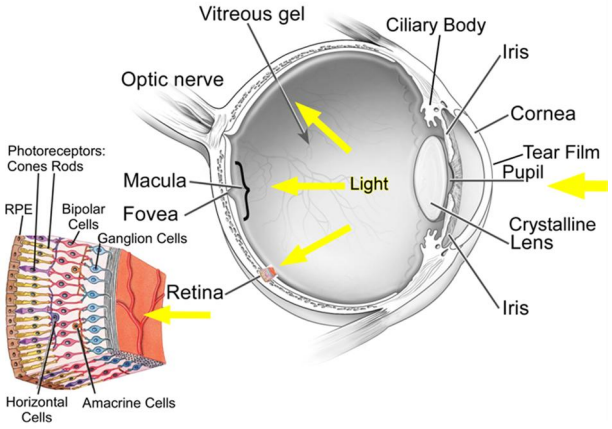

Figure 2. Structural elements of the human eye.

Rhodopsin receives the electromagnetic wave in the light range of 380 to 740 nm, whereas melanin in the range of 240 to 900 nm - from ultraviolet to infrared, inclusive. This fact proves that the organ of vision, in addition to the visible light spectrum, also converts ultraviolet and infrared radiation. Thus, the role of photoreceptors, receptors of hearing and touch would be limited only to the individual receiving of the stimulus, whereas, melanin and neuromelanin are responsible for identifying the surroundings and mental states (Adamski, 2007).

3. Electronic properties of melanin in the biological system

Melanin is an amorphous substance built as a polymer that is responsible for the process of pigmentation in animals. It is found in hair, skin, choroid, iris, *substantia nigra* and inner ear. The melanin in the skin and hair is produced by an enzyme called tyrosinase during the process of melanogenesis which is possible mainly thanks to UV radiation. Melanin in skin protects its deep layers from UV radiation. Under the influence of UV the quantity of melanin is increased causing temporary change of skin colour (suntan). Hair colour depends on the number and kind of melanin particles in hair root. Newborns of white skin do not have any melanin in the iris therefore their eyes are blue. The melanin is later produced in the iris. In people of other races, melanin is produced in the iris before the birth. There are different kinds of melanin: eumelanin, feaomelanin, meuromelanin. Eumelanin is a brown-black pigment whereas feomelanin is a yellow-red pigment. Neuromelanin is a melanin produced by dopamine. Oxidation of dopamine through the metabolic process in the human brain allows forming and accumulating neuromelanin which can function as an antioxidant (Young and Babbitt, 1983; Chmura and Sławiński, 2000).

The most important feature of melanin is its ability to absorb light as well as to absorb, retain, store and regenerate energy (Nordlund *et al.,* 1998, p.347). Moreover, melanin protects against oxidative stress by eliminating reactive free radicals - peroxyl, hydroxyl, quenching of singlet oxygen and by excited states (King, 2001, p.68). Melanin is composed of neurotransmitters and it is able to change light into sound and vice versa (Adamski, 2011). Melanin has the characteristics of a photoconductor and an amorphous semiconductor. At room temperature it also functions as a superconductor (Strzelecka, 1982, p.227; Crippa *et al.,* 1978, p.167).

Melanin has the intensified concentration of bioplasma as well as it plays an integrative role. In the sphere of sensory perception, melanin combines stimulus elements into one whole, namely movement with space and time; sound with light, space and time. Moreover, melanin directs the perception of the size of objects, their arrangement in space; it determines the size, length, location, form, direction, depth and movement of an object. Therefore, one can experience the present and the future, whereas thanks to melatonin- the past and the present. Melanin and neuromelanin would be responsible for the entire process of adaptation to the environment, mental development, the development of attention and perceptual experience, which, together with an increase of melanin and neuromelanin

acquire better sharpness and quality. Melanin is strongly correlated with melatonin. The disorder of this correlation leads to different psychiatric dysfunctions. This fact is visible in such disorders as anorexia, winter depression, child hyperactivity and in various diseases such as phenylketonuria; Parkinson disease etc., Due to the presence of melanin and melatonin, sensory organs apart from their ability to integrate sensory information can form a coherent picture (Adamski, 2005; 2007).

Melatonin provides information about the time of a day and the time of a year for each tissue. Melatonin functions as an internal clock. It measures the time for a seasonal phenomenon as well as for processes of adaptation and development, such as adolescence. Melatonin activates sexual desire and directs the process of pregnancy, etc. (Adamski, 2005). Melanin is a piezoelectric semiconductor and this property allows it to transform different kinds of energy into connected with the electric field electric energy. The impact of the electric field in the piezoelectric causes electrostriction process. During the electrostriction trigger the phonons which form an acoustic wave. The biological system possesses transducers such as: a transducer converting electromagnetic energy into an electric signal (the sense of vision), a transducer converting thermal energy into electric energy (pyroelectric- the sense of temperature), a transducer converting mechanical energy into electric energy and vice versa (the sense of touch), a transducer converting acoustic energy into an electric signal (the sense of hearing). The biological system in different ways provides itself with the appropriate density of bioplasma state thanks to which melanin combines a wide range of fields and elementary particles.

The retinal epithelium is situated beyond the layer of photoreceptors. In this epithelium, melanin, apart from protecting photoreceptors from any damages, is also responsible for sharp vision. In the albinistic people (also called achromia, achromasia, or achromatosis) light is reflected just after passing through photo-receptors and through the epithelium of retina and then it returns to photoreceptors. This process leads to the damage of eye's blood vessels and vision receptors, because the retinal epithelium does not have any resources of melanin. Melanin captures 85% of light and absorbs it, whereas the other 15% of light is transmitted to the brain via nerves. Lack of melanin in the epithelia causes the reflection of the entire light beam and the damage of blood vessels. This process explains why albinistic people have blurred vision. Problems with vision reported by albinistic people allow concluding that melanin included in the epithelium of the retina is responsible for visual perception (Pawluczaki, 2000, p.107).

A similar relationship can be noticed as far as auditory perception is concerned since melanin included in the ear determines human music activity. The ability to organize sound material affects the phenomenon of major-minor tonality, which is referred to as adaptive biological phenomenon (Gorzelańczyk, Podlipniak, 2006).

The brain does not show us the length of the electromagnetic wave, but it gives the impression of a specific hue, as auditory sense changes density of the acoustic wave into the sound impression. These processes are possible thanks to bioplasma located in melanin and neuromelanin. It is bioplasma that is responsible for processing perceptive impressions. Melanin contains two types of free radical centers (Sarna Swartz, 1985, p.342).

The first type is permanent and the experimental conditions (with the exception of degradation) the level of free radicals cannot be reduced in it. Probably, the free radicals are created during the synthesis of melanin and they are captured within the polymer. The concentration of the second type of free radical centers depends on many factors such as light, temperature, pH, presence of metal ion or the paramagnetic and diamagnetic metal ions or some oxidants or reductors. Free radicals are of great importance for the biological system, yet they have a negative influence on the ageing process. Free radicals are any atoms, molecules or ions that have a single unpaired electron in an outer shell. They are chemically active so they oxidize each compound during the process of connecting or losing an electron. Therefore, free radicals have a huge chemical reactivity on other particles. They attack mainly those compounds that have double bonds in their particles such as proteins, DNA, or unsaturated fatty acids that are included in cell membranes, polysaccharides, lipids and cholesterol found in blood. As a result of this

process, electrons generate free radicals that attack other substances. Free radicals play an important role in the process of imprinting information to the nucleus. Free radicals (created when melanin was irradiated by UV) and precisely radical reactions are able to change the arrangement of nuclear spins as well as to record permanently information in the nucleus. This information is then included within the biological structure. So far, it has been claimed that this record can be done only by strong magnetic fields (Hu and Wu, 2004, p.7).

Free radicals are also responsible for creating quantum states of entangled particles, atoms or informative structures and images produced in bioplasma of melanin and neuromelanin. The change of nuclear spins is connected with the change of density of torsion and soliton fields that are responsible for the nature of mental processes. Entanglement is a phenomenon in which the properties (specifically: quantum states) of two or more objects are connected (entangled) in such a way that one object cannot be adequately described without considering the other. This leads to a correlation between the physical properties of objects even if these objects are at different distances. This phenomenon is known in the scientific world as the EPR paradox. The phenomenon of quantum entanglement can occur in a variety of micro-world objects (for instance atoms, elementary particles entangled in the shoots or spin entangled electrons). This happens immediately; however, the distance between them is not taken into consideration at all. For example, when two electrons are entangled, the change of quantum state on one of them causes the same change on the second. The first electron is given a state on purpose whereas the second is given a corresponding state. Thus, one physicist knows that another physicist sent them information regardless of the distance between them. Now let's imagine two quantum computers, which memory is com-posed of entangled electrons. In such a case, these computers can send any data and the connection between them is immediate. I my opinion, the *galactic Internet* will work in such a way. Why are the tangled clouds of atoms needed for a human biological system? First of all, they create the acts of consciousness. Then, they save and convert data in a bio- quantum computer as well as they transfer the data via the *biological Internet* (Bouwmeester *et al.,* 1997).

Teleportation allows sending quantum information saved in the form of the system's state system, whereas the dense coding can increase the channel capacity thanks to the exchange of quantum information. Since teleportation scheme can be extended to multiple qubits it is possible to transmit in this way the longer message (Barrett *et al.,* 2008).

During the process of photoreception light enters the iris filled with melanin. According to the author, entangled quantum states are used in sensory perception, especially in the sense of sight as well as in the formation of the act of consciousness. Through annihilation process, free radicals can break entangled quantum states. This fact can influence the changed states of consciousness-e.g., while taking drugs. The electron-positron annihilation process releases reduction of charges and the light impulse. Soliton light that generates images on an electromagnetic wave and then transmits them to consciousness is produced while reducing quantum entangled state in bioplasma. Soliton images can include human emotional states, thoughts or patterns of behaviour in the form of archetypes.

Free radicals are activated in melanin and they change the arrangement of nuclear spins. Information is recorded in the nucleus during the change of spins. At the same time entangled quantum states are generated and directed by bioplasma. Then, melanin included in the brain receives these states. Any information received by neuromelanin is perceived as a conscious act for a brain which enables proper functioning. Information recording mechanism has a significant role in transmitting the inborn knowledge through biological structures. When a new born child is no longer provided with oxygen from the placenta and starts to breathe on their own (the first breath) the level of oxygen in the arteries increases suddenly causing oxygen shock and increasing the level of oxygen radicals. This sudden increase of the oxygen radical levels initiates the process of imprinting the present reality in which the new born child is situated. A similar situation can be noticed as far as the sense of sight is concerned. Melanin in the epithelium of the retina and iris is formed before the birth. The first eye contact after delivery activates the

development of free radicals, which register into child's biological system information about the surrounding world. Moreover, this first eye contact closes the further synthesis of melanin in these epithelia. This means that information once encoded in these structures serves as a model for many biological and psychological processes such as: adaptation to the environment, reception of tonality, space, time, emotional states, one's behaviour and consciousness of one's own body.

If the biological system did not have those innate patterns of knowledge, a lot of psychological functions (e.g., speech) would be learnt by many years. The increase of the spin field intensity, and various entangled quantum states, affects the concentration of bioplasma and creates continuous acts of consciousness. According to the author melanin and neuromelanin in their electronic structure create spintronic device that is essential to the functioning of sensory perception. This statement is supported by the following data. In electronics, it is assumed that the spintronic device must include some key elements. First of all, it must generate spin polarization, which is understood as a quantitative advantage of electrons possessing a certain spin orientation. This can be achieved by the transport of electrons from the material in which polarization permanently exists (this is ferromagnetic material), or by a suitable optical stimulation that is possible using the selection rules in the semiconductor circuit. Secondly, you need to be able to control the spin, this is best achieved in semiconductors due to their unique physical properties (including spin-orbit coupling). However, the problem of spin injection arises here. The spin polarization should be adequately stable in time - hence the control of spin relaxation processes is of a great importance (Barnas, 2002; Fabian *et al.,* 2007).

It should be noticed that both melanin and neuromelanin fulfills the above stated conditions. When melanin is illuminated one can observe spin polarization whereas bioplasma is responsible for other activities. Melanin's role is to reduce free radicals in the biological system by pumping and directing the spins.

Frank Barr and his co-authors argue that neuromelanin is able to absorb the entire spectrum of electromagnetic waves, and the complex sound. Melanin is responsible for our perceptual experience and continuity of mental states. Barr claims that neuromelanin is a molecule which is involved in the interaction between hormonal and nervous systems and is also capable of:

1. Interaction between photon - phonon-exciton – soliton - free radicals

2. Reception of electric and magnetic fields,

3. Synthesis and product free radicals,

4. Directing the mechanism of ion exchange,

5. Having the properties of amorphous semiconductor,

6. Regulating metabolic processes,

7. Repairing the tissues; active participation in the regulation of homeostasis, autonomic, neuroendocrinoligic and immune system. According to the author neuromelanin and melanin possess large bioplasma resources (Barr *et al.,* 1983).

Melanin Converts Light Into Sound

Melanin converts electromagnetic wave into an acoustic wave, or in other words photon in phonon, and vice versa - phonon in photon (Per McGinnes *et al.,* 1974; Corry *et al.,* 1976). Melanin is able to control light; it can accelerate or delay its movement. This fact is of great importance as far as the formation of bioplasma resources and mental states is concerned. In this situation, it can be concluded that consciousness is energetic-informative state of bioplasma, resulting from the operation of the team system of quantum systems in the brain. These quantum systems generate quantum entanglements governed by bioplasma and powered by spin transfer of melanin angular momentum. In the team system control is accomplished by a grid of information channels: electron, photon, phonon, soliton spin, free radical - each of these channels may be a carrier of information to a biological system, or function as a team in bioplasm.

4. The quantum dimension of the unconsciousness

Apart from using electromagnetic fields, the change of nuclei spins can be done by light and radical reaction. This fact is used in chemically induced nuclear magnetic resonance measurements.

Awareness and long-term memory uses the spin field of atomic nuclei in which

information is recorded. Any information included in the nuclei can be stored by months and years, in spite of intensive physical processes taking place at the level of electron orbitals. The exchange of information between the atomic nucleus and the electron orbital levels can be provided by radical reactions.

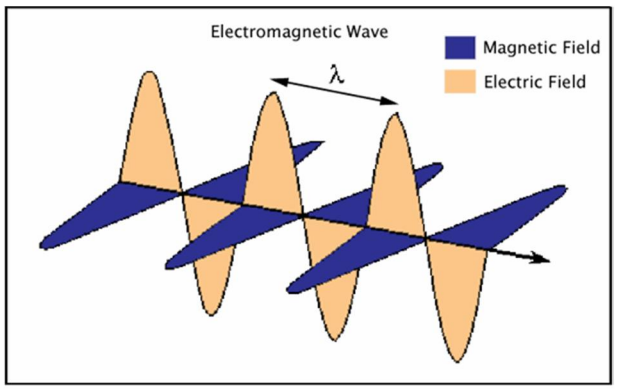

Figure 3. Shows the electromagnetic wave.

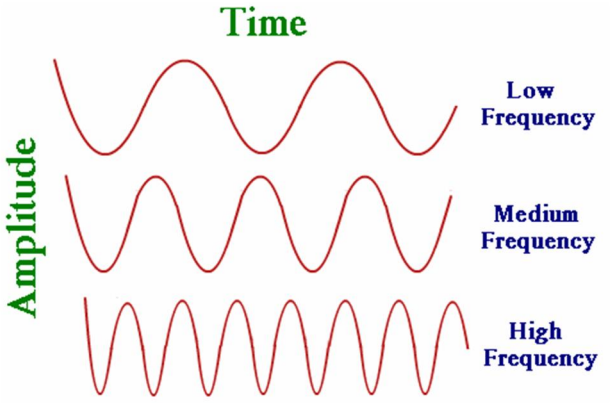

Figure 4. Shows the acoustic wave.

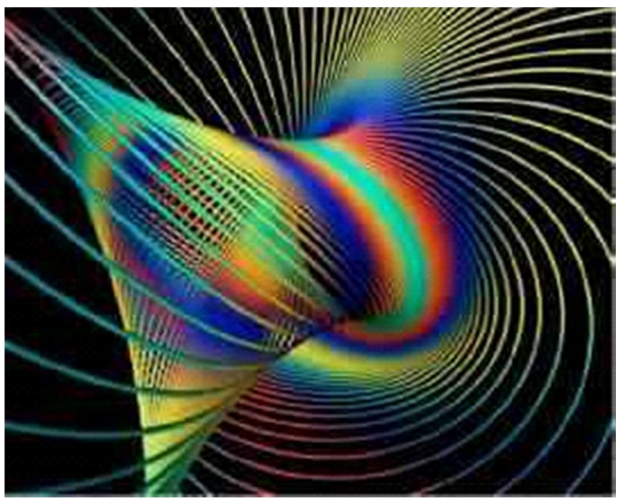

Figure 5. Left and right torsion fields.

Melanin Reverses Light Into Torsion Fields

Melanin converts light into the torsion field. The speed of light in vacuum equals 300 thousand km/sec, whereas torsion field's speed is 10 to N, where N is the speed of light (Shipov, 1996).

There are left and right torsion fields (depending on the direction of rotation of the spin). Molecular, atomic and nuclear spins determine intensity of the torsion field in space.

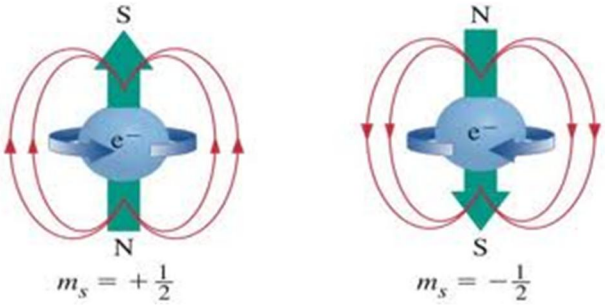

Figure 6. Spin can manifest itself by a rotation of an elementary particle to the right or to the left.

Torsion fields produce solitons

Solitons are independent entities (Shipov, 1993). Soliton is defined as a moving solitary impulse of high-power, which does not blur during the contact with another particle, wave, or the field. There are solitons of light, water and sound, which can strongly interact with other solitons, but after this interaction the form and structure remain unaltered, such as when two soliton waves approach each other they "notice" themselves and penetrate each other, but they do not overlap; then they spread in the same order in which they had been connected. This means that they penetrate each other, without losing their identity. Soliton waves carry signals without the necessity of moving the environment, as a carrier wave. Only spatial relations are transmitted that is the geometry of the constellation of particles of water and air without their physical part - the environment contributes to this process only as a structural pattern (Brizhik, 2003).

Figure 7. Shows the formation of solitons in torsion fields

Soliton signals are transmitted not only to the biological structures, but also to the psychological and spiritual realm - these are our mental, emotional and conscious states. Solitons can spread into the entire universe, and they do not disappear. They have existed from the beginning of life, to the present. The cosmos was densely filled with solitons network, carrying the content and meaning. Information fields (solitons) can affect the energy systems almost without the loss of energy and cause large changes in the biological system. These fields and thoughts can influence each other and are associated not only with the biosphere, but also with the noosphere. Their variety of densities is infinite. The brain has the ability to generate and receive information fields, and therefore, these fields may be a carrier of information from one brain to another (Adamski, 2005, p.33).

Brain and any replication system of a genetic code have transmitting and receiving antennas that transmit space "Directives" (Edmundson and Enns, 1995, p.2491). Soliton image of the universe has a strong influence on the development of human mental processes and social life. Solitons as independent entities, form the structure of unconscious, which includes patterns of human actions, life programs. Unconsciousness is irrational, guided by instinct and it does not show any logic rules. Consciousness is responsible for intelligent recognition of reality and for the control of thoughts and emotions. Awareness affects soliton states (subconscious) when they cooperate and when they are controlled by bioplasma.

The subconscious mind does not distinguish between good and evil, everything is done as a request of the heart. The entire universe is filled with solitons. Myths can support this hypothesis. We cannot explain scientifically why the same myth is cultivated among native population on different continents assuming that any contact between people representing these populations is impossible. Therefore, it can be concluded that such processes are governed by solitons which are filled with different contents, collection of categories of different scope, social relations, patterns of thinking and behavior. Human life is in a large measure unconscious and people live according to some pre-programmed patterns. People do not analyze why they behave in a given way in a particular situation or why they experience a particular situation. It is assumed that it should be like this. However, the human life is governed by the system of processes located in unconsciousness inherited from relatives and based on quantum directives.

Signal transmission in the biological system does not have to occur only under the influence of ionic conductivity, electromagnetic and acoustic waves, electric or electromagnetic fields which, according to the theory of relativity are defined as local processes – but it must be done thanks to the soliton waves, spin fields and bioplasma which are referred to as nonlocal processes affecting the human energy-informational system and its behavior (Adamski, 2005; Brizhik, 2002; 2003).

Lens and melanin cells can be considered as waveguides. Light in the waveguide would be used to switch to other light and could replace electrons that are used in transistors. In the sense of sight, there are two kinds of biocomputers: optoelectronic biocomputers that function with the help of solitons and quantum biocomputers that are governed by the rules of quantum informatics. Soliton biocomputers are responsible for processing soliton material taken from the space and transmitted to bioplasma giving it a high density of information. Quantum biocomputers are powered by quantum braided states and they process and order a perceptive image and then they transmit it to bioplasma. In bioplasma, this perceptive image is whitewashed by soliton content giving it the pattern of behavior or the way of

thinking and of emotional responsiveness. Sedlak (1979) believes that bioplasma was once created and it cannot be created once again; it is unique in nature. Bioplasma is transmitted from parental organisms to the organisms of their offspring. It is a "model" and yet unique. It cannot be produced in laboratory conditions. The soliton image acquired from the space by bioplasma is evaluated and compared to the model. Then, bioplasma corrects the image and creates a uniqueness of the organism with its energetic-informative characteristics of personality, age, health state, illness or a way of thinking. In this situation, unconsciousness would be understood as a condensed soliton state in bioplasma, produced as a result of interactions of quantum nonlocal processes taking place in melanin, protein and neuromelanin.

Not only does a human biological system take solitons from the cosmos, but it also produces them as it is shown in Figure 7. Solitons generated from the human body are transmitted to space and to the brains of other people as well, in a form of messages, or directives. In psychology, this phenomenon is known and referred to as telepathy It is also noticeable in everyday life when one of someone and that person at that time appears in the group of people who speak about them.

Conclusions and Prospects

The considerations presented in this paper are connected with the role of quantum processes in the development of visual perception and human mental functions - (conscious and unconscious). From a biological point of view, a human being is an open system and cannot be seen in isolation from their surroundings, as they create the whole with their surroundings. One can observe a continuous exchange of information, energy and matter between humans and their surroundings. A person should be considered not only as a single system, but also as a system consisted of many subsystems. These subsystems have many feedbacks. The whole world is a unity and all processes occurring in it are interrelated as well as they influence one other, focusing all powers and influences coming from the space because they are so strong that they cannot be ignored. Classical psychology assumes that the relationship between a human being and the environment is possible thanks to the senses. In these terms, the human being is a priority in a research project whereas the role of the environment is ignored. Looking at the cognitive processes from the ecological point of view, it is stressed that the human being- as a living organism and the environment form inseparable part of the ecosystem. Moreover, in ecological terms, a psychologist cannot limit their observations to the humans themselves but they should pay attention to the whole range of relations between the human being and their- environment. In psychology understood in such a way, information from the environment comes to the human organism not only via receptors but also via perceptual-motor system (Table 1).

Table-1

1. The nature of mental processes cannot be explained through psychological concepts
2. Melanin, protein, DNA-RNA is electronic material.
3. Human biological system is an electronic device.
4. Consciousness is situated in bioplasma.
5. Consciousness includes informative and energetic-informative states.
6. Bioplasma is an indicator of consciousness in the human biological system and it is guided by the laws of quantum physics.
7. Consciousness is related to the specific mechanisms of information processing.
8. Neuromelanin in the brain directs the mechanism that is responsible for creating the structure of conscious and unconscious.
9. Bioplasma integrates biological and mental structures.
10. Bioplasma and consciousness can integrate information
11. Nature of psychic phenomena is situated in quantum processes.

A broader view on this problem is presented in Sedlak's electromagnetic theory which assumes that the body acquires information not only by sensory receptors, but also in a somatic way by protein, nucleic acids, melanin, and other biological structures that are perceived as electronic material having the piezoelectric, pyroelectric and semiconductor properties. The piezoelectric material is able to activate bioeletronic processes that are essential for every organism to function properly. Piezoelectric responds to mechanical, acoustic, electric and gravitational energy whereas pyroelectric to thermal and light energy. Any pyroelectric is a semiconductor as well. Semiconductor reacts to electric, magnetic and electromagnetic energy etc. Pathological states in organisms occur when there is not any interactions of energy on biological tissues. All the material presented in this thesis as well as author's

implications prove that a living organism can be perceived as a complex electronic device similar to the technical devices whereas a biological materials (proteins, DNA, RNA) - as components of electronic devices. These arguments allow to state that the biological system can be considered to be a quantum computer that functions on the basis of entangled quantum states and optoelectronic phenomena.

The influence of organic pigments (melanin, neuromelanin, rhodopsin), and melatonin on a biological system as well as their impact on psychological states has been proved in this thesis. Melanin and neuromelanin are implicated in the central control of all biological, physiological and psychological processes. Numerous modular communication systems and signaling pathways that transmit signals into the cell are generated under the influence of light. Melanin and neuromelanin function as a multireceptor of full range of electromagnetic, acoustic soliton waves, torsion fields and bioplasma, which does not receive so much information the senses, but it receive it constantly. The role of photoreceptors, receptors of hearing and touch is limited to a single reception of the stimulus, whereas melanin and neuromelanin play an integrative function, combining stimulus elements in the one whole namely movement with space and time, sound with light, space and time. From the psychological point of view, melanin and neuromelanin would be responsible for the entire process of adaptation to the environment, mental development, the development of attention and perceptual experience, which, together with an increase of melanin and neuromelanin, acquire better sharpness and quality. Melanin and neuromelanin absorb and convert electromagnetic energy into acoustic energy and vice versa. They also have the ability to convert the electromagnetic wave into the spin fields in which solitons responsible for unconscious states are condensed. Bioplasma controls these processes. According to the electromagnetic theory of life, biological processes and mental functions have energetic-informative character.

The publication shows that modern quantum physics has a broad knowledge of human mental functions, although it is not main subject of its research. In the future it would be possible that quantum physics would know more about mental processes than psychology. This work reduces the gap between psychology and quantum physics and bioelectronics. The work is a significant contribution to the development of psychology, especially in the knowledge of the nature of mental processes. This thesis allowed the author to define consciousness and unconsciousness. It opens the door to the further research but this research must be based on a multidimensional method which will include a network of informative channels: electron, photon, phonon, soliton, spin and free radical. Each of these channels may be a carrier of information for a biological system or it can function as a team in a bioplasma system The current laboratory methods usually use only one informative channel such as EEG, CT, MEG, NMR etc. In order to keep up with the development of electronics and information technology, psychology must radically change its view on human psychological development. It must take into consideration the fact that nanotechnologies and information technologies provide science with a variety of new information concerning human social life. Unfortunately, such new information is often ignored by psychology.

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