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Heart Valves as Soliton Wave Generators and Their Effect on Heart Function

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Abstract

The biochemical model that has existed for over 100 years is insufficient in explaining the phenomenon of life. Translating everything into the criteria of classical chemistry or electrochemistry gives the impression of going backwards. In addition to the traditional, well-known chemical reactions, a new reality is opening up, operating on the bioelectronic model of life. In this model, the human organism is understood as an electronic integrated circuit made of piezoelectric, pyroelectric and semiconductor elements, with a biochemical, bioelectronic, informational and biocybernetic construction, which is responsible for modeling the structure and functions of biological biocomputers, managed by quantum processes in an electronic way. In this integrated circuit, control is carried out through a network of information channels: electron, photon, phonon, soliton, spin, ion and bioplasmic. (Sedlak 1979). (Adamski 2011).

This model reaches to quantum foundations and shows the material unity of man with the natural world, as well as the unity of being itself and recognizes that the quantum level is the level to which soma and psyche can be reduced together with their structure and function. Here, at the quantum bottom of life, there is no longer a difference between life and consciousness, between psyche and bios. Here there is quantum unity. Here, cooperation between chemical and electronic processes has been established. At this level, consciousness has an energetic-informational nature and is a factor activating soma, through the activation of bioelectronic processes (Sedlak 1979).

Keywords: sacubitril/valsartan; heart failure with reduced ejection fraction (hfref); nt-probnp; tolerability; nyha functional class

Heart valves and their role in heart function

The heart is an organ consisting of four chambers, two of which are called atria and two ventricles. From each atrium, blood is pumped through the atrioventricular valves that open during systole to the ventricle, then to the aorta or pulmonary trunk. From the left ventricle, blood flows through the semilunar valve and into the aorta. There are four valves in the human heart: two venous (atrioventricular) and two arterial valves (aortic and pulmonary). We distinguish between mitral and tricuspid valves. The work of the heart valves is to open and close during systole and diastole, thanks to which blood flows from the heart to the lungs and the rest of the body. The aortic valve is located in the left ventricle of the heart, at the aortic outlet. The pulmonary valve is located in the right ventricle, at the pulmonary outlet. The tricuspid valve is located between the right atrium and the right ventricle of the heart. Between the left atrium and the left ventricle is the bicuspid valve. The valves work in the rhythm of the heart's contractions and relaxations, pumping blood and preventing its backflow. During ventricular contraction, the atrioventricular valves close, cutting off the outflow of blood to the arterial trunks. In this way, blood is forced into the atria. During diastole, the atrioventricular valves open, causing blood to flow from the atria. Thanks to this mechanism, blood flows continuously in one direction (Gołąb 2014).

Valves are made of connective tissue. They are made of movable leaflets and a ring on which the leaflets are located. The valves are located between the heart chambers and the main vessels. The atrioventricular valves, called venous valves, are attached to fibrous rings that fill the atrioventricular orifices. The right venous orifice has three leaflets (anterior, posterior, medial - this is the tricuspid valve), and the left has two (anterior, posterior - mitral valve). The free edges of the leaflet are attached to the chordae tendineae, muscular trabeculae and papillary muscles. The valves of the aorta and pulmonary trunk are different from those described above. Their leaflets have a semilunar shape. Each leaflet has three pulmonary sinuses and three aortic sinuses (Longstaff 212).

The left ventricle has a wall twice as thick as the right ventricle. It contains: the left atrioventricular orifice and the mitral valve, papillary muscles (anterior and posterior), the aortic orifice and its valve. The heart wall has a three-layer structure. The inner layer is the endocardium, the middle layer is the myocardium, and the outer layer is the epicardium. The myocardium contains three components: the cardiac skeleton, the cardiac muscle, and the conduction system.The place where electrical impulses are generated is the cardiac conduction system.

It consists of 4 elements:

- sinoatrial node (also called the sinus node, or the so-called "pacemaker"): it is responsible for the heart rate - it spontaneously generates electrical impulses that cause both atria to contract and then reach the atrioventricular node),

- atrioventricular node (it makes sure that the atria and ventricles do not contract at the same time, so its task is to slow down the conduction of the impulse),

- bundle of His,

- Purkinje fibers (Sawicki 2012), (Aktinson et al 2011).

The task of the conduction system is to activate impulses and distribute them throughout the heart muscle. The excitation wave that is generated in this node is not recorded in the ECG until it leaves its area. The electrical stimulus, leaving the sinoatrial node (SA), spreads simultaneously in the conduction paths in the atria and in the muscle cells. The differences in electrical impulses between the left and right ventricles of the heart are important from the point of view of their function. Since the work of the left ventricle is much more intensive than that of the right ventricle, the dimensions of their walls also differ. The wall of the left ventricle is about 15 mm thick, which makes it more durable, while the wall of the right ventricle is much thinner, reaching only about 5 mm thick. This difference results from the fact that the pressure in the left ventricle is much higher than in the right ventricle, which requires a greater force of contraction of the heart muscle. Due to the effort it has to perform, the left ventricle of the heart is more susceptible to damage and failure than the other parts of the heart. Heart attacks, which are a serious threat to life, more often affect this part of the heart than others. Hypertrophy of the muscle and change in the geometry of the left ventricle are often the result of hypertension. Increased left ventricular mass may be an early diagnosis of hypertensive heart disease (Cudnoch-Jędrzejewska, Puchalska, Kowara 2024).

The normal heart rhythm obtained from the stimulation of the sinoatrial node in a healthy person is from 60 to 100 beats per minute, in a small child over 120 per minute. Sometimes, under the influence of various factors, abnormal impulses may be generated in the sinus node or elsewhere. The heart rhythm may then deviate from the normal one and may be faster, slower, or irregular. Such conditions are called cardiac arrhythmias. During a human life, the heart performs about 2.5 billion beats, pumping a total of about 170 million liters of blood. In 1 minute, the heart pumps an average of 5-6 liters of blood. The estimated length of all blood vessels in the human body is over 100 thousand km, this length is enough to encircle the globe 2.5 times. The heart ejects about 70 ml of blood into the aorta with each contraction. A single heart cycle, i.e. its contraction and relaxation, lasts only 0.8 seconds, of which 0.15 seconds for the atria contraction, 0.03 seconds for the ventricles contraction, and 0.35 seconds for the diastolic phase. It rests only for a fraction of a second during diastole. During the day, the heart contracts about 100 thousand times, over 36 million times in a year! During the day, the heart pumps about 7 thousand liters of blood (Dąbrowska, Dąbrowski 2005). The heart beats faster during stress. Its efficiency in stressful situations can increase even fivefold. Long-term stress can lead to premature wear of the heart muscle, leading to a heart attack. (https://sercenabanacha.org.pl/uklad-krazenia/,

https://sercenabanacha.org.pl/arytmia-serca/,https://sercenabanacha.org.pl

The electrocardiogram (ECG) signal is generated by rhythmic heart contractions. It represents the electrical activity of the heart muscle and is usually measured using electrodes placed on the body surface. The electrocardiogram (ECG) signal is widely used in heart pathology to detect heart disease (Baranowski et al, 2016).

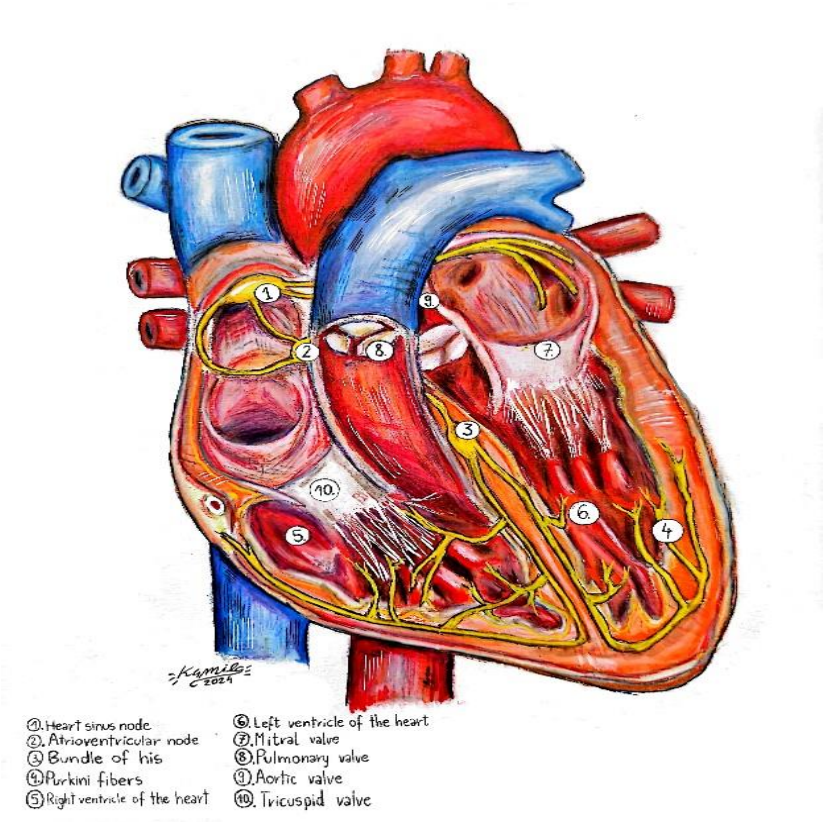

Figure 1: Heart Anatomy

2. Atrial and ventricular fibrillation and its effect on the heart

Atrial fibrillation (AF) is caused by a disruption of the electrical messages that normally cause the heart muscle to contract. In the case of AF, the atria beat very quickly and are uncoordinated. This can cause the blood flow around the atrium to become "turbulent" and the heart to be less efficient at pumping blood. AF can cause heart palpitations and increase the risk of blood clots, which can increase the risk of stroke. In terms of quantum processes, this phenomenon can be explained by the disruption of electrical messages, causing the improper generation of solitons. The blood flow around the atrium becomes turbulent - the turbulence becomes a soliton generator, which disrupts the central heart control system.

• **Ventricular premature beats** (VPB) – this is an additional heart beat that occurs when electrical impulses start in one of the ventricles and contract before they receive a normal signal from the atria (Główczyńska 2020).

• **Ventricular tachycardia** (VT) – VT starts due to abnormal electrical activity in the ventricles, where the heart contracts abnormally quickly (over 100 beats per minute). This can lead to loss of consciousness (Bieganowska et,al 2021).

• **Ventricular fibrillation** (VF) – the contraction of the ventricles is uncoordinated and instead of contracting normally, they "quiver", blood is not pumped effectively from the heart. This condition is life-threatening and requires urgent treatment with a defibrillator (Wysokiński 2022)

A quantum perspective – the contraction of the ventricles is uncoordinated, there is ventricular quivering. Uncoordinated ventricular contraction leads to abnormal polarization of biological piezoelectrics (proteins, melanin, DNA, RNA, etc., which are found in biological structures, muscle fibers and heart cells. Abnormal electrical impulses become carriers of solitons, which have different programs of heart functioning, from the central program (Adamski 2023), (Appali, et al,) 2010.

• **Sudden cardiac death (SCD)** - can happen due to dangerous arrhythmias such as ventricular fibrillation (VF), where the contraction of the ventricles is uncoordinated and instead of contracting normally, the ventricle "quivers" so blood is not effectively pumped out of the heart. Although this is relatively rare, if VF is not controlled (using a defibrillator to restore normal heart rhythm), it can cause cardiac arrest (Ahmed 2014).

It is necessary to put forward a thesis, ventricular fibrillation, causes abnormal generation of electrical impulses, which has an impact on poor cooperation with the soliton wave. The role of solitons is limited to pumping blood throughout the body. Without solitons, the electrical impulse would not be able to perform such hard work as the heart, where the estimated length of all blood vessels in the human body is over 100,000 km. Opening the chambers on the principle of electrostriction is highly unlikely due to the low electrical potential (Adamski 2023), Arovas 2009, Sawicki 2012).

The essence of the biological system includes piezoelectricity, pyroelectricity, ferroelectricity and semiconductor. Piezoelectrics can convert mechanical energy into electrical energy and vice versa. A pulsating electric field applied to a piezoelectric causes it to vibrate (referred to as electrostriction), generating a quantum acoustic wave. During electrostriction, the piezoelectric vibrates and generates phonons in the form of an acoustic wave (Krajewski 1970).

The piezoelectric phenomenon was discovered in 1880 by the brothers Pierre and Jacques Curie. It occurs in anisotropic dielectric media with a specific crystallographic structure. It consists in the fact that during compression or stretching of some crystals, opposite electric charges appear on their edges. As a result of the stress, the piezoelectric crystal polarizes, as a result of which electric charges appear on the appropriate crystal planes and an electric field is created (Soluch 1980).

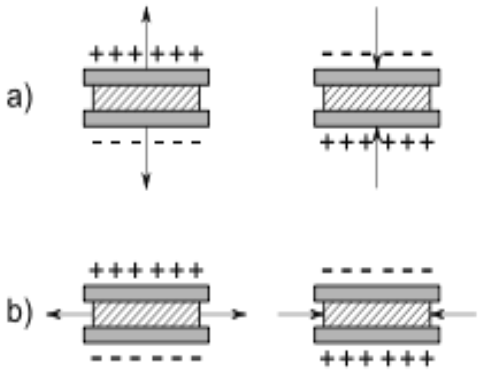

Figure 2: Piezoelectric effect occurring during (a) compression, (b) stretching of the plate.

If there are no external electrical and mechanical interactions, the piezoelectric crystal lattice is undeformed and electrically neutral. Some piezoelectric crystals are characterized by constant polarization even when there are no external interactions. Such crystals are called pyroelectrics. The ability of piezoelectric crystals to polarize at the expense of mechanical interactions and the ability to deform at the expense of applied electric fields allows them to be considered as electromechanical transducers (Kleszczewski 1997).

Ferroelectrics are bodies in which spontaneous polarization occurs in a certain temperature range in the absence of an electric field. Ferroelectrics, under the influence of an external electric field, undergo deformation, which is proportional to the square of the field intensity. This phenomenon is called electrostriction. All ferroelectrics, except for electrostriction, exhibit the piezoelectric and pyroelectric effects (Soluch 1980).

This means that they have the ability to generate electric charges on their surfaces under the influence of temperature changes or mechanical stress. In other words, if a ferroelectric is heated or cooled, or compressed or stretched, an electric charge (electric voltage) will appear on its surfaces (Tan and Li 2015). Scientists from the University of Washington have investigated the ferroelectric properties of the tropoelastin protein Elastin, as a key protein found in connective tissues, is an important structural component of the lungs, heart and arteries, is ferroelectric (Wise et al. 2014).

(Liu et al. 2012), (Liu et al. 2013), and plays important physiological roles in the morphogenesis of blood vessels (Brooke 2003), homeostasis and regulation of cell function (Debelle 1999). Ferroelectric switching may

help to suppress increased pulsatile flow and arterial blood pressure to reduce distal pulse stress. Elastin polarization may also help regulate vascular smooth muscle proliferation and organization and contribute to arterial morphogenesis (Li DY, et. Al. 1998).

These phenomena indicate that bioelectronic processes play a significant role in cardiac function. Science must consider soliton conditions that affect cardiovascular health and disease. Factors that disrupt soliton function can lead to cardiac arrest and death of the biological system. Causes include heart failure, tricuspid or mitral valve disease, pulmonary embolism, inferior myocardial infarction, carditis, and digoxin toxicity.

3. Valve defects and their impact on heart function

Valves are not free from defects and diseases. We distinguish between congenital and acquired heart valve diseases. Congenital valve defects concern their abnormal structure, e.g. abnormal shape and incorrect position relative to each other, or heart chambers, incorrect number of leaflets. Some defects become visible in childhood, others only in adulthood.

Acquired valve defects are usually a complication of diseases: rheumatic, ischemic heart disease, heart attack, infectious endocarditis, hypertension, connective tissue diseases, aortic dilatation or its dissection, as a result of injuries, as a side effect of taking certain medications, etc.

Heart valve defects include two problems:

- narrowing (stenosis) - the valve does not open completely, impeding blood flow.

- valve insufficiency - the valve leaflets do not close, causing leakage and blood flow in the opposite direction.

There are also complex defects, which include both stenosis and valve insufficiency (Mizia-Stec, et al. 2018).

3.1. Heart valve surgery

Nowadays, valve surgery is almost routine and a very effective way to treat advanced heart defects. Performing the procedure allows many people to return to almost normal functioning - without bothersome and life-threatening symptoms.

The decision to perform the procedure is made by a cardiologist and a cardiac surgeon, who qualify for the procedure based on the test results.

The main indications for the procedure are:

• advanced circulatory failure, which prevents many patients from functioning normally,
• paroxysmal pulmonary edema,
• pulmonary hypertension,
• atrial fibrillation, which leads to peripheral artery embolism.

Clinical symptoms of ailments related to circulatory failure are very characteristic - increasing shortness of breath (initially only during exertion, and then also at rest), liver enlargement, swelling in the legs and in the lumbar sacrum region, and heart murmurs. Such clinical symptoms qualify for initial cardiological tests and, consequently, for heart valve surgery (Laflamme 2021).

Heart valve surgery - unless it is performed in a life-saving situation - requires appropriate preparation on the part of the patient. First of all, all circulatory system tests are required - including ECG, echocardiography, and coronary angiography. Only on the basis of their results does the doctor decide whether a given patient can be qualified for the procedure. Before performing the surgery, it is advisable to perform a urine test, a blood count, a chest X-ray, a blood type test (if not done earlier) and vaccination against hepatitis B, i.e. against infectious jaundice. In some cases, the doctor may recommend discontinuing anticoagulants. The procedure is performed in an operating room under general anesthesia. The surgeon cuts the patient's sternum, stops the heart, whose functions are taken over by a machine as part of the so-called extracorporeal circulation, and then sews in an appropriately fitted valve. The next step is to restore the heart and sew up the chest. The average procedure time is about 5 hours, but in some situations it may be longer. The patient wakes up the same day, but requires intensive rehabilitation for the next few weeks (Kołodzińska et al 2022).

Heart valve surgery carries some risk, but in many cases it is the only chance for recovery. It is a serious and invasive procedure that does not remain without an impact on the human body. Both during the operation itself and during rehabilitation, serious complications can occur, which increase in elderly patients, in serious condition, or struggling with concomitant diseases such as diabetes or kidney failure. The risk appears already during the operation, when it can lead to a stroke, heart attack or even death. During rehabilitation, bleeding, bacterial endocarditis, postoperative wound infections, pneumonia or pulmonary embolism may occur. All of these complications are extremely dangerous. Every patient undergoing heart valve surgery should remain under the constant supervision of a cardiologist. Follow-up visits consist of a conversation with the doctor and performing specific cardiological tests. This type of surgery is very effective, but the patient cannot neglect anything – taking medications, regular tests, following a proper diet and leading a healthy lifestyle. Only then will heart valve surgery actually save his life (Narkiewicz 2002).

The author of the paper has been conducting rehabilitation with these patients for many years and it brings fruitful results in gaining health in these patients. This is apitherapy. The course of therapy involves learning sounds by the heart, which are produced by bees.

4. Apitherapy and its role in the functioning of heart valves

The apitherapy program developed by the author of the monograph is as follows. Bees generate a wide range of acoustic solitons in their sound, which have a soothing effect on the functioning of the human heart.

Figure 3: Bees on a frame from which the sounds of bees in the hive are collected

Figure 4: A swarm of bees that has formed on a tree.

Bees during swarming fly out of the hive and take flight - they make a sound that is perceived by humans as a loud buzz. During swarming, bees create a swirling cloud of bees, which fly in circles, flying in one direction, creating an increasingly larger clump of bees. During swarming, sound is recorded using appropriate technical devices called sound recorders. During swarming flight, bees create a swirling cloud that generates acoustic solitons. Sound recorders are installed in the hive from early spring to late autumn. Bee sounds are recorded, then sorted and various musical pieces are created from them, adding sounds of nature to them. In therapeutic sessions, a patient with cardiological diseases first listens to some sounds, and then, using headphones, they are applied to the chest in the heart area. The first session lasts about 15 minutes, the next ones from 20 to 40 minutes. The heart learns the soliton program, which is recorded from the life of the bee family. The heart learns sounds and at the same time corrects the heart rhythm through acoustic solitons and eliminates disease states. The therapeutic program also includes applying sounds to the entire human body, using appropriate headphones. This requires specialist knowledge of what sounds to use and in which part of the body. It all depends on the patient's disease and the improper functioning of specific organs in the human biological system. The results of this therapy have a very strong impact on the patient's health. Children with hearing impairments are deprived of the ability to hear sounds clearly. Many techniques are used for their perception of music. One of them is the vibration technique, which involves the child touching the instrument with their entire body, e.g. a piano on which the child can lie down. As soon as the child feels the sound vibration, they begin to understand its rhythm, which is an important stage in the child's mental development. These techniques aim to gradually stimulate the brain centers that are responsible for the hearing process (Lewandowska 2001 p.60).

Research with deaf children led the author to create cardiac apitherapy, in which sounds and solitons are used to regulate heart function.

5. Physical properties of a biological system

Photon, phonon and soliton phenomena control human life processes. Phonons are supposed to condition the cyclicity of quantum interactions. They also grow into an important factor in continuing the action of life, because they link optical, electrical, mechanical and magnetic phenomena with biological mass, they directly integrate all quantum processes with the movement of mass, again photons expressed in the form of an electromagnetic wave constitute an information center in cellular transmission, and at the same time they fulfill the factor that records impressions in memory through the electromagnetic field. which is responsible for forming and directing psychobiological functions. Solitons are responsible for the implementation of the program contained in the genetic code, they transfer the DNA matrix to the functioning of the cell and order it to a strict program of action. Bose-Einstein condensate occurs in a biological system as a result of the coherence of light generated by DNA, its role is limited to the creation of solitons. In the Universe, there is a primary information called "Ingeneza", which is encoded in atoms. Each DNA atom has specific genetic information encoded. Ingeneza programs are quantized and create all stages of development, cell, organism, biosphere and cosmosphere. Water molecules are the carriers of this information. Ingeneza designs the shape of a snowflake, but also the structure of honeycombs. A bee will always produce the same honeycomb pattern. A soliton is a solitary moving wave,

the shape and speed of which do not change with the distance traveled and after collisions with other solitons, can be created in nonlinear dispersive media. The dispersion phenomenon causes the duration of the pulse to lengthen with the distance traveled, nonlinear optical properties of the medium can cause the duration of this pulse to shorten; under appropriately selected conditions, both phenomena can compensate each other and an impulse is created that does not change its shape (Adamski 2016).

Solitons, manifest in a wide variety of wave-particle systems in nature: virtually any system that possesses both dispersion (in time or space) and nonlinearity. Solitons have been identified in optics, plasmas, fluids, condensed matter, particle physics, and astrophysics. However, over the past decade, research on solitons has shifted toward neuroscience. The soliton model in neurobiology is a recent one that attempts to explain how signals are conducted in neurons. It assumes that signals travel along the cell membrane in the form of certain types of sound pulses (or densities) known as solitons. There are solitons of light, water, and sound that can interact strongly with other solitons, but after this interaction, the form and structure remain unchanged. This means that they penetrate each other without losing their identity (Brizhik 2008).

Water solitons are observed on rivers, seabeds, they are conditioned by the topography of the seabed. There are also atmospheric solitons, e.g. the Morning Glory phenomenon in the Gulf of Carpentaria cloud. It is a solitary wave that has one crest and moves in uniform motion, without changing speed and shape. It appears without the occurrence of any clouds (Roger, Rottman 2002).

According to Jibu and Yasue, there are Bose-Einstein condensates inside and outside the neuronal membrane, they can weakly connect with each other, creating the so-called Josephson junction. The skew potentials of the biological cell membrane cause self-excited oscillations and excite the Josephson junction to produce solitons along the biological membrane. Soliton waves maintain their form over long distances and can propagate to macroscopic dimensions, which may indicate that cellular conduction transmits information via ionic, electrical, and soliton pathways (Jibu, Yasue 2000). Karkuszewski 2006).

Strong laser waves, a degree of nonlinearity, and a high concentration of atoms in the Bose-Einstein condensate affect the formation of multidimensional solitons. Currently, the greatest degree of nonlinearity is achieved by organic substances, in which electrons seem to travel long distances. (Brizik 2015).

It has been noted that a soliton can generate an electromagnetic wave or absorb it, which results in the creation of a continuous medium of conduction and transfer of information over a distance (Muryshev, et al. 2002), (Denschlag et al. 2000), (Bongs, et al. 2003).

Solitons emit their own electromagnetic field with a characteristic frequency determined by their average velocity. This self-radiating field leads to the synchronization of soliton dynamics and charge transport processes and is a source of coherence in the system. Exposure of the system to an oscillating electromagnetic field with a frequency that coincides with the solitons' natural frequency can increase the solitons' natural radiation and thus will increase the charge transport synchronization, excite redox processes and increase coherence in the system. The oscillating electromagnetic field also causes the soliton ratchet phenomenon, i.e. soliton drift in macromolecules in the presence of an unpolarized periodic field. Such additional drift enhances charge transport processes. It has been shown that temperature facilitates the ratchet drift. In particular, temperature fluctuations lead to a decrease in the critical value of the field intensity and period, above which soliton drift occurs. In addition, there is stochastic resonance in the soliton dynamics in external electromagnetic fields. This means that there is a certain optimal temperature at which soliton drift is maximal (Wang et al., 2018).

Soliton excitation requires a sudden change in any variable, these can be voltage pulses (commonly used in electrophysiology), mechanical stimulation, pH drops, biological or morphogenetic phenomena. temperature decrease (Adamski 2020 b) and other sudden stimuli that increase the phase transition temperature in ferroelectrics. The brain shows the ability to generate and receive soliton fields, a similar situation occurs during the functioning of the heart. (Adamski 2023)

A soliton wave is also generated in the vitreous body of the eyeball, in the sense of hearing in the perilymph and endolymph (Adamski 2020). In living organisms, soliton waves have encoded programs about the proper functioning of the cell and maintaining homeostasis, etc. Solitons can spread without distortion over very large distances and are the wisdom of the laws of the development of the Universe (Brizik 2015).

Solitons, generated from the human body, are transmitted to the Cosmos, but also to the brain of various people in the form of messages or directives. This takes place in the content of myths or telepathy. In psychology, such a phenomenon is known, a similar image occurs in synesthesia (Adamski 2016).

Soliton signals are transmitted to the psychic and spiritual sphere - these are mental, emotional and conscious states. Solitons can spread throughout the universe and do not disappear. They exist from the beginning of life to the present. The Cosmos is densely filled with a soliton network, carrying content and meaning. The brain has the ability to generate and receive soliton fields, which take an active part in the processes of human life and decide about their personality development (Adamski 2005, p. 33), (Trabka 2003, p. 87)

The action of solitons in the human biological system provides a basis for seeing the human psyche in a different light than current psychology does. Spin and soliton waves create a different image than electromagnetic waves received by the visual receptor. Current science only recognizes the action of electromagnetic waves on the sense of sight. It can be concluded that we are dealing with a second center that creates the structure of the image of the world and is responsible for the development of human personality. Solitons, generated from the human body, are transmitted to the Cosmos, but also to the brain of various people in the form of messages or directives. This takes place in the content of myths or telepathy. In psychology, such a phenomenon is known, a similar image occurs in synesthesia (Adamski 2016).

Bioplasma is responsible for the integration of fields and particles interacting with each other in a biological system. It is credited with building a compact structure of the biological system, maintaining the balance of the living being with the environment. It provides wave transmission of information within the biological system. It constitutes the physical basis of life itself and its dynamics. Bioplasma is a medium in which chemical processes are combined with bioelectronic processes, it is a carrier of all information (Sedlak 1972, p. 132), (Adamski 2016) (Molski 2005).

Ingeneza is the Wisdom of the laws of the development of the Universe, encoded in atoms. The carrier of Ingeneza is bioplasma. Ingeneza consists of logons, which is a quantum of the program of development of the biological or psychic structure. Logon is sent by electron, photon, soliton, magnon, or phonon, together with a quantum of their energy, they constitute the directed driving force of logon (Teller 2009).

Contemporary biosystems in science are considered at the level of corpuscular structures, omitting energy and information structures. By shifting the cognitive emphasis towards energy and information structures, the organism can be understood as a quantum generator of electromagnetic, acoustic, spin soliton and bioplasmic information. In a biological system, information plays a more important role than mass and energy. It affects all psychobiological processes and is responsible for their structure, function and their entire development. Thanks to the properties of semiconductor proteins and melanins, electrons can move

long distances without losing energy. Ionic currents are extinguished at short distances because ions are much larger than electrons. In protein semiconductors, the energy of the electron would be preserved and transmitted as information. The term information is analogous to the term energy. Information is defined as the ability to organize a system or maintain it in an organized state (Latawiec 1995).

Information, alongside mass and energy, is currently considered the third basic structural element of reality. A characteristic feature of biological information is transformed mass and the energy associated with it. This is a different case than that considered in physics. For a physicist, energy is a carrier of information, for a biologist, information transport takes place on a carrier of mass and energy. Biological information combines the corpuscular features of mass transport and wave-like electromagnetic and acoustic features. (Stonier 1990 p. 26).

Stonier believes (1990) that information can not only organize matter and energy, but also information itself, e.g. a process that occurs in our brains and computers. This is not only about the process of creating meta-information (i.e. information about information), but also about meta-levels of information. Information can also be considered from the perspective of issues related to signs, symbols, carriers, semantic meanings and matters related to sending this information at a distance and exchanging it using the so-called communication technique (Kowalczyk 1981).

The biological effects conditioned by these interactions depend no longer on the amount of energy introduced into a given system, but on the information introduced to it (Sedlak 1980).

Figure 5: Apitherapy house

An innovative method in treating various diseases using the gift of bee nature are apitherapy houses. Ulotherapy consists of resting on a bed in a house in the close vicinity of bees, which do not have direct contact with humans. The biofield and microvibrations produced by bees (the noise and buzzing of bees), the smell of honey, propolis, noise and other elements have a healing effect on the body. Using this method, you can treat - insomnia, joint diseases, asthma, respiratory diseases, constant fatigue syndrome, respiratory diseases, and especially cardiological diseases. If you suffer from constant fatigue syndrome, urinary tract diseases and need to recharge your vital forces, it is worth looking for places where you can use this method or build an apitherapy house yourself.

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