



QUANTUM COSMETICS

Revolution in skin care

(Pixabay)

The point of view of quantum cosmetics approaches beauty by respecting the classical and adding a new dimension to it – a sublime experience. Quantum cosmetic harmonizes the condition of the skin with the essence of existence, the quantum states of our body. Quantum products act on the nano-quantum level on the skin, not only energetically, in the classical way, but also energetically-informationally, in the quantum way.

Zorana Jović

Conventional medicine, as well as modern methods of care and preservation of health and beauty, focus on treating the symptoms of the disease, i.e., they treat the consequences of changes at the level of organs and organ systems. Such an approach often does not give satisfactory results, because it does not affect the cause of changes, since the cause is mostly unknown and invisible for modern medicine and cosmetology because the phenomenon of life is still a “wrapped entanglement” for us. From ancient times to the present day, we have looked at beauty only in the classical way. It is observed from the angle of visual experience of an object or a work of art. Cosmetic products were in the function of visual beauty of the face or body and the products served primarily to alleviate damage, cover up imperfections or highlight parts of the body to look more beautiful.

We know for sure that the changes that can grow into diseases occur in cells or molecules and that they should be the goal when it comes to care, rejuvenation, and treatment of the body. The quantum states of the basic elements of our organism and their connection with the classical states is a “wrapped entanglement” that we must first unpack and only then can we engage in it. When it comes to the human body, the epidermis of the skin is the “wrapper” and the basement membrane is both a classical and quantum entity. That is why the skin is a biophysical and spiritual mirror of the organism, just as water is a mirror of the sky and earth. The point of view of quantum cosmetics, designed and produced by the Zepter company, approaches beauty by respecting the classical and adding a new dimension to it – a sublime experience. Quantum cosmetic harmonizes the condition of the skin with the essence of existence, the quantum states of our body. Quantum products act on the nano-quantum level on the skin, not only energetically, in the classical way, but also energetically-informationally, in the quantum way. This phenomenon of a synergistic effect of classical and quantum is called the fractal effect and it is established in the body during embryogenesis.

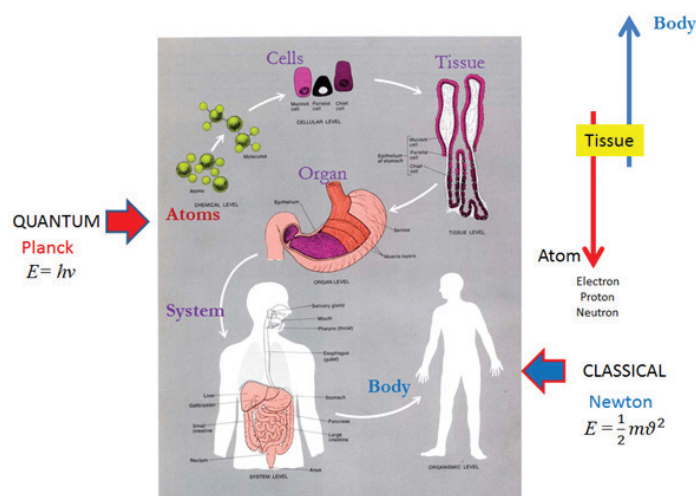


Figure 1: Today's vision of the human body as a classical and quantum system. However, it is a quantum-classical system with a dominant quantum core (atoms and molecules), quantum-classical (cells and tissues) and classical (organs and body)(Adapt from Tortora, G.T., and Anagnostakos, N. P., *Principles of Anatomy and Physiology*, Harper & Row Pub., Cambridge, 1981)

Why is skin so important? The answer is surprisingly simple but the principle of action is extremely powerful. Our body is formed from one fertilized egg, which is the basic quantum and classical information entity. It divides by creating new cells so that the informational genetic content remains in the nucleus of each cell (the principle of self-identity), and the cytoplasm and membranes specialize in building each tissue of which organs are composed. This process, known as embryogenesis, is multifractal – one of the three keys that unlock the door that leads to the secret functioning of the body (“wrapped entanglements”) and our experience of the beautiful and the sublime. The second key is the quantum-classical information process of our body. As mentioned, the human body, like all matter in the environment, is made up of atoms and molecules that are predominantly quantum in nature. Tissues and organs, such as skin, are made up of water, biomolecules, and cells in which quantum effects are dominant and classical are secondary. The third key is awareness that the skin has a dual character according to its embryological origin,

its epidermis originates from the ectoderm (from which the brain or neurons originate – primarily information structures), and the dermis originates from the mesoderm (from which smooth muscle tissue is formed – primarily energy structures). All organs that have epithelial tissues, especially the skin, have synergistic classical-quantum properties. The skin has another special role in relation to the epithelial tissues of internal organs: it protects the organism from harmful effects of the environment and represents the boundary layer between the organism and the environment.

It is believed that life is built from carbon (about 24%), which allows numerous combinations of molecules, that hydrogen and oxygen make up about 74% of our body, and all other elements (nitrogen, phosphorus, sulfur, etc.) make up 2%. The origin of these two elements, hydrogen and oxygen, is different: hydrogen is the result of the state and action of the entire Universe, while oxygen is created locally in the stars. In other words, we as beings are cosmic and stellar from the quantum aspect, and earthly from the classical aspect. Since the water molecule is made up of two hydrogen atoms and one oxygen atom, and makes up about 70% of our body, we can say that Thales (an ancient philosopher, who lived 500 years BC) was right when he said that water (its principle) is the basis of everything that exists (everything originated from the vacuum of the Universe, as hydrogen and helium and later in the development of the Universe from atoms formed in the stars).

One of the most important components of the skin, as well as the whole organism, which enables the normal course of metabolic processes, functioning of the barrier and the preservation of the youthful appearance of the skin, is water. Water is an exception in nature, because it is characterized by properties different from most matter; therefore, we say that it has about 40 “anomalies”. For example, while most matter shrinks when cooled, water expands, and so on.

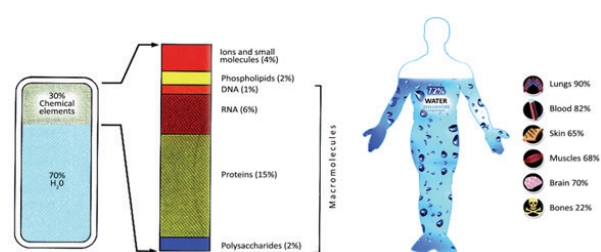


Figure 2: Percentage of water in the cell and individual tissues of the human body (Adapted from Pollak, G. H., et al., *Water and Cell*, Springer, Dodercht, 2006)

The reason for this is molecular reorganization in water, whereby the main structural network is formed by non-covalent hydrogen bonds. The power of reorganization of hydrogen bonds is best manifested by water pipes bursting in the winter. In the human body, 40 percent of water is in free state, and 60 percent is bound to biomolecules. The water in our body is different from water in the external environment. In the biological environment, where there are intense and strong electrical discharges and the temperature is around 37°C, water changes from liquid state to a slightly viscoelastic state, i.e. it is in the form of a liquid crystal. Thanks to the presence of non-covalent hydrogen bonds, water molecules undergo a process of self-ionization and self-organization into stable, short-lived water clusters.

Water is not only an environment in which biochemical and biophysical processes take place, but it actively participates in them: its elements (atoms, ions, molecules) have paramagnetic or diamagnetic properties. A molecule of water in vacuum is diamagnetic, but one mole of water can be paramagnetic at one moment and diamagnetic at the next. It depends on the interaction and organization of water into clusters, i.e. on the number of paired and unpaired electrons. The change of states between paramagnetic and diamagnetic ones occurs at 14s and 28s, although the time of interaction between free water molecules is 50 fs. In other words, water “breathes”: the shift frequency of paramagnetism/diamagnetism occurs at 14 and 28 seconds, when organized into clusters. These clusters are very similar to the layers of water that surround biomolecules in

living organisms. Aqueous layers transmit vibrations to surrounding molecules and affect the conformational state of proteins, lipid layers of the corneal layer and other structures. Like light, water has a wave property and can therefore, under certain conditions, cause the soliton effect. A soliton is a wave that, under certain conditions, is formed as a result of dispersion (propagation of waves of different wavelengths at different speeds) and non-linearity (change in amplitude intensity) creating constant localized shapes, which move at a constant speed. This phenomenon allows information to be stored for a long period of time and to be transmitted over long distances. The soliton effect occurs on some rivers, in the depths of the sea or in the atmosphere, and it can be used to explain signal transmission in neurons.

Nobel laureate Linus Pauling (1901–1994) noticed the importance of hydrogen bonds for proper functioning of biological systems in 1939. According to two-time Nobel Prize winner Linus Pauling, the hydrogen bonds and the network they form are the basis for the functioning of a living organism, more important even than individual organs such as the heart, brain, lungs, etc. Hydrogen bonds participate in maintaining the conformational structure of biomolecules (spatial arrangement of molecules), which enables the functioning of molecules such as water, proteins, DNA and others. Any change in the strength of the bond or its termination causes a change that can be an integral part of the regulatory mechanism, i.e., if the bond breakage is abrupt, a breach of the functionality of molecules and disorders of metabolic processes occurs.

The specific three-dimensional structure of molecules enables access to receptors, binding water and enzymes and other processes necessary for its normal functioning, and thus, for the organism as a whole. When the basic conformational structure is disrupted, receptors are not available and cannot be found by signaling molecules, enzymes or water, so the biomolecule loses its function and becomes inactive, and often a ballast that the body must release. How do these

structures return to their original, normal state? Aid comes from structural or energy oscillators that generate oscillatory processes of hydrogen bonds, which constantly and correctly oscillate and thus transmit signals (information and energy) to the molecule they act on and gradually force it to return to its original state. Constant jiggling and wiggling of oxygen and hydrogen atoms, i.e. nitrogen and hydrogen that create this bond, performs gradual, fine conformational corrections of the structure, enables the process of biomolecule regeneration and establishes harmonized relations in the environment.

Until 1999, it was considered that the hydrogen bond was only of the Coulomb type (classical), but 20 years ago it was experimentally proven that the hydrogen bond has both classical and quantum properties. However, it has been shown experimentally that the anisotropy of the charge and the momentum of the electron agree better with the experiment when the process is described by the quantum Schrödinger equation than by the classical Coulomb equation. The experiment showed that the quantum state of the hydrogen bond, at the same time, has two dominant values, 0.161nm and 0.272nm in length, around which the oscillatory process takes place. How is that possible? In the classical situation it is impossible, but in quantum reality it is one of the basic properties. Similar to the ace in the game of Tablanet – it is both “1” and “11” at the same time, and which value of these two will it really have will depend on the conditions (which cards are still on the table): the value that suits best at a given moment will be chosen. Such is the case with the whole quantum nature of our reality!

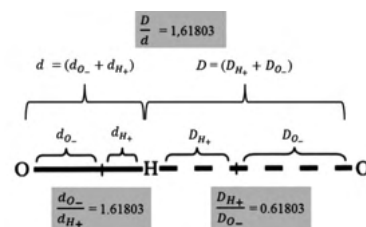


Figure 3: Harmonized ratio of oxygen and hydrogen charges in covalent (solid line) and non-covalent (dashed line) hydrogen bonds (Koruga, Hyperpolarized light, Zepter Book World, Belgrade, 2018)

The redistribution of charges in the O ... H bond and between donor atoms (O and/or N) leads to this phenomenon: a pair of pairs occurs (logical square), the basis of quantum superposition, and the Fibonacci relation is realized as ± 1.618 and ± 0.618 . Namely, in hydrogen bonds, both Fibonacci values exist at the same time: if the action (product: forces, displacements and time of action) is equal to or close to the Planck constant ($h=6.626 \times 10^{-34}$ Js), then the Fibonacci process is quantum in nature. If we denote the distance O ... H of the noncovalent bond with x , and the distance of the covalent bond O-H between the oxygen and hydrogen atoms by 1 (unit value, whatever it may be), then due to the dynamics of the charge the system oscillates and the hydrogen non-covalent bond on a covalent hydrogen bond oscillates according to Fibonacci law.



Figure 4: Organization of a sunflower according to Fibonacci law (above) and the law of the oscillatory process of water molecules under the influence of an oscillatory magnetic field which generates hyperpolarized light (Koruga, *Hyperpolarized light*, Zepter Book World, Belgrade, 2018)

We still do not perceive the mentioned changes and processes in biological organisms in the right way. Although they are the basis for the occurrence of deformities and diseases, modern medicine, care and health prevention are still only based on the treatment of consequences at the level of organs or tissues. Knowing the real cause is still far from us, but new devices and methods are gradually being introduced that enable access and insight into the state of the body at the level of interaction of atoms and molecules, which gives the possibility for appropriate treatment. However, in order to influence these basic processes, which can cause changes and eliminate the disease, we must have the appropriate means to act.

And there is room for new solutions. Such means exist in nature, they just need to be discovered and adapted to our needs, and some are created in laboratories. Before their application in the field of medicine and cosmetology, detailed safety and efficacy tests are performed and the optimal doses are estimated.

The C_{60} molecule – fullerene – is found in nature, but is very rare. It is assumed to originate from some stars and can be found in cosmic dust, some rocks, and even in the flame of a candle. Fullerene is the largest object in nature, measuring 1 nm (billionth of a meter, 10^{-9}), which still has a dual property: the classical-quantum property. This molecule rotates a billion times per second and has 46 different vibrational states, making it an ideal candidate for jiggling and wiggling of atoms. The C_{60} fullerene (the Buckminster fullerene, or buckyball) exhibits both classical and quantum properties, which was experimentally confirmed in 1999 by the Vienna Research Group led by Prof. Zeilinger, which allow it to behave both as a De Broglie wave and as a particle. It acts on the skin in two ways: the classical way, by transferring energy (bringing the process into equilibrium) and quantum, through the wave function, energy-informational (bringing the constituents of the process into a harmonized state). In the human body, quantum properties dominate at the level of atoms, molecules and tissues (about 90%, 80%, or 60%, respectively), and classical properties dominate at the level of organs (skin) and the whole organism (about 60%, or 90 %). Due to the incredibly fast rotation of C_{60} molecules ($\sim 18 \times 10^9 s^{-1}$), the 12 pentagons and 20 hexagons of which it is composed change position in space producing four quantum superimposed paramagnetic and diamagnetic states. Four quantum states in a large number of molecules give a multitude of combinations for interaction in the cellular and extracellular space. This structure is one of the most perfect forms found in nature, and it has special energy properties. In an aquatic environment, in biological systems, the Buckminsterfullerene indirectly acts on

distant molecules through this soliton effect. The collagen molecule returns to its original equilibrium state, and then through hydrogen bonds, with the help of soliton, it harmonizes the intercellular space and sends a signal to fibroblasts to synthesize more collagen, if this molecule is not present in sufficient quantities at a given time and in a certain space.

Thanks to its unique structure and special energy properties, fullerene finds various applications in medicine. Due to the insolubility in water and polar solvents, which limit its application, the so-called functionalized fullerenes, formed by the addition of hydroxyl groups (OH) to the surface of the sphere. These modifications increase the solubility and give significantly improved toxicological characteristics. They are tested for use in drugs, diagnostic agents, antioxidants, etc. Its use in cosmetics is especially interesting, due to its anti-aging effect, cellulite control, hydration and sun protection. Using water molecules and oscillatory energy, according to Fibonacci law, an aqueous mantle is created around the molecules of fullerene, and thus an NHS-nano-harmonizing substance is formed, $[C_{60}(OH)_{24} \cdot 2016H_2O] \Phi / \phi$ (Koruga, US Patent 8,058,483 B2, 2011). The fullerene-water complex is patented as a material obtained by functionalization of the C_{60} molecules with OH groups ($C_{60}(OH)_x$) and addition of OH groups in water layers $C_{60}(OH)_x @ (H_2O)_y$. These water layers – liquid water (H_2O) n , which surrounds the solid phase – nanostructure $C_{60}(OH)_x$ – are bound by hydrogen bonds and have properties similar to liquid crystals. Aqueous layers protect the complex $C_{60}(OH)_x$ from environmental influences, allow proper transmission of icosahedral vibrations to the environment, while preventing toxic effects of C_{60} on biomolecules. Said compact structure has a diameter of 5–15 nm and dissolves in water, representing an amphiphilic molecule that can be used for various purposes. One of the main ones in cosmetics is the influence on oscillatory Amide-I processes, hydrogen bonds and soliton signal transport.

By further functionalization of C_{60} molecules with hydroxyl (OH) groups and addition of OH groups from aqueous layers surrounding the spherical structure of Buckminster fullerene, the substance Fullerene Water Complex 3HFWC – “quantum cosmetic substance” was obtained - (3H–hydroxylated, harmonized and, F–fullerene base, W– water, C–complex), which is produced from water of high purity (18.2 MΩ) and 99.95% pure fullerol $C_{60}(OH)_{36}$, by the effect of a strong oscillatory magnetic field, the following structures: $C_{60}(OH)_{36 \pm 12} @ (H_2O)_{252-2016}$. (Koruga, Int, App. No. PCT/EP2019083307)

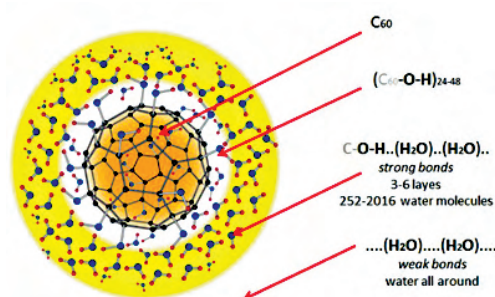


Figure 5: Organization of nano-quantum 3HFWC substance (Koruga, *Int, App. No. PCT / EP2019083307*, 2019)

The fullerene “cage” acts as a nanogenerator of paramagnetic and diamagnetic fields, and thanks to that, hydrogen bonds and the state of the liquid crystal in the water layers around it are established. The layers of such organized water, in addition to protecting C_{60} from various environmental influences, and biomolecules from potential side effects of the C_{60} molecule itself (when one or more double bonds are broken, $C=C$) also generate oscillatory processes, according to Fibonacci law. This whole structure (Figure 5) is 8–15 nanometers (nm) in size and is a significant active ingredient and stabilizer of cosmetic products, which according to the so-called INCI-nomenclature (International Nomenclature of Cosmetic Ingredients), is called water (and) hydroxylated fullerene. Studies of $C_{60}(OH)_{36 \pm 12}$ on human dermis fibroblasts (HDF) and liver cancer cells (HepG2) showed no toxic effects. In order to examine the effects of fullerenes i.e., structures such as the 3HFWC on the skin, it is necessary to

change the point of view and use special devices that can register changes on the level of atomic interactions and conformational changes of molecules.

If we look at our body from a quantum aspect, we will notice that the function of biomolecules is based on the mutual unity of structure, energy and information. The structural symmetry of biomolecules determines the electronic states and vibrational-rotational energies that are crucial for sending signals from one molecule to another through water (covalent and non-covalent hydrogen bonds). Signals are necessary for the proper functioning of biological systems, from conception to the process of regeneration of biomolecules, tissues and organs. 3HFWC, modified fullerene and water have the property of paramagnetism/diamagnetism, i.e., the ability to establish the optimal physiological organization of biomolecules through vibrations according to the rule of icosahedral symmetry (golden ratio). When a paramagnetic material is present in the skin, it will, under the influence of the Earth's magnetic field, amplify the paramagnetic field of the skin and thus stimulate the orderliness of charged molecules – dipoles, such as water and protein molecules. By arranging biological molecules, their optimal function is re-established, which is reflected in the quality and appearance of the skin. The tissue gets better dynamic properties and faster signal transmission and thanks to that it reacts better to changes in the tissue and the environment and it regenerates faster.

The Buckminsterfullerene and its modified derivatives, such as 3HFWC, act on the basic elements of every living thing – atoms and molecules. The energy and information that 3HFWC transmits to the biomolecules in its environment, cause short and fast movements, or oscillations of atoms, which thus cause changes in the structure of biomolecules (conformation) in the body. This is a biophysical process, which involves the transfer of energy directly or through hydrogen bonds and water molecules. There are no chemical reactions in this process, and bio-

molecules do not change so as to create new chemical structures and undesirable products, but they biophysically harmonize, i.e., they return to their original, optimal state. In order to transfer this information efficiently, it is necessary that the charge-to-oxygen ratio in the non-covalent hydrogen bond is 0.61803, which is a “small” Fibonacci number. Their ratio in the covalent hydrogen bond, as well as the ratio of the covalent and non-covalent hydrogen bonds themselves, represents the “large” Fibonacci number, i.e. 1.61803. These interrelationships are not constant and their changes represent oscillatory processes of hydrogen bonds (Figure 3). If the balance of the hydrogen bond is disturbed, the whole system is disturbed and disorders/diseases occur.

It has been experimentally established that fullerol, although having a diameter of only 1.4 nm, cannot pass through the lipid bilayers in the corneal layer. However, it can affect the collagen and elastin molecules located in the deeper layer – the dermis of the skin, even when there is no direct contact with the biomolecule. The ubiquitous water molecules and the hydrogen bonds that surround biomolecules are responsible for transmitting energy and information. They transfer energy and information by a natural, biophysical process from 3HFWC molecules with a domino effect, transferring oscillations from one water molecule to another via hydrogen bonds. (Figure 6-4)

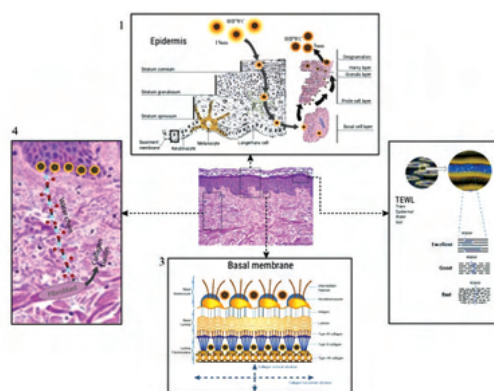


Figure 6: Schematic representation of the effect of 3HFWC substance in the epidermis (1 and 2) on the basement membrane (3) and in the dermis, from the basal, via water, to collagen and fibroblasts (4).

Collagen is one of the most abundant proteins in the human body and, compared to all others, it makes up 40% of the total mass. In the skin, that percentage is much higher, almost 75%. The three main amino acids that participate in its formation are glycine, proline and lysine. Depending on the order of amino acids, there are about 28 different types of collagen. It is extremely important for the quality and beautiful appearance of the skin, because it is a support network that allows the skin to return to its original position after being deformed by movement. With age, as the amount of collagen fibers in the skin decreases, and due to the effects of UV and high-energy photons of the sun, pollution, age and so on, the quality changes significantly, constant movement from and back to the same place on the skin leads to changes called – wrinkles.

When amino acids form any protein, even collagen, two neighboring amino acids in the biochemical process form a peptide plane and synthesize two water molecules that form metabolic water (about 10% of the total daily amount in the body). The peptide plane becomes a biophysical entity, and the group of R atoms (bound to carbon C) from the amino acid that is not part of the α peptide plane, performs biochemical (achieves covalent bonds with other molecules), or biophysical (ion-ion, ion-dipole, dipole-dipole and other) function. The oscillatory modes of the peptide planes must be harmonized in order to preserve the quality and function of collagen in the skin and this is achieved because of 3HFWC. Peptide planes of collagen fibers located just below the basement membrane must oscillate harmoniously, to ensure their function and preserve the “finely wave” (like egg carton) structure of the basement membrane, because it provides better nutrition of the cells of the basal layer of the epidermis and skin tightness.

If the basement membrane is flattened, the cells feed less, which is why the epidermis regenerates much more slowly. On the other hand, the improved collagen structure contributes to better signal transmission and

stimulates the activity of fibroblasts to synthesize larger amounts of collagen and elastin fibers, which gives the skin fullness, alleviates the depth of wrinkles and achieves a beautiful appearance. 3HFWC establishes harmonization of the oscillatory process of peptide planes and forces molecules to oscillate in a natural way, i.e. corrects deformations of molecules. The secondary structure of collagen is α -helix, with three chains of hydrogen bonds (O... H), through which coordination of oscillatory processes of peptide planes is achieved. The collagen molecule is 280-300nm long, with a diameter of 1-2nm, and is packaged in a more complex structure of collagen fibrils with a gap of 64 nm between the molecules (similar to the gap at the junction of railway tracks). This packaging enables unhindered oscillatory dilatations (otherwise there would be a deformation of the collagen structure) due to the oscillatory processes of the peptide planes and the molecule itself.

More collagen fibrils (diameter about 100 nm) form a collagen fiber (1-20 micrometers, μm), which form a primary bundle of collagen fibers (20-70 μm), then the secondary bundle of fibers (70-140 μm), tertiary bundle of fibers (140-200 μm) and, finally, collagen fibrils (~500 μm). The packaging of “fibrils”, “fibers” and “bundles” of collagen can be twofold: (a) spatial-pentagonal and (b) linear-planar. Both processes are reversible and represent two different functions of collagen. One function is energy-structural, supporting (linear-plane), and the other is energy-informational for signal transmission (spatial-pentagonal).

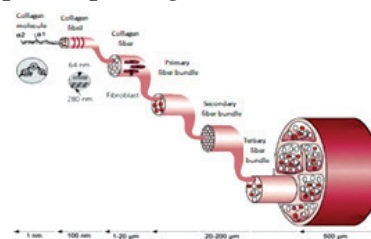


Figure 7: Complex organization of collagen: from molecules 2 nm in diameter to fibers 0.5 mm (Adapt from Tortora, G. T., and Anagnostakos, N. P., Principles of Anatomy and Physiology, Harper & Row Pub., Cambridge, 1981)

Thus, for example, the organization of collagen I and III in the basement membrane is of type (b), linear-planar (hexagonal packaging), because it forms the basis for the basement membrane. When the signal should be transmitted, in interaction with collagens IV and VII, i.e., to establish the correct configuration of the basement membrane, then all four types of collagen transition into a combined pentagonal-hexagonal organizational structure. The pentagons (dodecahedral structure) are dual with icosahedral structures and will oscillate based on the law of common symmetry (symmetry underlies the structure of nature). If the oscillations occur in one direction (1D), the law of oscillation will be spiral. If the oscillation is in the plane (2D), then the system has a left and right orientation, and the oscillatory structures must be perpendicular (at right angles, \perp), which is the case with collagen types [I, III] and [IV, VII] in the basement membranes (sunflower principle).

If the process of collagen oscillation [I, III] \perp [IV, VII] is disturbed, then a 3D structure with icosahedral symmetry is implemented in or near that space, and it is repaired directly or through water and returned to its natural state. The oscillatory process in the protein chain or any higher hierarchical collagen structure is observed in the ordered trio, i.e., three adjacent elements are observed (previous-current-forthcoming) (Figure 8). If we observe the oscillation of the peptide planes of collagen, then the first peptide plane (named Gibbson after the American scientist of statistical thermodynamics Josiah Willard Gibbs and has condensate properties – several atoms behave oscillatory like a monolith), oscillates at $865 \times 10^{11} \text{s}^{-1}$, the second with $658 \times 10^{11} \text{s}^{-1}$, and the third $533 \times 10^{11} \text{s}^{-1}$ with . If we divide all three values with the third value, we get the ratio 1.6/1.2/1. However, when the signal travels through the collagen structure, at the end of the collagen molecule, oscillations will obtain the ratio of 2.7/1.6/1. In other words, the signal was transmitted from the beginning to the end of the collagen molecule according to the law of „e”, the basis of

the natural logarithm. But when a disturbance occurs or the process is to be accelerated, then this can be remedied, by bringing a structure with dodecahedral/icosahedral molecular symmetry.

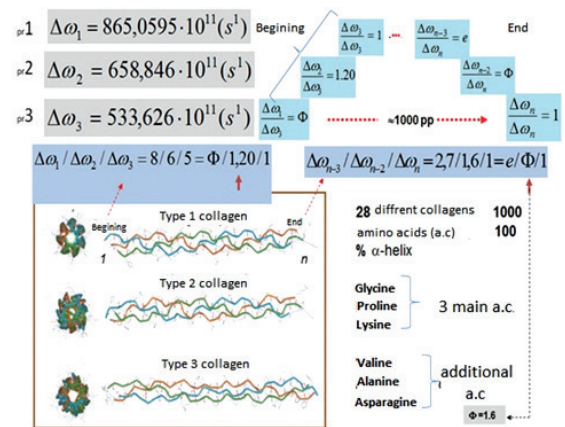


Figure 8: The oscillatory process in the protein chain, the collagen structure, is observed in the ordered triple, i.e. the three adjacent elements (previous-current-forthcoming) are observed (Koruga, Hyperpolarized light, Zepter Book World, Belgrade, 2018)

A significant role in this process is played by hydrogen bonds in collagen, i.e., the chain of covalent and hydrogen bonds $-C_\alpha-N-H...O-C_\alpha-N-$. The amide part (covalent) in the chain oscillates at $6.05 \mu\text{m}$ and the hydrogen bond oscillates at 43.27nm . The energy and even the frequency of the amide part in the chain is about seven (7 ± 0.15) times higher than the energy of the hydrogen bond. The harmonization of this oscillatory process is done through a phenomenon known in science as soliton. The length of the covalent hydrogen bond O-H or N-H is about 0.099nm (with small oscillatory changes), and the length of the non-covalent hydrogen bond O... H or N... H is about 0.161nm (also with small oscillatory changes). If we take the length of the covalent hydrogen bond as a unit $l = 1 \pm 0.05$ (in relation to it, all other bonds between the atoms in the molecule and between the molecules are compared and synchronized), then the length of the noncovalent hydrogen bond is $l = 1.61 \pm 0.08$. Their ratio is Φ (Fibonacci number), which is the basis for harmonizing

the ratio of quantities and proportions of action and process.

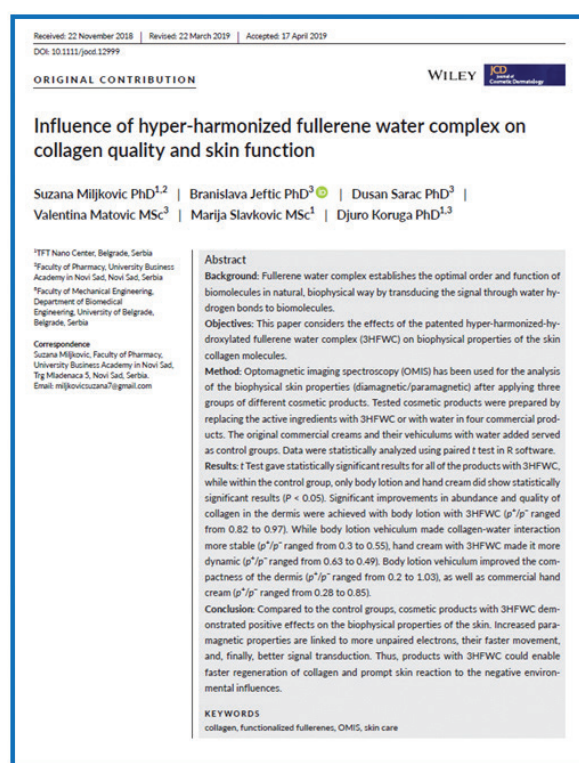
In the dynamics of charge exchange in a set of noncovalent hydrogen bonds (O...H, i.e. N...H), vertical (V) and horizontal (H) collagen, two main oscillatory charge situations arise: (f_1) charge oscillations are paired, and (f_2) the charge oscillations are unpaired.

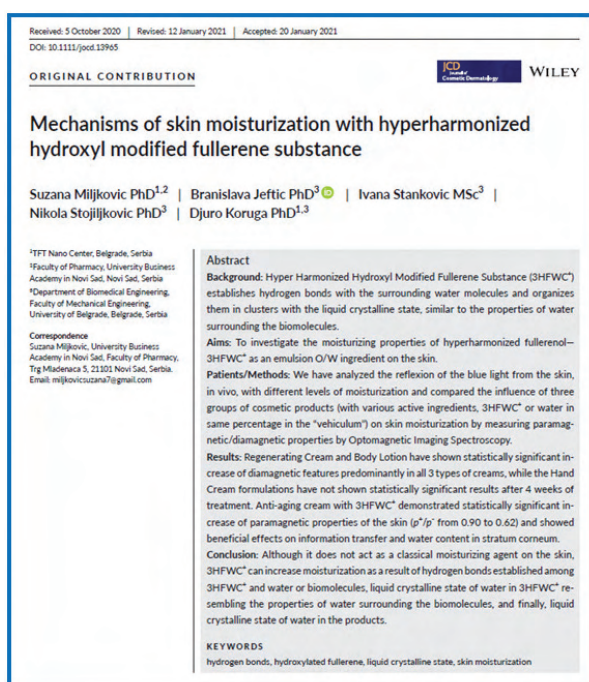
As many hydrogen bonds participate and as electrons are quantum entities, these two possible oscillatory states of charge are superimposed, which results in four oscillatory situations: [1] – neither paired nor unpaired, [2] – both paired and unpaired, [3] – neither paired nor unpaired and [4] – both paired and unpaired. Thus, the harmonization of the disturbed oscillatory process of collagen type [I, III], oscillating horizontally and collagen type [IV, VII], oscillating vertically in the basement membrane can be achieved if these structures are acted upon by means that have a perpendicular (\perp) oscillatory process generated by laws of icosahedral or dodecahedral symmetries in the range 5.5–7.05 μm .

The 3HFWC substance acts on biological structures that are arranged according to the same laws of symmetry (collagen, clathrin, microtubules, centrioles, flagella and processes based on Gibbs free energy); it harmonizes them and brings them into a natural functional state. Due to its icosahedral structure, it has appropriate vibrational-rotational states that enable it to harmonize the entire body. 3HFWC stimulates the formation of linearly bound water molecules in accordance with icosahedral (Fibonacci) properties (a), the conformational structure of biomolecules and the influence of water/hydrogen bonds on the establishment of the original, optimal state (b), signal transmission via non-covalent hydrogen bonds in the α -helix via peptide planes (c), creates a liquid crystal structure in a cosmetic product applied to the skin (d), creates a water cluster with icosahedral symmetry, which together with water organized in linear chains, cre-

ates a network of water with properties of icosahedral symmetry (e).

The quantum effects of the 3HFWC substance is manifested by appropriate vibrational-rotational states that return the oscillatory processes of collagen to an equilibrium and harmonized relationship. Such collagen is again in its basic regulated state and can efficiently transmit information, which leads to the renewal of already present collagen in the skin, as well as the creation of new one. A larger amount of collagen provides greater resistance to deformation and thus prevents/slow down the formation of wrinkles. 3HFWC creates an oscillatory paramagnetic/diamagnetic field that dipole molecules, such as water or proteins, organize in the direction of signal propagation, according to the law of the golden ratio. Under the influence of vibration and signal transmission with 3HFWC, irregular structures of biomolecules are corrected and normal function is established, with an increase in moisture content and better regeneration of biomolecules. The research team of TFT NanoCenter published the results of the 3HFWC complex effects in the Journal of Cosmetics Dermatology, in 2019 and 2021.





- Reorganize biomolecules and establish their optimal conformational structure; Increase the water content in the epidermis by regulating the optimal supply of water from the dermis
- Prevent the effects of ultraviolet radiation (UV), blue light, pollution, electromagnetic smog and other harmful effects from the environment;
- Prevent the appearance of hyperpigmented surfaces (freckles and spots);
- Slow down the development of cellulite and alleviate existing changes;
- They enable accelerated healing of wounds without scars;
- Improve skin texture by acting on collagen in the basement membrane.
- Improve skin elasticity by repairing existing collagen and elastin and stimulating synthesis of new ones.

The mechanisms that lead to an increase in skin moisture are:

- Hydrogen bonds formed between 3HFWC and water molecules keep water clusters stable and protect the proper conformation and function of biomolecules. Water organized in clusters has different properties from free water, but it has almost the same properties of water that surrounds biomolecules. The optimal organization of water molecules is a polyhedral structure of water clusters, with a network of hydrogen bonds, and they are compatible with the code system of the genetic code (DNA and proteins).
- These hydrogen bonds also increase the hydration of the biomolecules themselves.
- The liquid crystal water that makes up the aqueous layers of 3HFWC is very similar to the properties of the water that surrounds the biomolecules, allowing them to be recognized and utilized.
- The liquid crystal water that makes up the aqueous layers of 3HFWC is very similar to the properties of the water that surrounds the biomolecules, allowing them to be recognized and utilized

Products with 3HFWC slow down the aging process of the skin:

These effects were confirmed by a study conducted from 2018 to 2020. Ninety volunteers used products with or without 3HFWC for 2 to 6 weeks. The changes were monitored by opto-magnetic imaging spectroscopy (OMIS). Compared to four commercial cosmetic products that contained different active ingredients, and products that contained water instead of them, products that had 3HFWC instead of active ingredients, showed better effects by 12–32%. However, what has been shown to be very significant are the effects with the substance 3HFWC; excellent effects are obtained after the first week, as well as after two weeks of application in the dermis, while the cream without this substance, and with the same other composition, showed effects with a time delay of 1-2 weeks. Initial research was also done during 2019–2020 and it was shown that this substance has antibacterial and antiviral effects. The substance has a beneficial effect on the skin microbiome as an antioxidant and effective agent in protection against ultraviolet (UV) radiation and high-energy blue light.

Within the Zepter International company, testing of cosmetic products with the quantum substance 3HFWC based on the double derivative of C₆₀ molecules (TFT Nano

Center, Belgrade) was conducted, because we wanted to research the synergistic effects of C₆₀ and gold nanoparticles. Studies have confirmed that 3HFWC increases the moisture content and stimulates the regeneration of biomolecules. In comparison with four commercial cosmetic products, 3HFWC-based cosmetics showed better effects by 12–32% (Journal of Cosmetological Dermatology, 19; 494-501, 2019). Nanoparticles usually have different physical, catalytic or biological properties from larger materials with the same chemical composition. The key to achieving better nanoparticle performance is increasing the surface to volume ratio of the material, due to reduction to nanometer dimensions. The large and reactive interface is responsible for the catalytic, antimicrobial and many electronic properties that give nanoparticles a significant advantage over macromaterials. The most important difference between basic materials and nanoparticles is that nanoparticles have a large number of atoms on a small outer surface, which leads to high surface energy and high reactivity. Ease of production and functionalization has resulted in various applications in many fields of biomedicine, such as in nano-sensors, targeted drug delivery, medical imaging, but also in the cosmetics industry.

Of the many nanoparticles, nanogold attracted special attention. The perception of gold as an inert material was altered by the discovery that nano-sized gold particles are chemically reactive. Their properties can be adapted to certain applications by controlling the size and atomic structure on the surface of the nanoparticle. The high optical absorption of gold nanoparticles, their scattering properties and low or complete lack of toxicity have made them a promising class of materials in cosmetics. Previous research has shown that the main properties of nanogold in beauty care are accelerating blood circulation, anti-inflammatory properties, antiseptic properties, increasing the firmness and elasticity of the skin, improving metabolism, and thus slowing down the aging process. An overview on application

of nanoparticles in cosmetics can be found in Asian Journal of Pharmaceutical Sciences and Clinical Research, Vol. 1, Issue 2, 40-55, 2011. To see whether there is a synergistic effect of nano gold particles GNP (Zlatarna Celje, Slovenia) and the substance 3HFWC (TFT NanoCenter, Belgrade), we conducted a study during which we examined the effect of a cream containing gold nanoparticles and a cream containing 3HFWC substance in addition to gold. The study lasted six weeks during which we monitored changes in the forearms of the subjects (women) in two places every seven days. The study involved 33 respondents (women), with an average age of 37, with the oldest being 66 and the youngest 21 years old. Biophysical skin properties (diamagnetic/paramagnetic) were measured using opto-magnetic imaging spectroscopy (OMIS), an innovative diagnostic method, which is patented (Patent US 10,085,643 B2) by professor Dr. Đuro Koruga and his associates, and awarded the WIPO (World Intellectual Property Organization) as the best patent in 2018.

Due to the high water content in the skin (65-70%), and the absorption spectrum of water being 100 to 1,000 times higher for red and infrared light than for blue, blue light penetrates very shallowly into the tissue, about 5–10 μm. Green penetrates deeper, to the base membrane (120–180 μm), red penetrates deep into the dermis, at 800–1,600 μm, and infrared at up to 5–20 mm. Wanting to see how the creams with nano-gold (group III) and with the added 3HFWC (group IV) affect collagen, we observed the red light because it penetrates to the depths where collagen is formed. Table 1 shows the results of the research for red light depending on the difference in wavelength (nm), intensity (n. a. u.), surface ratio (p+/p-) and fractal dimensions. The fractal dimension of the graph for the first week of the third group is $D_f = 1.417$, while for the sixth week $D_f = 1.5$, which indicates that there has been a change in the dermis. The change is different with the fourth group, since the fractal dimension for the first week is $D_f = 1.346$, and for the sixth $D_f = 1.235$. When other parameters

are taken into consideration, such as the ratio of unpaired and paired electrons (p+/p-), then we see that for group III, for the first week the result equals -95.38, and for the sixth week -96.67, which indicates that the cream with GNP did not significantly affect fibroblasts and collagen synthesis, which is in accordance with the increase in fractal dimension by 6.3% in group III subjects. In group IV, which for the first week had approximately the same value (p+/p-) = -95.65 as in group III (-95.38), while in the sixth week there was a significant change in collagen synthesis in group IV subjects. The value (p+/p-) increased significantly for group IV, the change in the sixth week compared to the first was even 73.7% better. This is in accordance with the change in the fractal dimension of the signal obtained from the dermis, because the fractal dimension of the sig-

nal spectrum decreased by 8.6% due to the balanced dynamics of oscillatory processes in the depth of the dermis, where collagen is dominant.

Bearing in mind that in previous studies with a cream containing only the 3HFWC substance we had an improvement in effect by 28% compared to a cream that had the same base, but classic bioactive ingredients. When we combine gold nanoparticles with 3HFWC, we have improved effects by 73.7% (a difference of 45.7%), which is an obvious beneficial effect of the new cream, which is a combination of nano-quantum substance and gold nanoparticles (3HFWCGNP). New studies of La Danza-Hyperlight fusion Anti-Aging essential complex application are in progress and the results will be processed and presented by the end of the year. ■

Table 1 – Survey results of groups III and IV of subjects who used the cream with gold nanoparticles (GNP) and the cream with 3HFWC substance and gold nanoparticles (3HFWCGNP)

Light	week	Unit of measure	GROUP III (nano gold)		GROUP IV (nano gold + 3HFWC)	
			Diamagnetism	Paramagnetism	Diamagnetism	Paramagnetism
R (red)	1	Int (n.a.u)	-41.36	29.36	-48.32	3.95
		WLD (nm)	129.66	106.51	28.37	106.51
		(p+/p-)	-95.38		-95.65	
		D _f	1.41		1.34	
	6	Int (n.a.u)	-42.75	12.10	-52.89	0.0
		WLD (nm)	110.34	106.51	129.66	100.0
		(p+/p-)	-96.67		-55.06	
		D _f	1.50		1.23	