

## Bio-Cosmology

### Integration of Life and Consciousness into Cosmology

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#### Abstract

The evolution of life on the planet Earth is happening primarily in the universe and secondary on the Earth. We will examine in this article evolution of life as a cosmic phenomenon. In our model multidimensional time-invariant superfluid quantum space is the fundamental arena of the universe and represents about 95% of the energy in the universe that has stable entropy. The increase of entropy happens only by about 5% of the energy in the universe which is in the form of matter. The evolution of life in our model is a process of matter organization into living systems that tends to develop towards the constant entropy of the time-invariant multidimensional quantum space. This process runs in the entire universe. The development of life into intelligent organisms is a universal process running throughout the entire universe. In our model information for the development of life is encoded in the higher dimensional layers of the superfluid quantum space. These layers represent so-called “subtle energies” and consciousness. Our preliminary results are confirming the presence of subtle energies and consciousness in living organisms increases their weight.

**Keywords:** cosmology, life, superfluid quantum space, subtle energies, consciousness

#### 1. Introduction

The result of several pieces of research is that the superfluid quantum vacuum that is also named superfluid quantum space (SQS) is the physical origin of the universal space, the fundamental arena of the universe [1,2]. Superfluid

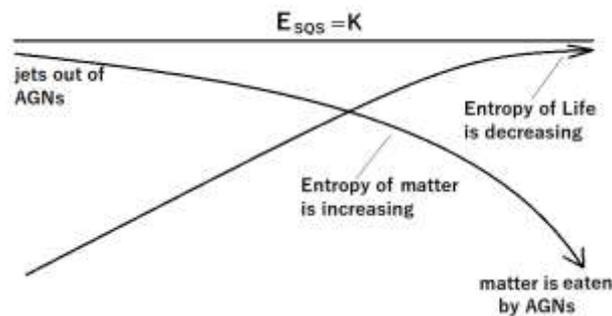
quantum space (SQS) has a general  $n$ -dimensional complex structure  $\mathbb{C}^n$ ; every point of it has complex coordinates:

$$z_i = x_i + i y_i \quad (1)$$

$(x_i, y_i)$  ( $i = 1, \dots, n$ ) is an ordered  $n$ -tuple of real numbers  $((x_i, y_i) \in \mathbb{R}^n)$ ; for the purpose of this paper, we consider its subset  $\mathbb{C}^4$  where all elementary particles are different structures of  $\mathbb{C}^4$ SQS and have four complex dimensions  $z_i$  “[2]. Elementary particles proton, electron, and photon are 4-dimensional structures of the  $\mathbb{C}^4$ SQS and have according to the existing quantum theory almost infinite lifetime. Sbitnev’s proposal is that elementary particles are different vortex structures of superfluid quantum space [3]. As  $\mathbb{C}^4$ SQS has stable entropy, proton, electron, and photon have stable entropy. 5% of the energy in the universe is in the form of matter composed of atoms that are 3-dimensional. Matter is an entropic form of energy. 95% of energy in the universe is in the form of the  $\mathbb{C}^4$ SQS which is 4-dimensional and has stable entropy, it is a syntropic type of energy we call “dark energy”. Higher-dimensional spaces of  $\mathbb{C}^n$ SQS are the origin of the so-called bio-energy, human mind, and consciousness. The evolution of life tends to develop towards  $n$ -dimensional superfluid quantum space that in our model is presented as consciousness. Higher-dimensional superfluid quantum spaces are types of energy that are different from electromagnetic radiation that is carried by the 4<sup>th</sup>-dimensional layer of  $\mathbb{C}^n$ SQS. The human mind and consciousness are of higher ontological status than electromagnetism [4].

The latest research is confirming, Big Bang cosmology belongs to the history of science, the universe is a non-created system in permanent dynamic equilibrium. In Active galactic nuclei (AGNs) in the centre of most galaxies matter is falling apart into elementary particles that form huge jets. These jets are the “raw material” for the formation of new stars. This process of matter transformation in elementary particles is continued. The universe never started and will never end [5,6]. The total entropy of the universe as a whole is constant.

The evolution of life in the universe is an intrinsic tendency of 3D matter to develop into systems (living organisms) that tend to develop towards the constant entropy of  $\mathbb{C}^n$ SQ, see figure1.



**Figure 1:** Life is developing towards the constant entropy of  $\mathbb{C}^n$ SQS.

The entropy of matter in the universe is continuously increasing. The entropy of life is continuously decreasing. The entropy of  $S_{\mathbb{C}^nSQS}$  is constant:

$$S_{\mathbb{C}^nSQS} = K \quad (2)$$

## 2. Materials and methods

Research done between 1987-90 has confirmed that the presence of the higher dimensional layers of  $\mathbb{C}^nSQS$  in a living organism minimally increases its weight. Preliminary experiments have been carried out at the Biotechnical faculty, Ljubljana, Slovenia in June 1987. Measurements have been performed on a Mettler Zurich M5 scale. Six test-tubes were filled with three millilitres of a water solution made out of meat and sugar. Four test-tubes were used and a fungus was put into two of the test-tubes. All of test-tubes were welded airtight. The weight difference between test-tubes was measured for ten days. After three days of growth, the weight of test-tubes with the fungus increased (on average) by 34 micrograms and in the last seven days remains unchanged. The experiment was carried out in sterile circumstances and has confirmed that when organic mass turns into an alive mass its weight increases accordingly to Eq. (3).

$$Fg_{living.organism} = Fg_{organic.matter} + Fg_{life} \quad (3)$$

The experiment was then carried out in the oppose. A test-tube was filled with 5 grams of Californian worms. The control rest-tube was filled with distilled water (picture 1).

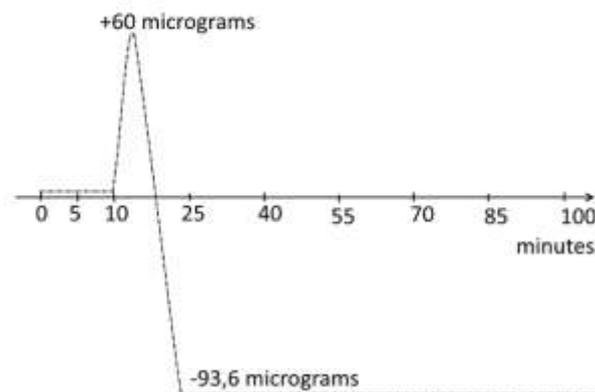


**Picture 1:** Experimental and control test-tube back in 1988

Both of the test-tubes were then welded airtight. The weight difference between test-tubes was measured for 100 minutes. After 15 minutes after poisoning the weight was decreased by 4.5 micrograms on average. This weight then remained stable for the next 85 minutes. The experiment was repeated 5 times. The weight loss can be expressed by following equation:

$$Fg_{dead.organism} = Fg_{living.organism} - Fg_{life} \quad (4)$$

These experiments were repeated from August to September of 1988 at the Faculty for Natural Science and Technology, Ljubljana. Two Mettler Zurich scales, type H20T were used in the measurements. A test-tube was filled with 70 grams of live Californian worms and a small test tube was filled with 0.25 ml of 36% water solution of formaldehyde. The control test tube is containing 70 ml of distilled water with a small test tube of formaldehyde inside. Both the test tubes were welded, wiped clean with 70% ethanol, and put into the weighing chamber of the balance. Approximately, one hour was allowed for acclimatization. Later both test-tubes were measured three times at intervals of five minutes. Then the test tubes were turned upside down to spill the solution of formaldehyde and again they were measured seven times at intervals of fifteen minutes. The weight of the test-tube with the worms was found to have increased in the first 3 minutes after the poisoning on average for an average weight of 60 micrograms and it then went down. Fifteen minutes after poisoning, the weight diminished on average by 93.6 micrograms.



**Figure 2:** Weight diminishing at the time of worm's death

This last experiment was repeated twelve times. The standard deviation goes to 16 micrograms. The pressure in both test tubes was one atmosphere for the entire duration of the experiment as well as the temperature remained unchanged. Neither the pressure nor the temperature could have been the cause of the change in the weight. [7]. The authors do not encourage researchers to use higher-developed animals in this experiment.

In 1997, the author published the results of the experiments in the 'Newsletter' nr. 18-19 of Monterey Institute for Study of Alternative Healing Arts, California. On March 3rd 1998, Dr. Shiuji Inomata from Japan informed the editor (S. Savva) that Dr. Kaoru Kavada got similar results using rats as the experimental organism, again in a closed system. Back in 2019, the experiment with 5 grams of worms was repeated on the high-accuracy balance Mettler-Toledo AX107H Comparator. The difference between the two test tubes with the worms and the two control test tubes with distillate water was measured simultaneously. The same results were obtained, the mass of one gram of dead worms has less weight than the same one gram of alive worms for about one microgram.



**Picture 2:** Two experimental and two control test tubes on Mettler-Toledo AX107H Comparator

Today, the interpretation of these experiments is that the mass  $m$  of living worms and the mass  $m$  of dead worms are the same because in both masses we have the same atoms. Only their molecular composition after poisoning with formaldehyde is different. A living organism has more energy than the same dead organism. Its energy is the following:

$$E_{life} = mc^2 + E_{C^nSQS} \quad (5)$$

where  $m$  is a mass of the organism and  $E_{C^nSQS}$  are higher-dimensional energies of  $C^nSQS$  that are present in the living organism. The presence of higher-dimensional energies of  $C^nSQS$  in living organism minimally increases its weight. The weight of living organisms has two components. The weight that is caused by the atoms that are composed in the living organism ( $Fg_{organic.matter}$ ), and the weight caused by the presence of higher dimensional energies of  $C^nSQS$  that are present in the living organism ( $Fg_{life}$ ) and are disconnecting with the organism at the time of death, see Eq. (3).

Experiments with worms should be repeated in two laboratories on the precise mass comparators where one would measure the difference in the weight of 50 grams of living worms and of 50 grams of the same dead worms. The expected difference is about 50 micrograms. One should put on one weighting pan experimental test tube with the worms and on the other weighting pan the control test tube with distillate water. Both test tubes must have the same shape and size. In this way, the physical circumstances of eventual minimal change of the air pressure and consequently the different air buoyance on the test tubes are the same. Simultaneous weighing of both tubes and measurement of the difference in their weight eliminates all possible physical circumstances that may affect the results of the measurement. For such a measurement one needs a mass comparator that can measure the difference of the weight of two test-tubes that have a mass of about 120 grams. 50 grams are worms and distillate water, and about 60 grams are glass test-tubes. If repetition of the experiment in two independent laboratories would

give the same results, the experiment would gain the necessary scientific legitimacy.

### 3. Discussion of obtained results

When the matter is transformed into energy there is an enormous release of electromagnetic energy. The matter is composed of atoms and is three-dimensional and electromagnetic energy is composed of photons that are four-dimensional [2]. When worms are dying, we do not observe a huge release of electromagnetic radiation. Polish scientist Slawinski measured bio-photon radiation at the time of death of the organism and it increases from 10 to 100 times [8]. This confirms that at the time of death, the four-dimensional layer of  $\mathbb{C}^n$ SQS that represents the coherent electromagnetic field discovered by Popp and Cohen is falling apart and this causes increased bio-photon radiation that cannot make such a difference in the weight as measured. The obtained weight difference is the result of the release of some unknown type of energies out of the body that we suggest are complex and five or more dimensional. Bio-photons are four-dimensional excitations of  $\mathbb{C}^4$ SQS and their radiation will not decrease the energy density of  $\mathbb{C}^4$ SQS. That's why bio-photons released at the time of death do not influence weight that is the result of the diminished energy density of  $\mathbb{C}^4$ SQS. The release of five and higher dimensional  $\mathbb{C}^n$ SQS energies out of the dying organism is causing a minimal decrease in the weight of the dead organism. Because of being poisoned, the atomic 3D layer of the worm cannot maintain the connection with the 4D coherent electromagnetic field (bio-photons) and with higher-dimensional layers of SQS. The bond of life is broken, dying organism radiates bio-photons back into 4D SQS. Higher-dimensional layers of the subtle energies of dying organisms radiate back into the higher-dimensional layers of SQS which causes the minimal diminishing of the weight.

The weight difference at the time of human death was first measured by American medical doctor Duncan MacDougall back in 1901. He measured that the weight of the human body after death diminished by about 21.3 grams [9,10]. Duncan has predicted that the "soul" is leaving the body and so weight is diminishing. In this article, we explained this weight difference in terms of higher dimensional energy layers of superfluid quantum space whose presence in the living organism causes a minimal increase in weight. Several pieces of research are reporting the near-death experience and out-of-the-body experience of dying people [11,12]. The model of higher-dimensional layers of superfluid quantum space is the theoretical frame that explains these phenomena.

Our model also supports the vibrational theory of DNA which is suggesting that DNA has a kind of "electromagnetic informational duplicate" [13]. We suggest that physical DNA which is 3D and has its information duplicate in  $\mathbb{C}^4$ SQS and via higher-dimensional superfluid quantum spaces is connected with consciousness.

The model of n-dimensional superfluid quantum space also represents the theoretical basis for "DNA phantom effect" [14,15]. DNA has its "electromagnetic informational duplicate". When we place the DNA in the experimental tube used in

the “DNA phantom effect” experiment, it happens that this duplicate is transferring the information on the  $\mathbb{C}^4$  SQS level. The information is remaining in the experimental tube also when DNA is removed.

Anaesthesia is temporarily breaking the bond between the 3D molecular level of the living organism and its higher dimensional layers and it is also the case with consciousness. That’s why the person that is under anaesthesia becomes unconscious. The experiments done on fruit flies *Drosophila* confirms that anaesthesia changes the spin of the electrons in the cells: “We propose that anesthetics perturb electron currents in cells and describe electronic structure calculations on anesthetic–protein interactions that are consistent with this mechanism and account for hitherto unexplained features of general anesthetic pharmacology” [16]. We suggest that the change of the electron currents perturbation causes the information line between the 3D part of the organism and the higher dimensional part of the organism (psyche) to be temporarily broken.

In our cosmology model, the gravity force is the result of the diminished energy density of  $\mathbb{C}^4$ SQS because of the presence of the physical object [2,5,6]. The presence of higher dimensional layers of  $\mathbb{C}^n$ SQS in living organisms diminishes the energy density of  $\mathbb{C}^4$ SQS and so gravity force is minimally increased. We could say that so-called “subtle energies” such as “Prana” or ”QI” energy and consciousness have some minimal weight [8]. Mechanistic science is strictly denying the existence of a reality that reaches beyond electromagnetism. We think this approach will not give us any progress. As Nicola Tesla said: “The day science begins to study non-physical phenomena, it will make more progress in one decade than in all the previous centuries of its existence”.

#### 4. Evolution of life, order, disorder, and randomness

We take a “fair coin” and we throw it. We have a 50% possibility to get the “upper side” and a 50% possibility to get a “downside” of the coin. We take a “fair dice” with six numbers. We throw it and we have a 16.66 % possibility to get number six.

We take two fair dice; we place them on the plate so that they both have the number six on the upper surface and we throw them. We use equation (4) to get the number of possibilities. Number  $n$  is 12 because we have 6+6 surfaces, and number  $k$  is 2. Throwing two dices we can get 66 different combinations. This means that the possibility that both dices will have at next throw number six on the upper surface is 1.56%. Now we take 10 dices and we place them so that all have the number six on the upper surface. Number  $n$  is 60, and number  $k$  is 10. At the next throw, we have 75394027566 different possibilities. Possibility that all dices will have at next throw number six on upper surface is  $1.326 \cdot 10^{-9}$  %. At 100 dices number  $n$  is 600, and number  $k$  is 100. At the next throw, we have  $1.111 \cdot 10^{116}$  different possibilities. Possibility that all dices will have at next throw number six on upper surface is  $9 \cdot 10^{-115}$  %.

Random hitting of dices increases the disorder of the system. A living organism's order is extremely bigger than the order of the system of 100 dices. Life is regarding

the geological environment extremely high organized system. Longo and Montévil have proposed that randomness increases order in biological evolution [17]. The calculations above confirm that the idea that randomness is the cause of biological evolution seems unacceptable.

Penrose and Hameroff have proposed consciousness as the core of life evolution. They have created orchestrated objective reduction theory (Orch OR), which sees life and consciousness as phenomena that are deeply related to the structures of the universe: “The DP (Diósi–Penrose) form of OR is related to the fundamentals of quantum mechanics and space-time geometry, so Orch OR suggests that there is a connection between the brain’s biomolecular processes and the basic structure of the universe” [18]. We have replaced space-time model with the time-invariant model. Seeing consciousness as something that appears in time is outdated. Linear psychological time “past-present-future” exists only in the human brain as a neuronal activity, and consciousness is far beyond the brain [4]. In our model evolution of life has its information basis in the higher dimensional layers of SQS. Entire universe is existing in a time-invariant SQS, everything in the universe is entangled via time-invariant SQS [2]. In  $\mathbb{C}^4$ SQS information transfer is of the light speed. In  $\mathbb{C}^n$ SQS information transfer is immediate.  $\mathbb{C}^n$ SQS is the medium of EPR-type entanglement. In our model the excitation of  $\mathbb{C}^n$ SQS is a photon that carries consciousness. Photon’s frequency  $\nu$  of  $\mathbb{C}^n$ SQS tends to the infinite value ( $\nu \rightarrow \infty$ ) and its wavelength  $\lambda$  tends to zero ( $\lambda \rightarrow 0$ ). Considering that the velocity of the photon is  $v = \nu\lambda$ , velocity tends to zero:  $\infty * 0 = 0$ . In this perspective consciousness velocity tends to zero, consciousness is omnipresent, and it exists in every point of physical space. Consciousness is the carrier of immediate information transfer. Back in 2014, Max Tegmark published an article where he discussed that consciousness could be understood as a state of matter [19]. In the  $\mathbb{C}^n$ SQS model, all that exists in the universe is energy. Matter, electromagnetic energy, and consciousness are different aspects of the same energy. There is no need to think that matter is primary and consciousness is a state of matter or that consciousness is primary and matter is its manifestation. They are both coexistent forms of the same energy. In  $\mathbb{C}^n$ SQS model dichotomy matter/consciousness is solved. Energies of all layers of  $\mathbb{C}^n$ SQS are interwoven, they build the universe. The universe is seen as one organism and seeing energies of different layers of  $\mathbb{C}^n$ SQS separate, seems wrong.

In our model entire universe is embedded in consciousness as a higher ontological reality. Consciousness is governing the universe. This is close to Einstein’s and Bohm’s views; both were not in the favour of the idea that the universe is a random phenomenon with no order. Einstein has proposed “hidden variables” to explain the EPR-type experiments, and Bohm has proposed “implicate order of the universe”, a model that proposes that the universe is an intelligent system [20]. There is a deep ontological similarity between Einstein’s, Bohm’s, and our views.

In our model universe is governed by consciousness and we humans have to search consciousness experientially in order to be able to follow cosmic laws and build human society accordingly [21]. In our view, today’s quantum physics has

limitations to describe consciousness because it sees consciousness as a phenomenon that is the domain of the “real world”. Consciousness is a subjective phenomenon and as such “complex world”. Adams and Petruccione are also pointing out the question of quantifying consciousness in the domain of quantum physics: “A formal description of consciousness, given the difficulty of quantifying its subjective experience, would likely borrow from complex network theory as well as disciplines from physics and philosophy. The question is still open as to whether quantum physics has something to add to the debate” [22]. In chapter 2 we developed the mathematical model of consciousness; however, we think that modeling of consciousness is not giving us the final answer about its nature. We human Beings have the ability to become conscious about the ways our mind is functioning. In this perspective, consciousness and mind are both faculties of the Being.

Self-organization is today recognized as a valid principle in developmental biology [23,24]. It is well recognized that life is organizing itself. The mistake is to believe that this principle is ruling the development of life. No principle can rule a given process. A given principle in order to be real needs discovery of its physical origin. The principle of self-organization needs experimental verification. Our experiment “life-dead weight difference” proves that some higher dimensional type of  $\mathbb{C}^n$ SQS energies are present in the living organism. These higher-dimensional energies of  $\mathbb{C}^n$ SQS are the physical origin of self-organization. It makes no sense to see living organisms as an isolated system. Life is deeply related to the  $\mathbb{C}^n$ SQS.

Organic molecules have been found in the interstellar medium [25]. In our model interstellar medium is the  $\mathbb{C}^n$ SQS. Molecules in interstellar areas have a tendency to self-organization because information about life is encoded in higher-dimensional layers of SQS. On planets that are similar to the planet Earth, life has developed in intelligent beings. In our universe, there are many planets similar to our planet Earth where life could develop [26,27]. The model presented in this article is reaching beyond anthropocentrism and geo-centrism. Humans are not the center of the universe. The evolution of life on Earth is the consistent part of a universal process that runs throughout the entire universe. Recently, several researchers are proposing the integration of biology into cosmology [28] which is a sign of a paradigm shift. The evolution of life on our planet has developed conscious beings and so consciousness should be also integrated into cosmology. Consciousness is a complex phenomenon beyond electromagnetic radiation and requires the enlargement of the scientific paradigm with n-dimensional complex types of energies.

## 5. Conclusions

The universe is the main system in which all other systems exist. It is opportune to approach life as a consistent part of the universal process. We propose in this article that the higher-dimensional layers of  $\mathbb{C}^n$ SQS are the cosmic reservoir of information for the development of life. In the entire universe, the matter has a tendency to develop into intelligent and conscious organisms. We are not the only

civilization and for sure we are not the most developed one, we are not fully aware yet of human intrinsic connectedness with the universe via subtle energies and consciousness.

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