

QUANTUM-HOLOGRAPHIC FRAMEWORK FOR CONSCIOUSNESS & ACUPUNCTURE: PSYCHOSOMATIC-COGNITIVE IMPLICATIONS

Dejan Raković

¹Professor, PhD Physicist, BSEE, Faculty of Electrical Engineering, University of Belgrade, Serbia

²Founder, DRF Fund for Promoting Holistic Research and Ecology of Consciousness, Belgrade, Serbia

³Director, ECPD School of Quantum-Informational Medicine, European Center for Peace and Development (ECPD) of the United Nations University for Peace, Belgrade, Serbia

www.dejanrakovicfund.org

rakovicd@etf.rs

Abstract. The paradigm of quantum physics enables us to broaden our holistic worldview, and explain and include phenomena that have hitherto been ignored or denied, which can lead to profound change in any field and in our society at large. The aim of this paper is to present quantum-holographic framework for understanding consciousness and acupuncture system, with significant psychosomatic-cognitive implications. This is of special importance because of wider application of holistic medicine in developed countries, oriented to the treatment of man as a whole and not diseases as symptoms of disorders of this wholeness, implying their macroscopic quantum origin. The focus of these quantum-holistic methods are body's acupuncture system and consciousness, which exhibit a structure of quantum-holographic Hopfield-like associative neural network, with memory attractors as a possible quantum-holographic informational basis of psychosomatic diseases, of special importance for quantum-holistic psycho-somatics and quantum-informational medicine. Wider quantum-informational implications of holistic medicine suggest quantum-holographic fractal coupling of the cellular level/acupuncture system/consciousness/collective consciousness, which thus implies "downward causation" biophysical mechanism for modified gene expression. Our quantum-holographic investigations also predict two cognitive modes of consciousness (direct religious/creative, in quantum-coherent transitional and altered states of individual consciousness, and indirect perceptually/rationally mediated, in classically-reduced normal states of individual consciousness). This approach can account for space-time-transcending collapse-like quantum-gravitationally-induced and consciousness-channeled transpersonal interactions, with significant spiritual implications and conditions for observation of quantum-coherent quantum-holographic implicate order and classically-reduced explicate order. Our investigations forecast great synthesis of two cognitive modes in the framework of new quantum-holographic paradigm – where personal role becomes indispensable due to the influence and care for collective mental environment, which is fundamental question of both mental health and civil discency, i.e. of both spiritual and civil morality.

Keywords: *quantum-holographic informatics, macroquantum aspects of field-related consciousness & acupuncture system, nonlocality of quantum entanglement & quantum-gravitational collapse, quantum-holographic psychosomatic-cognitive & transpersonal-spiritual implications, quantum-holographic paradigm, quantum-holographic implicate order & classically-reduced explicate order*

1. Introduction

The paradigm of quantum physics enables us to broaden our holistic worldview, and explain and include phenomena that have hitherto been ignored or denied. The aim of this paper is to present quantum-holographic integrative framework for understanding consciousness and acupuncture system, and numerous related holistic phenomena.

The prevailing scientific paradigm considers information processing within the central nervous system as occurring through *hierarchically organized and interconnected neural networks*. Hierarchical models of brain's neural networks can be divided into [1,2]: *Kohonen's self-organizing feature mapping* unidirectionally oriented multilayer neural networks [3], *Hopfield's associative or attractor* massively and bidirectionally connected neural networks [4], and *Haken's synergetic classical* [5] and *Peru's neuro-quantum* [6] multilayer neural networks. But, it seems that this hierarchy of biological neural networks is going down sub-cellular *cytoskeleton* level, being according to some scientists a kind of *interface* between *neural* and *quantum* levels [7-10], where *quantum level* is described by *analogous* mathematical formalism as *Hopfield-like quantum-holographic associative neural network* [1,2,7].

The mentioned analogy opens additional fundamental question as to how the *quantum* parallel processing level gives rise to *classical* parallel processing level, which is a general problem of the relationship between quantum and classical levels within the *quantum decoherence theory* as well [11]. Naturally, the same question is closely related to the fundamental nature of *consciousness*, whose in-deterministic manifestations of *free will* [1,2,12-16] and other holistic manifestations of consciousness like *psychosomatic disorders* [1,2,17-19], *transitional states of consciousness* [1,2,12-14], *altered states of consciousness* [20], and *consciousness pervading body* [21] – necessarily imply that some manifestations of consciousness must have deeper *quantum origin* (in spite of recent theoretical investigations [22] which demonstrate that interactions with environment destroy in less than 10^{-13} s macroscopic quantum coherence within the brain, whose electrochemical neural networks might correspondingly be sufficient for modeling normal states of consciousness [23-25] – but not altered and transitional states of consciousness as well [1,2,20]).

Bearing in mind the *quantum-coherent characteristics* of the Russian-Ukrainian school of *microwave resonance therapy* (MRT) [26-28] (highly resonant microwave (MW) sensory response of the disordered organism, biologically efficient nonthermal MW radiation of the extremely low intensity, and neglecting MW energy losses alongside acupuncture meridians) – the *acupuncture system* is presumably only *macroscopic quantum system* in our body (while brain still seems not to be [22]). This is the reason that *consciousness* is related to its MW ultralow-frequency (ULF) modulated *electromagnetic (EM) field of the acupuncture system*, in the framework of the author's *biophysical quantum-holographic/quantum-relativistic model of consciousness* [1,2,29-35] – with significant *psychosomatic-cognitive implications*, which will be elaborated further on on (with some physical details presented in the Appendix).

2. Consciousness and Acupuncture System: Quantum-Holographic Psychosomatic Implications

Most of contemporary textbooks in biophysics are of the reductionist type, mainly dedicated to the molecular biophysics and methods of biomolecular characterization, to a lesser number consider processes in the cellular level, and rarely are committed to a holistic integrative level of the organism and biosphere (which includes social and environmental aspects, biometeorology, geomedicine, chronobiology, psychosomatics, consciousness, homeopathy, acupuncture, yoga, meditation, transpersonal psychology) [1,36] – although this trend is beginning to change with wider application of *integrative medicine* in the developed countries [37].

Namely, contemporary investigations of psychosomatic diseases imply the necessity of application of *holistic methods*, oriented to *healing the person as a whole* and not disease as a symptom of disorder of the whole, suggesting their *macroscopic quantum origin* [1,2,17-19]. In the focus of these quantum-holistic methods are body's *acupuncture system* and *consciousness* – which have *quantum-informational structure of quantum-holographic Hopfield associative neural network*, within the Feynman propagator version of Schrödinger equation [7] – with surprisingly significant *quantum-holographic psychosomatic implications*.

Acupuncture system is an ancient Chinese concept of the energy-informational channels/meridians and points, responsible for psychosomatic health and illness [38-41]. The quantum EM/ionic basis of the acupuncture system (of *non-threshold electrical gap junction* (GJ) synapses [42,43]) is implied by *resonant windows* in frequency and intensity in tissue interactions with extremely weak *non-threshold* EM fields [44] (undetectable by nervous system of *threshold* electrochemical synapses [1,2,17,18]), and successes of the Russian-Ukrainian school of MW resonance therapy [26-28] and its *quantum-coherent characteristics* (highly resonant microwave sensory response of the disordered organism, biologically efficient nonthermal MW radiation of extremely low intensity and energy, and neglecting MW energy losses across acupuncture meridians), as well as successes of German school of ULF electropuncture [45] and the *resonant stimulation* of the acupuncture analgesia endorphin (~ 4 Hz) and serotonin and/or norepinephrine (~ 200 Hz) mechanisms [46] – which is now associated with the appearance of *Quantum-informational medicine* [1,17] (that might also include acupuncture-sensitive *homeopathy* [47] and other *energetic/bioresonance/bioinformational methods* [48]).

And as recent Peru's theoretical investigations show that any *quantum system* has formal mathematical structure of *quantum-holographic Hopfield-like neural network* [6,7] – then *memory attractors of the acupuncture network* can be treated as *psychosomatic disorders* representing EM MW/ULF-modulated (*quantum*)*holistic records* (which might be therefore removed only holistically, supported by an extreme efficiency of the *quantum-informational therapies*, that consequently erase the very information of the psychosomatic disorders) – which might represent biophysical basis of (acupuncture *temporarily reprogrammable!*) (*quantum*)*holistic local psychosomatics* [1,2,12-14,17,18,29-35].

Namely, according to the *Tibetan traditional medicine*, an acupuncture procedure must be repeated every several months [49] – presumably as a consequence of *restituted* patient's mental loads from his *mental-transpersonal-environment* of closely related relatives/enemies/deceased, that remained *non-reprogrammed* on the level of quantum-holographic collective consciousness (which might be supported by the Tibetan *pulse diagnostics* based on 20 pulses, enabling precise diagnosis of psychosomatic disorders not only of the patient himself *but also* of his/her/its family members and enemies).

An additional support that the acupuncture system is really related to consciousness is provided by *meridian (psycho)therapies* (with very fast removing of traumas, phobias, allergies, post-traumatic stress, and other psychosomatic disorders [50,51]) – whose simultaneous effects of *visualization* and *tapping/touching of acupuncture points* might be theoretically interpreted as a *smearing and associative integration of memory attractors* of the psychosomatic disorders, through successive imposing new boundary conditions in the acupuncture energy-state space during visualizations of the psychosomatic problems [1,2,17,18] – so that *meridian (psycho)therapies* (alongside with techniques of *energy healing* of the acupuncture system/ consciousness [52-55], psychosomatically healing positively-visualizing *meditation* [56] and various *psychotherapeutic techniques* for recognition/integration of psychological conflicts and personality growth [57-60]) might also be categorized into the field of *Quantum-informational medicine* [17].

The above quantum-holographic approach might be also generalized to highest hierarchical nonlocal level of out-of-body consciousness/collective consciousness [1,2,17,18,29-35], with religious/social implications on necessity of *transpersonal spiritual quantum-holographic removing* of all unwilling side memory attractors – which unless will cause psychosomatic diseases and interpersonal fights in this and/or further generations they are transpersonally and unconsciously transferred to, on the level of *field-related collective consciousness* [1,2,17].

This quantum-holographic approach could also apply to lower hierarchical local quantum-holographic macroscopic open cellular enzyme-gene level, with permanent quantum-conformational molecular recognition [1,2,17,32], and presumably represents a *natural framework for explanation of psychosomatic diseases* related to somatization of environmentally-generated memory attractor's states of the open macroscopic quantum acupuncture system/consciousness – *quantum-holographically projected* upon lower hierarchical cellular level, thus *changing the expression of genes* [1,2,17,61] (so called macroscopic *downward causation*, as biofeedback control of microscopic *upward causation* in *ontogenesis and morphogenesis*, starting from the first fertilised cell division which initialises differentiation of the acupuncture system of (electrical synaptic) *gap-junctions* [1,2,17,42,43]).

All this implies that the *whole psychosomatics is a quantum hologram* [1,2,33,34], both on the level of *individual and collective consciousness*, which resembles Hinduistic relationship *Brahman/Atman (Atman is Brahman* [62]), as the whole and its part which bears information about the whole – strongly supporting the appearing *quantum-holographic paradigm* [1,2,63-65].

3. Consciousness and Acupuncture System: Quantum-Holographic Cognitive Implications

In the above quantum-holographic context, the association of individual consciousness to manifestly-macroscopic-quantum acupuncture system, and application of theoretical methods of associative neural networks and quantum neural holography and quantum decoherence theory, imply *two cognitive modes of consciousness*, according to the coupling strength consciousness-body-environment [1,2,17,30,31]: (i) *weakly-coupled quantum-coherent direct one* (in out-of-body religious/creative transitional and altered states of consciousness, like prayer, meditation, creative dozes, lucid dreams...), and (ii) *strongly-coupled classically-reduced indirect one* (in bodily perceptively/rationally mediated normal states of consciousness, like sensory perception, logical and scientific thinking...) – *with conditions for mutual transformations* – and significant *spiritual and epistemologic implications* related to re-gained strong coupling of quantum-holographic contents of consciousness with bodily-environment, classically-reducing directly obtained quantum-coherent informational content.

It should be pointed out that fundamentally-theoretical reasons for out-of-body displacement of consciousness lay in necessity that consciousness must have, at least in (quantum-coherent) altered/transitional states, sufficiently isolated relevant macroscopic quantum degrees of freedom [1,2,12-14,29-34] – in order to have indeterministic characteristics of free will – which is otherwise not possible in strong body's environment which causes quick quantum decoherence of consciousness into (classically-reduced) normal state [22].

In this context, necessity of direct quantum-holographic coupling of individual and cosmic collective consciousness really requires weak out-of-body quantum-communication coupling consciousness-environment, i.e. previous *reprogramming of all psychosomatic loads* (cleansing of possessive or hedonistic *emotional-mental*

sin/karmic connections with the world – which as loading *mental addresses* would give rise to *quantum projections* of mentally-channeled tunneled consciousness on corresponding *out-of-body environment*, and thus to classically-reduced out-of-body *extrasensory observing* of mentally-addressed environment!) – and so the efforts of *mystics of all traditions* to *clean consciousness/soul* through spiritual practice (*prayer, meditation*) and thus to reach their final eschatological goal (*Kingdom of God, nirvana*), i.e. *post-mortem salvation* (of the sin-free/karmic-free non-bounded soul) [66,67] appear reasonable.

So, it seems that science is closing the circle, by re-discovering two cognitive modes of consciousness and at the same time by imposing its own *epistemologic limitations* – as it was preserved for millennia in *shamanistic tribal traditions* [68-70], or as it was concisely described by Patanjali in *Yoga Sutras*, pointing out that mystical experience (*samadhi*) is *filled with truth* and that *it goes beyond inference and scriptures* [71], or as this difference between faith and knowledge was formulated at the beginning of the last century by Berdyaev in his *Philosophy of Freedom* as the difference of two modes of cognition, prayer-mediated *comprehension of the affairs invisible* and rationally-mediated *comprehension of the affairs visible* [72].

This also explains in principle non-adequate informational rationalization of any direct quantum-holographic spiritual/religious mystical experience (as a general problem of the quantum theory of measurement, of reduction of the implicate order of quantum-coherent (quantum-holographic) superpositions into the explicate order of measured classically-reduced states [1,2,33,34]). After returning of the displaced consciousness upon the body, in order that transpersonally acquired information ascends to the level of normally conscious state, it is necessary to overcome two filters [1,2,33,34]: *acupuncture system/nervous system threshold filter* (which requires *emotional colouring* of the solving problem) and *frontolimbic-amplification priority filter* (which requires *emotional-thinking priority* of the solving problem). It should be pointed out that (practically) non-threshold potential of the acupuncture electrical GJ-synapses [42,43] makes body's acupuncture system extremely sensitive quantum sensor [1,2], which can resonantly *detect* even ultraweak EM fields [44] – with radiesthetic-diagnostic, noncontrolable-patogenic, or quantum-therapeutic psychosomatic effects [73].

The mentioned quantum-holographic context implies *quantum-holographic fractal coupling* of various hierarchical levels in Nature: (i) *local quantum-holographic coupling* of bodily acupuncture system and its numerous projection zones (according to contemporary *Su Jok therapy* [74]); (ii) *local quantum-holographic coupling* of thought-emotional contents of individual consciousness and cellular level (according to experiments of language-influence on the genes expression [75]); (iii) *transpersonally-addressed classically-reduced quantum-holographic coupling* of emotionally related consciousness' of relatives/enemies/deceased within the network of collective consciousness (according to pulse diagnostics of *Tibetan traditional medicine* [45]); (iv) *transpersonally-addressed classically-reduced quantum-holographic coupling* of individual and collective consciousness in *miraculous deep creativities* (Tesla and Mozart as examples [31,76]); (v) *transpersonally-addressed classically-reduced quantum-holographic coupling* of individual and collective consciousness in *spiritual revelations* (Moses as example, with preferences of collective and individual history coded within The Old Testament, according to discovery of *Bible Code* [77,78]); (vi) *fractal-informational coupling* of Golden Mean based codes of periodic system of elements, genetic code, microtubules, biological water, yin-yang I Ching, and individual consciousness (according to several contemporary investigations [10,79]).

4. Discussion

Our biophysical quantum-holographic/quantum-relativistic framework described above, might have significant influence on deeper understanding of many consciousness-related phenomena in physics and engineering, medicine and biology, psychology and transpersonal phenomena, art and philosophy, society and religion [1,2]:

Psychosomatic diseases indicate the necessity of application of holistic methods, implying their macroscopic quantum origin, with memory attractors as their possible quantum-holographic informational basis for *downward causation* mechanism of modified gene expression. Wider quantum-informational implications of holistic medicine suggest quantum-holographic fractal coupling of the cellular level/acupuncture system-individual consciousness/collective consciousness, strongly supporting the quantum-holographic paradigm.

Individual consciousness is related to **acupuncture macroscopic quantum-holographic neural network** in the form of an *EM component* of MW/ULF-modulated ionic currents (embedded within *non-homogeneous ionic structure*), in which over-threshold ULF information is continuously coded from brain's neural networks, while non-threshold extrasensory broad-band information is coded from quantum environment. **Collective consciousness** is

a subtle *field-related cosmic macroscopic quantum-holographic neural network*, with different micro-quantum and macro-quantum (non-biological and biological, real and virtual) excitations.

Creativity is a consequence of intense concentration on some problem before *transitional states of consciousness*, when *individual consciousness projections* on (associatively related) *answer to the problem within quantum-holographic memory/propagator of collective consciousness* is going on, with amplification of the answer after return into normal awake state. One way of control of creative processes is *mental visualization of the problem* in the *meditative awake altered state of consciousness*, while simpler way is in using *transitional period waking-sleep*, with subsequent decoding of the symbolic dream.

Free will is perceptually/rationally mediated strong intentional classical/quantum/classical backward hierarchical interaction nervous/acupuncture/nervous systems, which adequately modifies the *shape of energy-state hypersurface of the open acupuncture system/individual consciousness* – with *most space* for adaptation/free will through **prayer for others** with permanent transpersonal cleansing of conflict memory attractors' states of individual and collective consciousness.

Altered states of consciousness (REM sleep phase, hypnosis, meditation, hallucinogenic states, some psychopathological states, clinical death...) are consequence of an *out-of-body displacement of the part of EM/ionic acupuncture system* – when *quantum-parallel information processing is biophysically extremely accelerated*. **Normal states of consciousness** (normal waking state, non-REM sleep phase...) are realised *without this out-of-body displacement* (when acupuncture ionic currents propagate exclusively through body tissues, enabling only *classically-reduced information processing*).

Transitional states of consciousness are accompanied by *consciousness projections* i.e. by (highly-noninertial physically-equivalent-to strongly-gravitational) *collapse-like consciousness-channeled quantum-gravitational tunneling of out-of-body displaced part of the acupunctural EM/ionic macroscopic quantum neural network*, which might interconnect extremely distant space-time events. This framework also suggests physical basis of von Neumann's projection postulate on micro-quantum scale, to account for quantum mechanical **wave packet collapse** (via locally quantum-gravitationally-induced *wormholes* in highly-noninertial strong-gravitation-equivalent quantum measurement-like situations, cf. Appendix).

Transpersonal interactions of the organism and its environment (long-range and short-range) are *significant implications*. One of the most unusual is the *mystical state of empty individual consciousness*, when direct *quantum-holographic coupling with cosmic collective consciousness* is achieved. On the other hand, *consciousness projections* in transitional states of consciousness are presumably basis of various mentally-channelled *inherently epistemologic-non-limited partial religious/creative experiences*.

Two modes of consciousness (direct religious/creative, in quantum-coherent transitional and altered states of individual consciousness, and indirect perceptually/rationally mediated, in classically-reduced normal states of individual consciousness) are predicted – *with conditions for mutual transformations* – implying *inherently epistemologic-limited holistic mystical experiences*, related to re-gained strong coupling of quantum-holographic contents of consciousness with bodily-environment, classically-reducing directly obtained quantum-coherent informational content. Multimillennia controversy of *post mortem* evolution of soul is presumably related to inherently limited interpretative epistemologic level of the rationalization of transpersonal transfer of mentally-addressed loads within this and further generations via network of collective consciousness.

5. Conclusion

Our biophysical quantum-holographic/quantum-relativistic integrative framework for understanding consciousness and acupuncture system might have significant influence on deeper understanding of many related phenomena in physics and engineering, medicine and biology, psychology and transpersonal phenomena, art and philosophy, society and religion, as outlined above. Thus paradigm of quantum physics enables us to broaden our holistic worldview, and explain and include phenomena that have hitherto been ignored or denied, which can lead to profound change in many fields and in our society at large.

In particular, according to presented integrative framework it might be said that *three front lines* of psychosomatic medicine do exist: (i) *Spirituality and circular (psycho)therapies from all relevant meta-positions*, with possibility of permanent erasing of mutual memory attractors on the level of *collective consciousness*; (ii) *Eastern (quantum)holistic medicine and non-circular (psycho)therapies*, whose efforts temporary erase memory attractors on the level of *acupuncture system/individual consciousness*, and prevent or alleviate their somatization, as a consequence of the indolence on the first level; (iii) *Western symptomatic medicine*, whose activities on the *somatic level* via immunology, pharmacology, biomedical diagnostics and

surgery hinder or soothe somatized consequences of the carelessness on the first two levels. It should be stressed, that *necessary* activities on the second and third levels, with *neglect* of the first level, have a consequence of *further transfer* of memory attractors on the level of *individual and collective consciousness* in this and further generations, thus *accumulating* quantum-holographic loads which *afterwards cause* not only illnesses, but also interpersonal fights, wars, and other troubles.

Also, the above integrative framework provides fundamental quantum-informational basis for deeper understanding of the very *nature of consciousness* and related *transpersonal phenomena* (described in religious and esoteric traditions of East and West), including some fundamental *philosophical-religious questions* (like three crucial Kant's questions – does God exist, is there life after death, and does free will exist – answers to which will be presumably positive). So, it seems that our civilization, through *synthesis* of contemporary scientific discoveries in the field of consciousness and millennia' religious experiences of various traditions of East and West, might face in a near future a renaissance of *hesychastic behaviour models*. This would open perspectives for *millennium of wisdom*, where history (of basically non-tolerant behaviour, in different historical contexts) might become the sincere teacher of life, without necessity that every generation learns from its own painful experiences.

The primary role in this process might belong to *all religious confessions*, by cultivating sincere *spiritual morality* and absolute (not declarative, as throughout previous history) interpersonal, interethnic and interreligious *tolerance*, as a measure of individual behaviour from the *perspective of death*, i.e. quantity of generated and nonreprogrammed psychosomatic conflicts until the moment of death (determining *spiritual preferences* for individual and/or collective future) – which might be significantly changed only through *practicing of prayer* for our relatives and enemies, and consequently *global reprogramming* of the spatio-temporal network of *collective consciousness*. Everything else, including extremely well-meaning *rational persuading* and referring on high principles and *sinful pride* (which firstly disconnect us harmlessly, and afterwards create big conflicts spontaneously: *The road to hell is paved with good intentions*), will enhance the existing mental/emotional (inter)personal loads – dismissing individuals, nations, and humankind from the final spiritual ideal of sinless (healed/healthy) state of individual and collective consciousness.

Our investigations are on the line of the again arisen scientific interest for exploration of the phenomenon of consciousness in the past decades – with forecasting *great synthesis* of two cognitive modes, *rationaly-scientific* (classically-reduced, in normal states of consciousness) and *creative-religious* (quantum-coherent, in altered and transitional states of consciousness) in the framework of new *quantum-holographic paradigm* – where *personal role* becomes indispensable due to the influence and care for collective mental environment, which is *fundamental question* of both mental health and civil discency, i.e. of both spiritual and civil morality. This suggests necessity of *re-consideration* of global educational/informational/political goals, with re-orientation toward spiritual-holistic *gentle actions for global solutions of the global risk society*.

6. Appendix

6.1 Quantum-Holographic Macroscopic Aspects of Consciousness & Psychosomatic Implications

Initially, *quantum mechanics* appeared as a theory of *microscopic physical systems* (elementary particles, atoms, molecules) and phenomena at small space-time scales; typically, quantum phenomena are manifested at dimensions smaller than 1 nm and time intervals shorter than 1 μ s. However, from the very beginning of the quantum-mechanical founding one century ago, the question of its *universality* was raised, i.e. the question of general validity of the quantum-physical laws for *macroscopic phenomena* as well (like in superconductivity and superfluidity), mostly treated by the methods of classical physics. In the history of quantum physics, and especially quantum mechanics, this question has been temporarily put aside for very different reasons, being considered as a difficult scientific problem. The situation is additionally complicated by the existence of different schools of quantum mechanics, arguing about physical-epistemologic status of the so called *collapse (reduction) of the wave function*. In this respect the situation is not much better today, and it can be said freely that the problem of universal validity of quantum mechanics is still open [80-85].

On these lines, *holistic manifestations of consciousness*, like psychosomatic disorders [1,2], altered and transitional states of consciousness [1,2], conscious/unconscious transitions, consciousness pervading body, and free will [21], as well as *non-locality of quantum mechanics* demonstrated by Einstein-Podolsky-Rosen effect [86] and Bell inequalities multiply confirmed experimentally last decades [87-89], imply that *some manifestations of consciousness* must have *deeper macroscopic quantum origin*.

In particular, *quantum neural holography* and *quantum decoherence* might be very significant element of the feedback psychosomatics of *biological quantum-holographic neural networks*, through adaptation of memory attractors in the energy-state ($E_{S_k}(\phi^k)$) hypersurface of the quantum-holographic memory of various hierarchically coupled levels of energy-state hypersurfaces of *the biological open macroscopic quantum systems* S_k [1,2,17] (collective consciousness, individual consciousness/acupuncture system, and cellular enzyme-gene level) – in contrast to *low-temperature artificial qubit quantum processors* where *quantum decoherence must be avoided* until the very read-out act of quantum computation. This implies that Nature presumably has chosen elegant *room-temperature solution for biological quantum-holographic information processing*, permanently fluctuating between quantum-coherent states $|\phi^k(t)\rangle_{S_k} = \sum_i c_{k_i}(t) |\phi^{k_i}\rangle_{S_k}$ and classically-reduced states

$\hat{\rho}_{S_k}^k(t) = \sum_i |c_{k_i}(t)|^2 |\phi^{k_i}\rangle_{S_k} \langle\phi^{k_i}|$ of *biological open macroscopic quantum systems* S_k (through non-stationary interactions with out-of-body farther environment and through decoherence by bodily closer environment). The proposed *quantum-holographic* approach then represents a natural framework for explanation of *psychosomatic diseases* related to somatization of generated memory attractor's states of the open macroscopic quantum acupuncture system/consciousness (created as a result of interaction with the environment) and quantum-holographically projected upon lower hierarchical cellular level, thus changing the expression of genes.

6.2 Quantum-Holographic Macroscopic Aspects of Consciousness & Nonlocality of Quantum Collapse

There are numerous macroquantum models of consciousness (some of them cited in ref. [22], whose aim is to investigate existence of the relevant brain/body degrees of freedom isolated enough to preserve their quantum coherence), and it is difficult to pretend on complete survey of these attempts. Therefore, in this paper we shall restrict ourselves on the approach and critique of the Copenhagen and von Neumann interpretations of quantum mechanics, and those attempts including ours to resolve *manifestly open quantum-mechanical problems in the context of consciousness* [14]: (i) physical nature of the wave function *nonlinear collapse*; (ii) physical nature of the instantaneous action of the wave function *nonlocal collapse*; and (iii) existence of the relevant *macroscopic quantum degrees of freedom* related to altered and transitional states of consciousness, isolated enough to preserve their quantum coherence.

The first attempts to *treat consciousness strictly quantum-mechanically* originate from von Neumann [15], and lately by Stapp [16]: in contrast to *Copenhagen interpretation* of Bohr, Dirac, and Heisenberg [90-92], which insists on *positivistic* limitations of quantum theory only on the observer knowledge about quantum system (thus becoming essentially subjective and epistemologic theory, as the only reality of this theory is *our knowledge*) – *von Neumann's* theory offers *ontologically* objective description of the reality and thus quantum framework for cosmological and biological evolution, including consciousness itself.

Besides, in the *problem of quantum measurement* i.e. collapse of the initial state of the quantum system in one of the possible probabilistic states of the system (when (linear) Schrodinger equation is *a priori* suspended and its boundary conditions are replaced by those corresponding to the collapsed state of the quantum system), in contrast to Copenhagen interpretation which treats it (*quantum inconsistently*) as an *ad hoc* process in the interaction of quantum system with classical measuring device – *von Neumann's* theory treats the measuring device quantum consistently by postponing the collapse of the initial quantum state until the final interaction with observer's consciousness in the chain quantum system/measuring device/observer, but also *not explaining* (nonlinear) *nature of the collapse*, with additional problem that ontological non-locality of the collapse requests (relativistic inconsistent) *instantaneous action on distance* along space-like surfaces (which is the problem also implicitly transferred in the relativistic quantum field theory in spite of the relativistic invariance of the Tomonaga-Schwinger space-like surfaces [16]).

On the other hand, in the context of *quantum transpersonal implications* – if *consciousness* has indeterministic characteristics (*free will*), it still must play essential role in the *wave function quantum collapse* [1,2,15,16], the only indeterministic property of the quantum mechanics, which has itself *manifestly open problems* of the physical nature of *nonlinear collapse* and relativistic inconsistent instantaneous action on distance of the *nonlocal collapse* of the wave function [1,2,16].

One possible solution of the problem of (nonlinear) collapse is proposed by Penrose [8] in *gravitationally induced reduction* of the wave function, in which the gravitational field of measuring device included in the

superposition of corresponding possible probabilistic states of the device implies the superposition of different space-time geometries, and when the geometries become sufficiently different (on the Planck-Wheeler scale $\sim 10^{-35}$ m) this implies the break of standard quantum superposition of the state quantum system (S) / measuring device or environment (E) (ill-defined in strictly separate space-time geometries) and Nature *must choose* between one of them and actually affects *objective reduction* of the wave function: $|\Phi\rangle_S |\Psi\rangle_E \rightarrow \sum_i c_i |\Phi_i\rangle_S |\Psi_i\rangle_E \rightarrow |\Phi_j\rangle_S |\Psi_j\rangle_E$ (while regarding non-algorithmic quantum-gravitational aspects

of consciousness [8], Penrose tried to search for sufficiently isolated relevant macroscopic quantum degrees of freedom in microtubular cytoskeletal structures of neurons (but not in out-of-body displaceable acupuncture system in altered and transitional states of consciousness, isolated enough to preserve their quantum coherence [1,2,14]), which was undergone to severe critiques in Tegmark's paper [22]).

According to author's biophysical quantum-holographic/quantum-relativistic model of consciousness [1,2], the similar objective reduction of the wave function might have quantum-gravitational origin in space-time microscopic wormhole tunnels of highly non-inertial microparticle interactions in quantum measurement-like situations (fully equivalent, according to Einstein's principle of equivalence, to strong gravitational fields – in which opening of wormholes is predicted [93,94]). The question how it is possible that these highly non-inertial microparticle processes with inevitable relativistic generation of microparticles' wormholes were not taken into account within quantum mechanics which is yet extremely accurate theory(?) – might be answered as they were(!), but implicitly within the *ad hoc* von Neumann's projection postulate [15] to account for quantum mechanical *wave packet collapse* in quantum measurement situations (implying also that von Neumann's *ad hoc* projection postulate is based on quantum gravitational phenomena, being on deeper physical level than nonrelativistic quantum mechanical ones!). On the other hand, non-locality of field-related collective consciousness [1,2], as a giant space-time associative neural network with distributed individual consciousnesses (mutually interacting quantum-gravitationally in transitional states of individual consciousnesses [1,2]), might explain (apparently) instantaneous action in (nonlinear) quantum-gravitationally induced [8] and (non-locally) channeled collapse by field-related collective consciousness (and *seemingly paradoxical* non-locality of quantum entanglement in both space and time [95-101]), which can account for numerous nonlocal space-time transcending *transpersonal interactions* [102-119] (including most intriguing space-time quantum-entanglement-resembling retroactive intentional influences, reviewed in Ch. 11 of Ref. [111]).

6.3 Quantum-Holographic Macroscopic Aspects of Consciousness & Transpersonal Implications

Then, *transpersonal interactions* [63,102-119] might be interpreted [1,2,12-14] by *collapse-like consciousness-channeled quantum-gravitational tunneling* of operator's individual consciousness – mentally addressed on the target's content of collective consciousness in operator's (short-lasting highly-noninertial strong-gravitation-equivalent) *transitional states of consciousness* – thus intentionally channeling composite state of the *field* of target-under-influence-of-operator part of collective consciousness, $|\Phi\rangle_S \rightarrow |\Phi_j\rangle_S$, and automatically influencing complementary *particle* output $|\Psi\rangle_E \rightarrow |\Psi_j\rangle_E$ in quantum-gravitationally-induced and consciousness-channeled collapse ($|\Phi\rangle_S |\Psi\rangle_E \rightarrow \sum_i c_i |\Phi_i\rangle_S |\Psi_i\rangle_E \rightarrow |\Phi_j\rangle_S |\Psi_j\rangle_E$).

Having in mind very high efficiency of meridian (psycho)therapeutic *circular processes* [51], i.e. from all relevant mentally-addressed *meta-positions* of other persons involved in the treated trauma, this implies that these interactions of the trauma-related persons have quantum-gravitational-collapse-related *transpersonal origin* via miniature *wormhole* space-time tunnels in (highly-noninertial physically-equivalent-to strongly-gravitational) *transitional states of consciousness* of the related persons [1,2,12,13,17,18] (or so called *silver cord* of vital energy of the astral/mental body, *extrasensory observable* in altered states between heart, stomach or throat chakras of the interconnected persons; in African-Haitian *voodoo magic* the silver cord between the operator and the victim is intentionally created by visualization, while in Hawaiian *hooponopono tradition* the silver cord is cut by visualization thus removing traumatic emotional relationship – which otherwise naturally exists between mother and child, and spontaneously arises by intense exchange of the vital energy between relatives, close collaborators, actual or ex-lovers, friends and enemies, and can even persist *post mortem* between the alive and dead persons [1,2,17,18,35]).

Our theoretical investigations thus imply *real origin of esoteric notions* of various traditions of East and West [66,67] – and according to our elaborated theoretical relationship *consciousness/acupuncture* EM-ionic quantum-holographic Hopfield-like associative neural network [1,2,12-14], *esoteric notions* like *astral body* (*manomaya, lingasarira, manovijnana, ka, psyche, subtle body, psychic body, soul...*) and *mental body* (*vijnanamaya, sukksmasarira, manas, ba, thymos, noetic body, spiritual body, spirit...*) [66,67] might be biophysically related to *out-of-body displaced part* (connected with the body by miniature *wormhole* tunnel of vital energy of the astral/mental body) of the *ionic acupuncture system*, and with embedded *EM component* of ionic MW ULF-modulated currents, respectively.

It should be pointed out that apart from the EM field (embedded into displacing part of ionic acupuncture system), subjected to strong inertial accelerations in transitional states of consciousness, via locally created wormhole must also tunnel displaced ionic structure [1,2] (in the form of EM/ionic quantum-holographic neural network, having the quantum sensory function in long-range interactions of this type, transcending space-time barriers). In esoteric literature these interactions are known as *astral projections* of consciousness, related to some paranormal *transpersonal phenomena* [63,102-119] (*mystical religious/out-of-body/near-death experiences, spiritual diagnosis/healing, extrasensory perception, telepathy, clairvoyance, psychometry, eidetic pictures, lucid dreams, synchronicity, precognition, retrognition...*), related presumably to relatively lower vital energies/weaker fields. This also provides explanation for transitional nature and difficult reproducibility of most of these phenomena in laboratory with non-trained persons [102,103] (as the conditions for them are spontaneously realized shortly every 1,5-2 hours, with periodicity of ultradian rhythms which govern interchange of normal and altered states of consciousness [1,2]).

It should be also noted that locally created *wormholes* might reveal the basis for explanation [1,2] of some paranormal *psychokinetic phenomena* [63,102,103,112] related to relatively higher vital energies/stronger fields. Namely, as wormholes are stabilized by so called *exotic matter* (vacuum fluctuations in strongly curved space-time of the wormhole tunnels) which pushes the wormhole's walls apart anti-gravitationally [93,94], this might account for some anti-gravitationally manifested psychokinetic phenomena [63,102,103,112] (*psychokinesis, levitation, poltergeist, mystery spots...*). On the other hand, the same mechanism which can achieve space-time tunnelling of displaced acupuncture ionic neural structure in paranormal transpersonal phenomena by virtue of relatively lower vital energies/weaker fields, provides also possibility for tunnelling more massive objects by using higher vital energies/stronger fields in transpersonally manifested psychokinetic phenomena [63,102,103,112] (*teleportation, materialization...*).

Note added in proof. Extraordinary psychokinetic (and healing) inborn abilities, vividly demonstrated recently by young Serbian boy whose breast is sticking metallic, plastic or glass objects weighted up to several kilograms (http://www.youtube.com/watch?v=faUJAgvvV_c), are supporting hereby revealed holistic quantum-holographic/quantum-gravitational theoretical framework for transpersonal, and particularly psychokinetic phenomena (in space-time transcending highly-noninertial strong-gravitation-equivalent transitional states of consciousness, based on locally created wormholes stabilized by so called exotic matter (vacuum fluctuations in strongly curved space-time of the wormhole tunnels) with anti-gravitational manifestations). This framework also suggests physical basis of von Neumann's *projection postulate* on micro-quantum scale, to account for quantum mechanical *wave packet collapse* (via locally quantum-gravitationally-induced wormholes in highly-noninertial strong-gravitation-equivalent quantum measurement-like situations).

6.4 Quantum-Holographic Macroscopic Aspects of Consciousness & Religious Implications

It should be pointed out, that in the context of *necessary conditions for decoherence* [120,121], defining of open quantum system and environment is – *simultaneous process* – so that in the context of universal validity of quantum mechanics consciousness is *relative concept*, non-locally also influenced by farther parts of existing observing universe (and *vice versa*) [122], simultaneously creating conditions for the process of decoherence in the context of *existing relative borderline*:

$$|\Phi\rangle_S |\Psi\rangle_E \equiv |(partial)individual/collective\ consciousness\rangle_S |(complementary)environment\rangle_E .$$

This is fully in accordance with the idea of *collective consciousness* as a possible *ontological property of the physical field itself* [1,2,12-14,17,29-35], with different micro-quantum and macro-quantum (both non-biological and biological, real and virtual) excitations. Then, as *cosmic collective consciousness*, coincident with the *field of Universe*, has its *complementary particle cosmic environment*, their strong-interaction-coupling

affects *decoherence of the field of cosmic collective consciousness* into stationary *classically-reduced (observing) stochastic state*, with probabilities of realizations of corresponding classically-decoherent states of cosmic collective consciousness; on the other hand, *cosmic composite quantum state* $|\Phi\rangle_S|\Psi\rangle_E$ evolves without collapse (due to absence of the complementary outside-cosmic environment!), which implies that *Universe as a whole is quantum hologram* subject to deterministic Schrödinger evolution [1,2,17,33,34]!

However, prayer-induced hypothetical macroscopic vacuum non-loaded spiritual excitations (whose exciting by prayers arises associations on *Holy Grace* as in-deterministic intervention in otherwise deterministic evolution of the quantum-holographic cosmic (and embedded human) History, which thus provides *essentially new boundary conditions*) might modify cosmic collective and thus cosmic composite quantum state $|\Phi'\rangle_S|\Psi'\rangle_E$, i.e. classically-reduced stochastic state of cosmic collective consciousness, so implying possibility of *prayer-optimized* [1,2,17,33,34] (most probable and energetically most convenient) *preferences of cosmic collective consciousness* (and conversely, on modification of the *cosmic-consciousness-observable* classically-reduced stochastic state of the complementary particle cosmic environment, implying possibility of *prayer-optimized preferences of future cosmic alternatives*).

From the above there appears that classically-reduced level is permanently emerging from and dissolving into quantum-holographic level, and this permanent pulsating is going on extremely fast, with observing Bohm's *explicate order* of classically-reduced mixtures of quantum-holographic reality *via* measuring devices/senses. On the other hand, non-stationary quantum-holographic reality of Bohm's *implicate order* of quantum superposition over product states of some complete set (*i*) of quantum system $|\Phi_i\rangle_S$ and complementary environment $|\Psi_i\rangle_E$ ($|\Phi(t)\rangle_S|\Psi(t)\rangle_E = \sum_i c_i |\Phi_i(t)\rangle_S |\Psi_i(t)\rangle_E$), might be observed *exclusively* in non-stationary quantum-coherent superpositions of states, characteristic of quantum-holographic creative-religious altered and transitional states of consciousness (individual $|\phi^k(t)\rangle_{S_k} = \sum_i c_{k_i} |\phi^{k_i}(t)\rangle_{S_k}$ or collective $|\Phi\rangle_S \sim \prod_k |\phi^k\rangle_{S_k} = \sum_i c_i |\Phi_i\rangle_S$). This viewpoint is close to experiences of many *shamanistic tribal traditions*, which consider that *genuine* (quantum-holographic) reality is represented by *dreams* [110,119], while (classically-reduced) awake state is lie/illusion (*maya*, as it is argued in *Eastern traditions* [66,64,71]).

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