

SCIENTIFIC BASES OF QUANTUM-HOLOGRAPHIC PARADIGM

Dejan Raković

Faculty of Electrical Engineering, University of Belgrade, Serbia;

International Anti-Stress Center (IASC), Belgrade, Serbia;

rakovicd@etf.bg.ac.yu ; www.iasc-bg.org.yu

Abstract—Quantum bases of consciousness and free will are considered with implications of 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). Implications for local and global psychosomatics, and religious and transpersonal phenomena, are considered too. Conditions for observation of quantum-coherent quantum-holographic implicate order and classically-reduced explicate order are also discussed.

Keywords—Quantum & Classical Hopfield-like Neural Networks; Free Will; Two Cognitive Modes of Consciousness: Quantum (Altered/Transitional States) & Classical (Normal States); Quantum Holography & Quantum Decoherence; Local & Global Psychosomatics; Religious & Transpersonal Implications; Implicate & Explicate Orders.

I. INTRODUCTION

In Talbot's excellent book *The Holographic Universe* [1], he refers to renown quantum physicist David Bohm [2] and neurophysiologist Karl Pribram [3], whose investigations imply that *Universe* might be a *giant quantum hologram*, a kind of *mind construct on the subject/object interface* – thus relativising a question *whether objective reality exists or fluctuate between implicate and explicate order!*? In his book, Talbot (himself extrasense!) argues that most of well documented *mysterious phenomena*:

- synchronicity, lucid dreams, eidetic pictures, multiple personalities,
- viewing and therapy of aura, visualizing, hypnotic and miraculous healings,
- mystical religious, out-of-body and near-death experiences,
- psychometry, precognition, extrasensory perception,
- psychokinesis, materialization, teleportation,

might be presumably explained in the framework of (still controversial) *quantum-holographic paradigm*.

Reading of this book provided to me a *great pleasure*, because of *my own explorations of quantum-holographic bases of consciousness and their fundamental cognitive-epistemological and psychosomatic-religious implications* [4-8] (with numerous *empirical/rational confirmations* I have associatively recognized by reading Talbot's book).

II. QUANTUM AND CLASSICAL NEURAL NETWORKS AND TWO COGNITIVE MODES OF CONSCIOUSNESS

So, *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 [4-6]: *weakly-coupled quantum-coherent direct one* (in religious/creative transitional and altered states of consciousness, like prayer, meditation, creative dozes, lucid dreams...) and *strongly-coupled classically-reduced indirect one* (in perceptively/rationally mediated normal states of consciousness, like sensory perception, logical and scientific thinking...) – *with conditions for mutual transformations* - and significant *religious and epistemological implications* related to re-gained strong coupling of quantum-holographic contents of consciousness with bodily-environment, classically-reducing directly obtained quantum-coherent informational content – thus explaining *in principal 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 implicate order of quantum-coherent (quantum-holographic) superpositions into explicate order of measured projective quantum and mixed classical states [4!]).

III. QUANTUM-HOLOGRAPHIC LOCAL AND GLOBAL PSYCHOSOMATIC IMPLICATIONS

The mentioned *analogy between mathematical formalisms of Hopfield's associative neural network* and *Feynman's propagator version of the Schrödinger equation* [10] implies that *collective consciousness* is possible *ontological property of the physical field itself* with various micro-quantum and macro-quantum (both non-biological and biological) excitations [4-6], which is widely spread thesis of *Eastern esoteric/religious traditions* [11] - and then *memory attractors of the quantum-holographic space-time network of collective consciousness* can be treated as *psychosomatic collective disorders* representing *(quantum)holistic field records* (including *interpersonal hesychastic-prayer finally-reprogrammable loads* [12]).

So it seems that the *whole psychosomatics is quantum hologram* [4-6], both on the level of *individual and collective consciousness*, which resembles on Hinduistic relationship *Brahman/Atman* ('*Atman is Brahman*' [13,14]), as wholeness and its part which bears information about wholeness. The mentioned quantum-holographic picture (Fig. 1) also implies that quantum-holographic hierarchical parts carry information on wholeness, enabling subtle *quantum-holographic fractal coupling* of various hierarchical biological and non-biological levels in Nature:

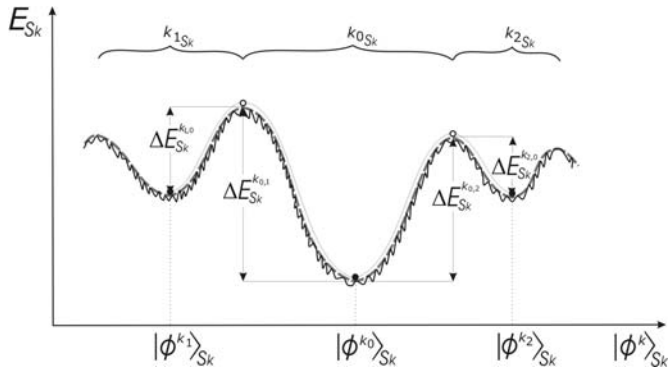


Fig. 1 Schematic presentation of the memory attractors in the energy-state ($E_{S_k}(\phi^{k_i})$) hypersurface of the *quantum-holographic memory/propagator of the open macroscopic quantum acupuncture system/consciousness* S_k [4-6]:

$$G^{(k)}(\mathbf{r}_2, t_2, \mathbf{r}_1, t_1) = \sum_i \phi^{(k_i)}(\mathbf{r}_2, t_2) \phi^{(k_i)}(\mathbf{r}_1, t_1)^* \\ = \sum_i A_{k_i}(\mathbf{r}_2, t_2) A_{k_i}(\mathbf{r}_1, t_1) e^{\frac{i}{\hbar}(\alpha_{k_i}(\mathbf{r}_2, t_2) - \alpha_{k_i}(\mathbf{r}_1, t_1))}$$

Then it should be pointed out that *quantum decoherence* presumably plays *fundamental role in biological quantum-holographic neural networks*, through presented *energy hypersurface shape adaptation* (in contrast to *low-temperature artificial qubit quantum processors* where it must be *avoided* until the very read-out act of quantum computation [15]!) – which implies that Nature presumably has chosen elegant *room-temperature solution for biological quantum-holographic information processing*, permanently *fluctuating* [16] *between quantum-coherent states*

$$\left| \phi^k(t) \right\rangle_{S_k} = \sum_i c_{k_i}(t) \left| \phi^{k_i} \right\rangle_{S_k} \quad \text{and classically-reduced states } \hat{\rho}_{S_k}^k(t) =$$

$$\sum_i |c_{k_i}(t)|^2 \left| \phi^{k_i} \right\rangle_{S_k} \left\langle \phi^{k_i} \right| \quad \text{of acupuncture system/}$$

consciousness S_k , through nonstationary interactions with out-of-body farther environment and through decoherence by bodily closer environment [4,5]. The same might be related to *lower hierarchical quantum-holographic macroscopic open quantum cellular enzyme-gene level*, which also functions on the level of permanent *quantum-conformational quantum-holographic like molecular recognition* – so that *quantum neural holography* combined with *quantum decoherence* might be *biophysical basis of (quantum)holistic local psychosomatics*, from the level of cell to the level of organism [4,17]. The above approach might be also generalized to *higher hierarchical level of quantum-holographic collective consciousness* and related *(quantum)holistic global psychosomatics*, with religious/social implications on necessity of transpersonal spiritual quantum-holographic removing of all unwilling side memory attractors (which non-reprogrammed by prayer will unless cause psychosomatic diseases and interpersonal fights in this and/or further generations they are transpersonally and unconsciously transferred to, on the level of collective consciousness [4-6]).

- *acupuncture-based-quantum-informational (un)intentional control of ontogenesis and morphogenesis*, starting from the first fertilized cell division which initializes differentiation of the acupuncture system of (electrical synaptic) "gap-junctions" [18];
- *meridian (psycho-energetic) therapies*, with very fast removing of persistent phobias, allergies and other psychosomatic disorders [19], demonstrating closest relationship of consciousness and acupuncture system;
- *quantum-holographic language-influence on the genes expression* [20], with implications of great psychosomatic significance of thought-emotional contents;
- *global fractal-information coupling of hierarchical levels in Nature* [21] (out of which the most fascinating is mathematical discovery of 'Bible Code' on the level of preferences of collective and individual history coded within The Old Testament – which might be interpreted as a consequence of *global quantum-holographic coupling of cosmic collective consciousness* (God!?) and *its every original manifestation* (including *The Old Testament*, as well as every *individual consciousness* (Tesla and Mozart as examples of *miraculous deep creativities* [5])) - which still *does not mean the strict determinism of the History* by the existing state of collective consciousness, whose memory attractors could (and should!) be *reprogrammed by hesychastic prayer for the others* thus removing interpersonal loads of the quantum-holographic Hopfield-like neural network of collective consciousness - so leaving the room for *free will and influence on the future preferences* [4-6,11,12,22]).

It should be pointed out that on both cellular and acupuncture levels, there exist *two* (interacting) macroscopic quantum subsystems – first with *modifying many-electron hypersurface* $E_e(\phi_e^{(k)})$ and second with *modifying EM multiphonon hypersurface* $E_v(\phi_v^{(k)})$.

In particular, dynamic modification of the many-electron energy-state hypersurface of the cell's \mathcal{N} -particle protein/substrate macroscopic quantum system, might be appropriately represented in the formalism of *second quantization* [23], which treats all \mathcal{N} protein-substrate complexes of the same type as *noninteracting but dynamically coupled system of \mathcal{N} indistinguishable quantum particles* (which is an *alternative* to their standard treatment as a quantum ensemble of \mathcal{N} noninteracting independent distinguishable particles – but this automatically provides a *plausible quantum-holistic* picture of biological cell, and especially *phenomenologically approved quantum-holographic coupling* of various hierarchical levels, from *biological cell-to-acupuncture system/consciousness-to-collective consciousness* [4-6,11,18-21]) – and considers such cell's protein-substrate \mathcal{N} -particle-quantum state in quantum-mechanical *occupational basis* (generally bosonic, because of protein-substrate integer spin due to even number of their covalent bonded electrons!), describing number of protein-substrate complexes occupying complete set of single-particle protein-substrate *isomeric/conformational states*: $|n_0 n_1 n_2 \dots\rangle_e$,

with conditions $\mathcal{N} = n_0 + n_1 + n_2 + \dots$ and $E_{S_{ke}} = n_0 E_e^{(0)} + n_1 E_e^{(1)} + n_2 E_e^{(2)} + \dots$ (where E_{S_k} is the many-electron energy of the total cell's protein-substrate \mathcal{N} -particle-isomeric/conformational state, while $E_e^{(0)}, E_e^{(1)}, E_e^{(2)} \dots$ are the many-electron energies of the protein-substrate single-particle quantum isomeric/conformational states 0, 1, 2, ...). An energy hypersurface of such protein-substrate \mathcal{N} -particle-isomeric/conformational state has a schematic representation of Fig. 1, where internal surface of every minimum is proportional to the partial energy ($n_i E_e^{(i)}$) of the i -th protein-substrate single-particle-isomeric/conformational state occupied by n_i isomers of the same form ($i = 0, 1, 2, \dots$), so that total energy ($E_{S_{ke}}$) of the cell's protein-substrate \mathcal{N} -particle-isomeric/conformational state is proportional to the sum of internal surfaces of the all minima of the hypersurface.

On the same line, regarding a multi-phonon energy-state hypersurface of the all possible protein-substrate isomeric/conformational states, requires their consideration in quantum-mechanical *occupational basis* (also bosonic, because of phonon's integer spin!) – describing number of phonons occupying complete set of single-particle *phonon states* of the all protein-substrate isomers/conformations: $\left| n_1^{(0)} n_2^{(0)} \dots n_{3N-6}^{(0)} n_1^{(1)} n_2^{(1)} \dots n_{3N-6}^{(1)} n_1^{(2)} n_2^{(2)} \dots n_{3N-6}^{(2)} \dots \right\rangle$, where every isomeric protein-substrate complex composed of N atoms has generally $3N-6$ vibrational degrees of freedom (phonon types), out of which every phonon state can be occupied by unlimited number of phonons (which is characteristic of all bosons, i.e. particles of integer spin). It should be pointed out that an energy hypersurface of multi-dimensional phonon quantum state has also a schematic representation of Fig. 1, with potentially unlimited number of phonons in every single-phonon state. This energy hypersurface of multi-phonon quantum state might also include low-energy long-range coherent microwave Frohlich excitations (created as a result of interaction of electronic and phonon isomeric subsystems – of particular significance in microwave resonance therapy (MRT) of a dynamic modification of the EM multi-phonon (and related many-electron) acupuncture macroscopic quantum subsystem [4,17]!).

For instance, in two-isomeric protein-substrate transitions $\phi_e^{(i)} \rightarrow \phi_e^{(f)}$ there appear *dynamic modification* of both *many electron \mathcal{N} -particle-isomeric/conformational state* and corresponding *EM multi-phonon hypersurface* $E_v(\phi_v^{(k)})$ of the cell's \mathcal{N} -particle *protein-substrate macroscopic quantum system* – in full analogy with training in Hopfield's associative neural networks.

So, on the cellular level of the \mathcal{N} -particle *protein-substrate macroscopic quantum system*, there would exist *two* (interacting) cell's *protein-substrate macroscopic quantum subsystems* – first with *modifying many-electron protein-substrate hypersurface* $E_e(\phi_e^{(k)})$ and second with *modifying EM multi-phonon protein-substrate hypersurface* $E_v(\phi_v^{(k)})$ – described by the second quantization Hamiltonian:

$$\begin{aligned} \hat{H} &= \hat{H}_{is}^{(0)} + \hat{H}_{ph}^{(0)} + \hat{H}_{int}^{is-E} + \hat{H}_{int}^{ph-E} + \hat{H}_{int}^{is-ph} \\ &= \sum_i E_{is}^{(i)} a_i^+ a_i + \sum_i \sum_{j=1}^{3N-6} E_{ph}^{(i,j)} b_{i,j}^+ b_{i,j} + H_{int}^{is-E} + H_{int}^{ph-E} + \hat{H}_{int}^{is-ph} \end{aligned}$$

in which a_i^+, a_i are creation and annihilation operators of the various many-electron protein-substrate isomeric/conformational states, $b_{i,j}^+, b_{i,j}$ are creation and annihilation operators of the various phonon states in all many-electron protein-substrate isomeric/conformational states, and \hat{H}_{int}^{is-E} is a model-dependent Hamiltonian of the many-electron protein-substrate isomeric-environment interactions, \hat{H}_{int}^{ph-E} is a model-dependent Hamiltonian of the many-electron protein-substrate isomeric phonon-environment interactions, and \hat{H}_{int}^{is-ph} is a model-dependent Hamiltonian of the many-electron protein-substrate isomeric-phonon interactions.

IV. QUANTUM-HOLOGRAPHIC RELIGIOUS AND TRANSPERSONAL IMPLICATIONS

Our theoretical investigations imply *real origin of religious and other transpersonal experiences* of various traditions of East and West [11,12] – and according to our elaborated theoretical relationship *consciousness/acupuncture* EM-ionic quantum-holographic Hopfield-like associative neural network [4-8], *esoteric notions* like *astral body (manomaya, lingasarira, manovijnana, ka, psyche, subtle body, psychic body, soul...)* and *mental body (vijjanamaya, suksmasarira, manas, ba, thymos, noetic body, spiritual body, spirit...)* [11,12] might be biophysically related to *out-of-body displaced part* (connected with the body by miniature 'wormhole' space-time tunnel) *of the ionic acupuncture system*, and with embedded *EM component* of ionic microwave ULF-modulated currents, respectively.

Then, *transpersonal interactions* [24-29] might be interpreted [4-8] 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) 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 complement 'particle' output* $|\Psi\rangle_E \rightarrow |\Psi_j\rangle_E$ *in quantum-gravitationally-induced and consciousness-channeled collapse:*

$$|\Phi\rangle_S |\Psi\rangle_E = \sum_i c_i |\Phi_i\rangle_S |\Psi_i\rangle_E \rightarrow |\Phi_j\rangle_S |\Psi_j\rangle_E.$$

It should be pointed out, that in the context of *necessary conditions for decoherence* [30], 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!*) [31], simultaneously creating conditions for the process of decoherence in the context of *existing relative borderline:*

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

This is fully in accordance with the idea of *collective consciousness* as a possible *ontological property of the physical field itself* [4-8], with different micro-quantum and macro-quantum (both non-biological and biological, real and virtual) excitations. Then, as *cosmic collective consciousness* $|\Phi\rangle_S \sim \prod_k |\phi^k\rangle_{S_k} = \sum_i c_i |\Phi_i\rangle_S$, coincident with the 'field' of

Universe, has its *complement 'particle' cosmic environment* $|\Psi\rangle_E = \sum_i c_i |\Psi_i\rangle_E$, their strong-interaction-coupling affects

decoherence of the 'field' of cosmic collective consciousness into stationary *classically-reduced (observing) stochastic state*, $\hat{\rho}_S = \sum_i |c_i|^2 |\Phi_i\rangle_{SS} \langle \Phi_i|$, with probabilities $|c_i|^2$ of

realizations of corresponding classically-decoherent states of cosmic collective consciousness; however, *cosmic composite quantum state* $|\Phi\rangle_S |\Psi\rangle_E$ *evolves without collapse (due to absence of the complement outside-cosmic environment!)*, which implies that *Universe as a whole is quantum hologram* subject to deterministic Schrödinger evolution [4,5]!

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 consciousness $|\Phi'\rangle_S \sim \prod_k |\phi'^k\rangle_{S_k}$ and thus cosmic composite quantum state

$|\Phi'\rangle_S |\Psi'\rangle_E$, i.e. classically-reduced stochastic state of cosmic collective consciousness $\hat{\rho}'_S = \sum_i |c'_i|^2 |\Phi'_i\rangle_{SS} \langle \Phi'_i|$, so implying

possibility of *prayer-optimized* [4] (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 complement "particle" cosmic environment $\hat{\rho}'_E = \sum_i |c'_i|^2 |\Psi'_i\rangle_{EE} \langle \Psi'_i|$, implying possibility of

prayer-optimized (most probable and energetically most convenient) *preferences of future cosmic alternatives!*)

V. IMPLICATE AND EXPLICATE ORDERS OF QUANTUM-HOLOGRAM AND THEIR OBSERVATION

From the above there appears that classically-reduced level of quantum system/consciousness $\hat{\rho}_S(t)$ or environment $\hat{\rho}_E(t)$, is permanently emerging from and dissolving into quantum-holographic level $|\Phi(t)\rangle_S |\Psi(t)\rangle_E$ (cf. Fig. 1), and this permanent pulsating is going on extremely fast - with observing Bohm's *explicate order* of either average state of so called classical mixtures (of quantum system/consciousness $\hat{\rho}_S(t)$ or environment $\hat{\rho}_E(t)$) of quantum-holographic reality

via classical measuring devices/senses, or classically-reduced so called stationary quantum states (quantum system/consciousness $|\Phi_i\rangle_S$ and environment $|\Psi_i\rangle_E$) via macroscopic semi-quantum measuring devices - while non-stationary quantum/holographic reality of Bohm's *implicate order*

$$|\Phi(t)\rangle_S |\Psi(t)\rangle_E \sim \prod_k |\phi^k(t)\rangle_{S_k} |\Psi(t)\rangle_E \\ = \sum_i c_i |\Phi_i(t)\rangle_S |\Psi_i(t)\rangle_E$$

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 $|\phi^k(t)\rangle_{S_k} = \sum_i c_{ki} |\phi^{ki}(t)\rangle_{S_k}$ or collective $|\Phi(t)\rangle_S = \sum_i c_i |\Phi_i(t)\rangle_S$). This viewpoint is close to

experiences of many *shamanistic tribal traditions*, which consider that *genuine* (quantum-holographic!) reality is represented by *dreams* [31], while (classically-reduced!) awake state is lie/illusion (*maya*, as it is argued in *Eastern traditions* [11,13,14])!

In the same context, necessity of direct quantum-holographic coupling of individual and cosmic collective consciousness in observing *implicate order* needs 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) [11,12] appear reasonable!

These results suggest necessity of *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) within the framework of the (sequentially) appearing *quantum-holistic paradigm* [1-51] - 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 decency, i.e. of both spiritual and civil morality [4-8]!

VI. CONCLUSION

In this paper, *quantum bases of consciousness* and *free will* are considered with implications of *two cognitive modes of individual consciousness* (the quantum-coherent direct one and the classically-reduced indirect one) - to which theoretical methods of associative neural networks and quantum neural holography, combined with quantum decoherence theory, might be applied.

The *direct cognitive mode* of individual consciousness might be related to weakly coupled consciousness-environment

communication, within the nonlocal quantum-holographic/quantum-gravitational Hopfield-like space-time network of collective consciousness (characteristic of quantum-coherent transitional and altered states of individual consciousness in religious-esoteric transpersonal communications, including anticipation in intuition, precognition, and deep creative insights), while the *indirect cognitive mode* of individual consciousness might be related to strongly coupled consciousness-body-environment communication via space-time limited perceptual sensations, further processed by classical/ electrochemical hierarchical neural networks and rationally filtered in conscious content by approximate empirical/artistic/scientific concepts dependent of cultural/scientific tradition and education of the inhabitants of some society (characteristic of classically-reduced normal states of individual consciousness in everyday communications - being *generally poorer* in information than full quantum-holographic awareness of spiritual/religious mystical experiences).

On these lines, the *conditions of transformations* of one cognitive mode into another in the context of *quantum-holographic quantum-coherent implicate order* and *classically-reduced explicate order* are also discussed, as well as the model of perceptually/rationally induced strong intentional backward classical/quantum/classical stationary/nonstationary/stationary hierarchical (inter)actions nervous/acupuncture/nervous systems - i.e. model of *free will*.

Implications for local and global psychosomatics are considered too, implying that the *whole psychosomatics is quantum hologram*, both on the level of *individual and collective consciousness*, which resembles on Hinduistic relationship *Brahman/Atman* ('*Atman is Brahman*') and implies that quantum-holographic hierarchical parts carry information on wholeness, enabling subtle *quantum-holographic fractal coupling* of different hierarchical levels: acupuncture-based quantum-informational (un)intentional control of ontogenesis and morphogenesis; meridian (psycho-energetic) therapies, with very fast removing of persistent phobias, allergies and other psychosomatic disorders; quantum-holographic language-influence on the genes expression, with implications of great psychosomatic significance of thought-emotional contents; and fractal-information coupling of different hierarchical levels in Nature, with fundamental holistic implications on the origins of *miraculous deep creativities* and *determinism of the History* by coupling to the existing evolving state of collective consciousness – whose memory attractors *could be* (and *should be!*) *reprogrammed by hesychastic prayer* for the others thus removing interpersonal loads of the quantum-holographic Hopfield-like neural network of collective consciousness.

This leaves the room for *free will and influence on the future preferences*, and implies indispensable *personal role and care* for collective mental environment!

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16. Although, from the viewpoint of von Neumann entropy ($S = -kTr(\hat{\rho}_{S_k}^{(k)} \ln \hat{\rho}_{S_k}^{(k)})$), transitions from ‘mixture state’ $\hat{\rho}_{S_k}^{(k)}(t)$ into ‘pure state’ $|\phi^{(k)}(t)\rangle_{S_k}$ under the influence of environment look like as entropy decreasing, it should be noted that $\hat{\rho}_{S_k}^{(k)}(t)$ are ‘reduced mixture states’ of the open quantum (sub)system S_k over degrees of freedom of its quantum environment E_k , i.e. they are ‘mixtures of second order’ – so that strictly speaking a description of the state of (sub)system S_k by ‘reduced statistical operator’ $\hat{\rho}_{S_k}^{(k)}(t)$ is more mathematical convenience than physical description (as in the framework of quantum decoherence theory it is strictly possible to define only a state of the total closed quantum system $S_k + E_k$, to which exact application of Schrodinger equation is only possible!) [15]. Besides, according to Prigogine theorem, an excitation of biological system far from equilibrium can give rise to an entropy decrease in the open non-equilibrium thermodynamic systems [8,9]!
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18. D. Djordjević, *Electrophysiological Investigations of Mechanisms of Reflexotherapy*, M.S. Thesis, Medical Faculty, Belgrade, 1995, Ch. 1.2, in Serbian; Group of authors, *Anti-Stress Holistic Handbook: With Fundamentals of Acupuncture, Microwave Resonance Therapy, Relaxation Massage, Aeroionotherapy, Autogenic Training, and Consciousness*, IASC, Belgrade, 1999, in Serbian.
19. Additional quantum-holographic support that acupuncture system is really related to consciousness is provided by novel *meridian (psycho-energetic) therapies*, with very fast removing of persistent phobias, allergies and other psychosomatic disorders (see R. J. Callahan, J. Callahan, *Thought Field Therapy and Trauma: Treatment and Theory*; Indian Wells, CA, 1996; R. J. Callahan, The impact of thought field therapy on heart rate variability (HRV), *J. Clin. Psychol.*; October 2001, www.interscience.Wiley.com; Ž. Mihajlović Slavinski, *PEAT and Neutralization of Primeval Polarities*; Belgrade, 2000) - whose simultaneous effects of *visualization of the psychosomatic problems* and *tapping/touching of some acupuncture points* might be interpreted as a “smearing” of memory attractors of the psychosomatic disorders, through successive imposing of new boundary conditions in the acupuncture energy-state space during visualizations of the psychosomatic problems [4,6].
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21. On *local quantum-holographic coupling* on the level of bodily acupuncture system and its numerous projection zones see: P. Ch. Vu, *Su Jok Self-Healer*, Balkan Su Jok Therapy Center, 2003, Serbian translation from Russian,

2001. For most fascinating manifestation of *global quantum-holographic coupling* on the level of preferences of collective and individual history coded within The Old Testament, see: D. Witztum, E. Rips, Y. Rosenberg, Equidistant letter sequences in The Book of Genesis, *Statistical Science*, Vol. 9, pp. 429-438, 1994, as well as: M. Drosnin, *The Bible Code*, Simon & Schuster, New York, 1997; M. Drosnin, *Bible Code II: The Countdown*, Viking Penguin, New York, 2002 - which might be interpreted as a consequence of the quantum-holographic nature of the cosmic collective consciousness (God!?) and its every original manifestation (including The Old Testament, as well as every individual consciousness) - which still does not mean the strict determinism of the History by coupling to the existing evolving state of collective consciousness, whose memory attractors could be reprogrammed by hesychastic prayer for the others thus removing interpersonal loads of the quantum-holographic Hopfield-like neural network of collective consciousness - so leaving the room for free will and influence on the future preferences [4,6]. On *fractal-information coupling of hierarchical levels* in Nature, see: M. Rakočević, The universal consciousness and the universal code, and Dj. Koruga, Information physics: In search of a scientific basis of consciousness; in: D. Raković, Dj. Koruga (eds) *Consciousness: Scientific Challenge of the 21st Century*, ECPD, Belgrade, 1995. On transpersonal experiences of *Tibetan traditional medicine*, see: S. Petrović, *Tibetan Medicine*; Narodna knjiga - Alfa, Belgrade, 2000, in Serbian - according to which an acupuncture procedure must be repeated every several months - presumably as a consequence of restituted patient's mental loads from his mental-transpersonal-environment of closely related family members and enemies, that remained non-reprogrammed on the level of quantum-holographic collective consciousness [4,6], which might be supported by Tibetan pulse diagnostics based on 20 pulses, enabling precise diagnosis of psychosomatic disorders not only of the patient himself but also of his family members and enemies. On discovery of unusual meta-relations between people from closer environment as a part of one unified dynamic informational network see: D. Kaluđerović, *Marriages*, Belgrade, 1992, in Serbian; D. Kaluđerović, *The Same Day*, Belgrade, in Serbian, 1994; D. Kaluđerović, *Love Story*, Belgrade, 1996, in Serbian.
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