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ON BIORESONANT PATTERN-QUA-ATTRACTORS & HEALING BOUNDARY CONDITIONS WITHIN QUANTUM-HOLOGRAPHIC PSYCHOSOMATICS

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Abstract. *The subject of this paper is quantum-informational Hopfield-like holographic framework for psychosomatics (i.e. Integrative medicine & Transpersonal psychology) and related bioresonant EM patterns-qua-attractors & healing boundary conditions. In the focus of their holistic methods are body's Acupuncture system & Consciousness. The presented quantum-holographic framework for psychosomatics might have significant holistic implications, providing better understanding of the nature of psychosomatic diseases.*

Keywords: *Hopfield-like quantum-holographic psychosomatics, acupuncture system, consciousness, downward causation, bioresonant patterns-qua-attractors, healing boundary conditions.*

The paper is organized as follows:

Section I introduces the **motivation for fundamental quantum-informational approach to holistic methods in contemporary Integrative medicine & Transpersonal psychology**, oriented to healing the person as a whole – but not disease as a symptom of disorder of the whole.

Section II outlines the author's **fundamental quantum-informational Hopfield-like holographic framework for psychosomatics**, implying that all Acupuncture-based & Consciousness-based approaches & techniques are essentially bioresonant.

Section III considers **bioresonant patterns-qua-attractors & healing boundary conditions in psychosomatics**.

Section IV concludes on **necessity of developing wider strategies for Acupuncture-based & Consciousness-based psychosomatics**.

I. INTRODUCTION

Increasing interest in quantum entanglement & decoherence – in non-equilibrium biological environments [1-3], quantum-informational biology [4], cognitive science and consciousness studies [5-12], quantum-informational roots of universe [13,14] & bioresonant EM QIM technologies [15] (in sharp contrast to pharmaceutical-oriented medicine technologies).

Motivated by growing experimental evidences & deep theoretical reasons – which cannot be accounted by the existing classical biological paradigm. Macroscopic quantum phenomena & Universality of quantum mechanics presumably need additional phenomenological assumptions [3,7] – in the manner of Quantum chemistry it might be proposed that Acupuncture system has dynamically coupled electrons all-along acupuncture macroscopic network(s).

Stress-induced psychosomatic diseases & Holistic methods for healing the person as a whole – suggesting their macroscopic quantum origin.

Acupuncture-based & Consciousness-based quantum-holistic methods – resulting in development of Integrative medicine [16] (www.imconsortium.org) & Transpersonal psychology [17] (www.atpweb.org).

Hopfield-like quantum-holographic neural network (HQHNN) structure of Acupuncture system & Consciousness [6-8] – within Feynman's propagator version of quantum mechanics (Peruš, 1995).

II. QUANTUM-HOLOGRAPHIC FRAMEWORK FOR PSYCHOSOMATICS.

OUTLINE:

Acupuncture system & Consciousness are only macro-quantum systems – Acupuncture system because of quantum-coherent characteristics of microwave diagnostics and therapy [18-25] & **Consciousness** because of indeterministic free will and holistic transitional and altered states of consciousness [7-12].

As any quantum system has HQHNN structure then – Acupuncture system / Consciousness has fundamental (not model-dependent!) informational structure of **HQHNN**, with **memory patterns-qua-attractors** (Peruš's term, implying encoding a specific information on several bottom-up and top-down bio-resonantly inter-connected hierarchical levels) treated as **psychosomatic states**, as biophysical basis of **Acupuncture-based & Consciousness-based psychosomatics** [24-29].

Then it is plausible to consider – healthy psychosomatic state as simplest informational state of lowest quantum entropy (with single memory pattern-qua-attractor) & disordered psychosomatic states as more complex states of higher quantum entropy (with additional side memory patterns-qua-attractors) (cf. Fig. 1).

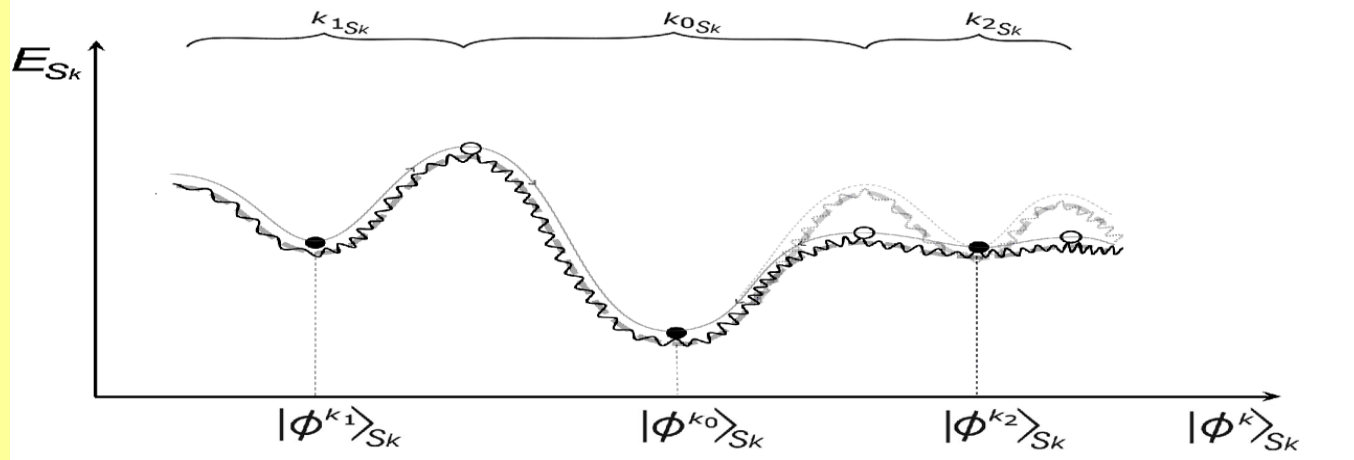


Figure 1. Schematic presentation of the adaptation of memory attractors in the energy-state ($E_{S_k}(\phi^k)$) hypersurface of the **quantum-holographic memory** of various hierarchical levels of biological **macroscopic open quantum systems** S_k (*local cell's biomolecular protein-target, local acupuncture system-consciousness, or nonlocal out-of-body consciousness-collective consciousness*) [24-26]:

$$G(r_2, t_2; r_1, t_1) = \sum_{i=1}^P \phi^{k_i}(r_2, t_2) \phi^{k_i*}(r_1, t_1) = \sum_{i=1}^P A_{k_i}(r_2, t_2) A_{k_i}^*(r_1, t_1) e^{\frac{i}{\hbar}(\alpha_{k_i}(r_2, t_2) - \alpha_{k_i}(r_1, t_1))}$$

It should be pointed out that Nature presumably has chosen elegant **biological room-temperature solution for quantum-holographic information processing**, permanently fluctuating between quantum-coherent $|\phi^k(t)\rangle_{S_k} =$

$\sum_i c_{k_i}(t) |\phi^{k_i}\rangle_{S_k}$ and classically-reduced $\widehat{\rho}_{S_k}^k(t) = \sum_i |c_{k_i}(t)|^2 |\phi^{k_i}\rangle_{S_k S_k} \langle \phi^{k_i}|$ states of the biological macroscopic open quantum system S_k , via non-stationary bioresonance interactions with out-of-body farther environment and through decoherence by bodily closer environment. Thus **quantum neural holography** combined with **quantum decoherence** might be very significant element of the **feedback bioinformatics**, from the level of cell – to the level of organism – and further to the level of collective consciousness, with **backward dynamic influence on the expression of genes**. This implies **necessity** of quantum-informational successive **bioresonant balancing** of all unwilling side memory attractors (like ϕ^{k_2} in the Figure), which would cause development of **psychosomatic diseases** on the individual level, and **interpersonal fights** in this and further generations on the collective level.

OUTLINE (continued):

In particular, considering **psychosomatic state** in generally **mixed quantum state**, described by **density matrix**:

$$\widehat{\rho}_{S_{kv}}^{(k)} = \sum_i |c_{k_i}|^2 |\phi_v^{(k_i)}\rangle_{S_{kv}} \langle \phi_v^{(k_i)}| \equiv \sum_i p_{k_i} |\phi_v^{(k_i)}\rangle_{S_{kv}} \langle \phi_v^{(k_i)}|$$

von Neumann's quantum-mechanical entropy $S = -k \text{Tr}(\widehat{\rho}_{S_{kv}}^{(k)} \ln \widehat{\rho}_{S_{kv}}^{(k)})$ reduces to **Shannon's classical entropy**: $S = -k \sum_i p_{k_i} \ln p_{k_i}$ [24,30].

Then, **entropy of pure-healthy state** of psychosomatic system (described by single k_0 -th term in superposition, of probability $p_{k_0} = 1$), would be $S_{k_0} = 0$ (as **pure quantum state** $\widehat{\rho}_{S_{kv}}^{(k_0)}$ provides **maximal possible information** about quantum psychosomatic system), while **entropy of mixed-disordered state** of psychosomatic system (described by full above superposition), would be $S_{\widehat{\rho}} > 0$ (as **mixed stochastic state** $\widehat{\rho}_{S_{kv}}^{(k)}$ provides **uncomplete information** about quantum psychosomatic system).

Thus, in this HQHNN framework, **psychosomatic healthy state** is the state of **minimal entropy**, while **psychosomatic disordered state** is the state of **increased entropy**. So, application of **psychosomatic therapies** naturally **decrease entropy** (degradation) i.e. **increase information** (organization) of macroscopic quantum psychosomatic system.

OUTLINE (continued):

Then, in the context of Acupuncture-based & Consciousness-based approaches & techniques [24-29], their **goal is bioresonant excitation of target's disordered palpatory-painful / psychologically-traumatic pattern-qua-attractors of acupuncture system / (individual) consciousness.**

This enables disordered initial patterns-qua-attractors to be one-by-one resonantly excited (similar to **annealing procedure** in ANNs [31]), becoming shallower & wider on account of deepening of (energy-dominating) pattern-qua-attractor of healthy quantum state (acupuncture palpatory painless / psychologically non-traumatic). So **balanced** information is then **quantum-holographically projected** on lower cellular level, thus **improving expression of genes** in morphogenesis.

But, when this process is **hindered by transpersonal entangled blockages** in energy-state space of EM field of acupuncture system / (individual & collective) consciousness (on significance of transpersonal experiences cf. [9,17]) – then memory attractors of HQHNN of **field-related collective consciousness** should be removed as well to **dis-entangle energy-informationally** all mental addresses included in the problem, with final goal to achieve **permanent healing** i.e. spiritual integration of personality [9,17,24-29].

Therefore, **all holistic** Acupuncture-based & Consciousness-based approaches & techniques could be treated as **quantum-informational therapies**, by imposing **new healing boundary conditions** in the energy-state space of acupuncture system / (individual & collective) consciousness.

OUTLINE (continued):

*In this general HQHNN framework, since **all successive quantum-holographic cellular enzymatic** biochemical reactions are **functionally inter-connected**, so are **successive HQHNNs in corresponding enzymes occupational bases** (confirmed also by statistical mechanic study, showing that dissipative metabolic network of different cellular enzymatic activities can behave as Hopfield-like attractor metabolic network [32]) – that may be presented in the form of **Haken's multi-level synergetic HQHNNs** [33] (with HQHNNs in the form of non-morphological / abstract 'formal neurons' massively interconnected by 'formal connections', quantum-holographically coupled via their 'patterns-qua-attractors' [3]).*

*It should be added, that **quantum nature of water** might mediate in **coupling quantum-informational intra-cellular & extra-cellular biochemical reactions** (this being possible quantum-informational basis of some intriguing **field-mediated self-organizing genetic experiments** [34,35]).*

*Such quantum-holographic framework of **Haken's multi-level synergetic HQHNNs**, representing coupled intra-cellular & extra-cellular biochemical reactions, is **in line with trends** of modeling hierarchical information processing **in higher cognitive processes** too [5-8,24-29].*

III. ON BIORESONANT PATTERNS-QUA-ATTRACTORS & HEALING BOUNDARY CONDITIONS IN PSYCHOSOMATICS

Our quantum-informational framework is also **indirectly supported** by **Resonant Recognition Model (RRM)** of biomolecular recognition [36,37], with current advances in experimental & computational drug discovery & design [38,39], and prediction & *in vitro* evaluation of anti-cancer cytotoxic effects of low intensity **FIR EM therapy** [40,41].

Within RRM context, **same characteristic single-electron RRM frequency** of protein(s) & corresponding target(s), presumably characterises not only **their biomolecular recognition**, but also their **macro-quantum biomolecular recognition on the level of biological cell** [24-26] – giving rise to many-electron energy-deepening of conformational final state & energy-shallowing of initial state on macroscopic quantum level of cell, i.e. to dynamic modification of many-electron energy-state hypersurface of cell's macroscopic quantum system.

These **RRM transitions** are theoretically predicted [43,44] & experimentally observed [45] in **wide frequency range** – which incorporates **IR radiation** (when vibrational excitations of ground many-electron hypersurface should be involved, including low-energy **long-range coherent MW Fröhlich excitations** [46,47], of particular significance in Acupuncture-based MW resonance therapy [18-21,24-26]) & **visible & UV radiation** (when higher electronic-vibrational excitations of many-electron hypersurfaces should be involved). The interpretations of **even lower bands** down to **MHz & KHz regions** were presented elsewhere [45-47].

The results of RRM model also imply that **biomolecular information processing** is going on in **inverse space** of Fourier spectra of primary sequences of biomolecules [36,37], **bearing resemblance** to quantum-holographic ideas that **cognitive information processing** is going in **inverse space** of Fourier spectra of perceptive stimuli [5], thus indirectly supporting picture of quantum-holographic **fractal coupling of hierarchical levels** in biological species, with significant psychosomatic implications mentioned in this paper.

As an illustration, **stress-induced** quantum-informational origin of cancers should be expected to be characterized by **tumor-specific patterns-qua-attractors** (with nonlinear coupling of different frequency modes in organism, having a tendency to destroy quasi-periodic movements with three and more frequencies – and to replace them with chaos [26]). Really, it was reported that patients had **numerous tumor-specific modulation frequencies** [48] in trials of **low-intensity amplitude modulated RF EM fields** to treat cancer patients (at precise modulation frequencies ranging from 0.1 Hz to 114 kHz [48-50]).

Although results of experiments on cancer cell cultures in laboratory suggest that low-level amplitude modulated RF EM fields interfere with activity of genes in cells [51], **exact biophysical mechanism for this process is still open** [51,52].

But, it is possible that organism might be considered as **quantum-informational hierarchy of patterns-qua-attractors in various frequency ranges**, thus sensitive for **bioresonant diagnostics and therapies** [18-26] & **self-organizing genetic experiments** [34,35] (and accounted by (bio)chemical transformations, formulated within framework of fundamental quantum chemistry [53]).

On these lines, **holistic clue for healing boundary conditions in energy-state space of acupuncture system / (individual & collective) consciousness** should be taken into account, with significant psychosomatic implications on necessity of **three front lines** of psychosomatic integrative medicine (cf. [24-29] for phenomenologically supporting refs therein): **(i) collective consciousness, (ii) acupuncture system / individual consciousness, and (iii) somatic level.**

It should be pointed out that **necessary activities in second & third levels, but neglect of first level**, would result in **further transpersonal transfer** of memory pattern-qua-attractors on the level of individual & collective consciousness in this & future generations. So, this implies **necessity to focus on origins** of many psychosomatic problems on underlying prenatal **trans-generational levels** (cf. [28,29] and refs therein).

It is worth noting that our macroscopic quantum-holographic informational framework is also supported by Susskind's fundamental **holographic principle** [13] according to which any (3D) physical system is isomorphic to holographic information embedded on its (2D) surface, which implies that full quantum-informational content of our 3D body could be **quantum-holographically contained in our 2D surface layer – bearing resemblance to traditional psychosomatic concepts** of energy-informational acupuncture system / (individual) consciousness [24-29].

IV. CONCLUSIONS

Quantum-informational HQHNN nature of psychosomatic diseases & Limitations of healing methods.

Applications of bioresonant patterns-qua-attractors & healing boundary conditions in Acupuncture-based & Consciousness-based psychosomatics.

Acupuncture-based & Consciousness-based HQHNN downward control mechanisms of embryogenesis / ontogenesis & morphogenesis.

Necessity for extended transpersonal HQHNN strategies of Integrative medicine & Transpersonal psychology.

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