The Sensitive Bioelectrical System in Humans
The Biophysical Basis of Water Memory

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Topics

- The Eccles Benveniste Debate
- From biometeorology to Farmacoelectrodynamics
- The Valenzi Preparata Debate on Bioelectrical system SEP (Skin electric Parameters) and QED
- The Chinese Meridian as a Simple BioCircuit Model with Ohm’s Law with quantum interaction
- Weak Interactions and Bohm-Arhanov on SEP
- From drug intolerances to SEP Driven therapy
- Work in progress for diagnostic and therapy
Understanding How Ion Channels Sense Mechanical Force (NASA source)

The electrical activity of cells is controlled by plasma membrane ion channels.

Ion channels are opened and closed, or “gated”, by chemical ligands, voltage differences across the membrane or mechanical forces. Mechanical sensitive channels play a central role in fundamental physiological processes such as the perception of sound, touch and gravity, coordination of muscle contractions, cell volume regulation, cell motility, regulation of systemic fluid balance and blood pressure. Alterations in the activity of mechanical sensitive ion channels may underlie certain physiological pathologies associated with space travel such as cardiac arrhythmias, disorders of systemic fluid balance, bone loss, hypotension and neurovestibular disturbances.
Vacuum and Coherence in Nature

Webinar, 25 July 2007

M. Tiengo

Il dolore: dalla materia alla mente.
L'ipotesi quantistica di John Eccles e la teoria della coerenza di Giuliano Preparata
The psycone coordinates exocitoses by means of quantum probability fields

Sir John Eccles

Emissione quantica
"In order to obtain this result (that is, for example, to be in good spirits, again, after having experienced melancholy), it is necessary to block the transit of certain nociceptive, or erroneous, impulses in our brain, or to favor others. This means to act principally and specifically on the activity of certain synapses (inevitably, of course, we also will disturb other synapses and networks that are not related at all to our primary objective, and we will provoke so-called collateral side effects). Again, it surprises us, I could even say that it astonishes us, if we think about the fact that a molecule (drug), extraneous to our body, goes to a great degree and in an extraordinarily short amount of time directly to those synapses, and not to others. There must be a recognition code between molecule and receptor, as there is between a key and its lock."
To students, I cite a metaphor of mine. Let's say that someone gives us a sack containing thousands and thousands of keys for locks in the city, and asks us to find the right locks for the right keys, a desperate undertaking that would require centuries and centuries of work. If, however, he also gave us the possibility to give each key its own recognition code (such as, the street address, the floor and the apartment number), things would be enormously simplified. It's just like this, when we administer a drug, and shortly thereafter we observe the appearance of the desired effect (clinical evidence). To know more about this (and this has been my research for several decades), we must apply the principles and the powerful mathematical models of quantum mechanics, since we enter into the surprising world of the atom and of subatomic particles where, we all know well, the logic of classical physics (Newtonian) are worth little, or nothing."
Molecular signaling

The Current Theory: "structural matching"

The 3D structure of ligand matches that of the receptor. Physical proximity induces receptor conformational changes which in turn triggers the cascade of events prompting cell function.

The Benveniste Theory: "electromagnetic signals"

Proximity favors resonance of ligand-receptor specific EM signals. Resonance serves as an *iperconductive mechanism* for activation changes which occur at all steps of the cascade inducing cell function.
Resonance Peak in the Current through the Solution

Fig. 2. Ionic current through aqueous glutamic acid (Glu) solution as a function of alternating magnetic field frequency at different values of static magnetic field. The alternating magnetic field frequency in Hz is plotted on the horizontal axis; the ionic current in nA is plotted on the vertical axis. The alternating field amplitude is 0.025 μT: a: static magnetic field $B_0 = 20 \mu$T; b: $B_0 = 30 \mu$T; c: $B_0 = 40 \mu$T; 1: Glu solution with pH = 2.85; 2: Glu solution with pH = 3.2; 3: water with pH 2.85.
Abstract

J. Benveniste had observed that highly dilute (and even in the absence of physical molecules) biological agents still triggered relevant biological systems. Some of these experiments were reproduced in three other laboratories. Further work showed that molecular activity in more than fifty biochemical systems and even in bacteria could be induced by electromagnetic signals transferred through water solutes. The sources of the electromagnetic signals were recording of specific biological activity. These results suggest that electromagnetic transmission of biochemical information can be stored in the electric dipole moments of water in close analogy to the manner in which magnetic moments store information on a computer disk. The electromagnetic transmission would enable in vivo transmissions of the specific information between two functional bio-molecules. In the present work, the physical nature of such biological information storage and retrieval in ordered quantum electromagnetic domains of water will be discussed.
FROM PAF TO MEMORY OF WATER

After discovery of PAF (1971) for several years, J. Benveniste had observed that highly dilute (over Avogadro’s limit, i.e. in the absence of any physical molecule) biological agents triggered relevant biological systems. Some of these experiments were reproduced in three external laboratories who cosigned the Nature article on the subject (Nature, 333 (1988) 816-818).

Later, several hundred experiments (and in the last years with the new technology digital EAV, Bicom, Mora, Qx Scio, Oberon, etc.) have confirmed ability to transfer to water, using an amplifier (Medical Hypotheses, 54 (2000) 33-39), the specific molecular activity of more than 50 substances, such as physiological and pharmacological agonists, antibodies (purified or in whole serum), antigens and even the specific signal of bacteria. Benveniste digitally recorded (sampling 44 kHz) specific biological activities on a computer. When “replayed” to water, plasma, target organs, cells, or to an antigen-antibody reaction, the recorded signal induces an effect characteristic of the original substance.

These results suggest an electromagnetic nature for the molecular signal. This signal, that is “memorized” and then carried by water, most likely enables in vivo transmission of the specific molecular information between two functional biomolecules.
LA MEMORIA DELL’ACQUA SBARCA A LUGANO

Arrivano alla Ludes gli archivi dello scienziato francese che indagò i meccanismi immunologici delle biomolecole

Vincenzo Valenzi, presidente della conferenza: «Rivalutare il suo contributo alla biologia e alla medicina pratici»

La chiave nei comportamenti delle particelle

LA PERCEZIONE DEL DOLORE E LA MECCANICA DEI QUANTI

di Mario Tenghe

ROMA - Il dolore è la presa di coscienza di una informazione nocicettiva. Il dolore, come processo fisiologico, può suddividersi in quattro fasi: rilevazione, trasmissione del nocicettore al cervello, distribuzione dei nuclei simili al cervello, ed infine integrazione delle informazioni. Le parti attive o attive tra il dolore, in maniera di integrazione delle informazioni emotivo-sensoriale e cognitiva, come avviene ad esempio in anestesia generale, o in una percezione emotiva di dolore, e come avviene ad esempio in anestesia generali, o in una percezione emotiva di dolore, e come avviene ad esempio in anestesia generali, o in una percezione emotiva di dolore, e come avviene ad esempio in anestesia generali, o in una percezione emotiva di dolore, e come avviene ad esempio in anestesia generali, o in una percezione emotiva di dolore, e come avviene ad esempio in anestesia generali, o in una percezione emotiva di dolore, e come avviene ad esempio in anestesia generali, o in una percezione emotiva di dolore, e come avviene ad esempio in anestesia generali, o in una percezione emotiva di dolore, e come avviene ad esempio in anestesia generali, o in una percezione emotiva di dolore, e come avviene ad esempio in anestesia generali, o in una percezione emotiva di dolore, e 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Nano-elements from pathogenic microorganisms

by Professor Luc Montagnier, M.D.*

There are many ways by which infectious agents can persist in their host, despite an adequate immune response of the latter and the medical use of strong inhibitors of their replication. Retroviruses have evolved to find the best solution in order to persist silent in the host cell by integrating their DNA into the cell DNA. But bacteria have also learned how to stay almost indefinitely in tissues or organs in a resting state, insensitive to antibiotics and poorly exposed to immune reactions. It is also a general property of pathogenic microorganisms to adapt their genome very rapidly to any targeted reaction against them, either endogenous (immune response) or exogenous (treatment). I will describe some new phenomenons occurring in bacteria and viruses which may contribute to the chronicity of many diseases and to the difficulties of eradicating their infectious origin.

The first is what can be best defined as genetic dispersion. When a mycoplasma suspension is filtered through filters of 100 and 20 nM, which are pore sizes much lower than the average size of these micro-organisms (300 nM), the filtrate is apparently sterile when it is cultured in synthetic medium or analysed by DNA PCR and nested DNA PCR. However when the filtrate is incubated with human T lymphocytes (previously checked for lack of infection by the mycoplasma), we detect again the resurgence of the mycoplasma with all its characteristics after 2 or 3 weeks of culture, even when the filtrate is diluted down to 10-6.

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Nano-elements from pathogenic microorganisms (2)

- Our current interpretation is that nanostructures existing in the filtrate each contain a piece of genetic information which can eventually reconstitute a whole infectious genome with the help of eukaryotic cells. This led us to explore the nature of such nanostructures and to discover another puzzling phenomenon, which may or may not be related to the first one: it is the generation of electromagnetic waves of low frequency (1000 to 5000 Hertz) by the filtrates of some bacterial species and viruses in appropriate aqueous dilutions. It is in fact a resonance emission subsequent to excitation by very low frequencies coming from the electromagnetic background.

- Classical pathogenic bacteria such as E. Coli, Staphylococcus, Streptococcus, Clostridium, etc., as well as mycoplasma and viruses like HIV, are sources of the structures emitting the signals. These signals are approximately all similar, although a more refined analysis may find species-specific differences. The plasmas of individuals chronically infected by the same agents also yield similar signals. The nature and significance for pathogenesis of the molecules involved will be discussed.
The case of HIV/AIDS
(in collaboration with CIRBA, Ivory Coast)
African patients, generally infected with the A/G HIV1 subtype
(in vitro: CEM cells infected with HIV1 Lai)
Plasma from patient with Alzheimer Disease EMS (+) between $10^{-6}$ and $10^{-11}$
Biological Sensitive System

Ag/Ab Precipitation

Detection System: *E. coli*

Transmitted Signal: *Streptococcus*

Aggregation index: 30

Detection System: *E. coli*

Transmitted Signal: *E. coli*

Aggregation index: 185

Source: Rome Benveniste conference, 13 December 2002
From Biometeorology a Key for the Comprehension of Bioelectromagnetic Interaction

On the role of S.E.P. (Skin Electric Parameters) in the study of meteoropathies
QED & Medicine
Past and future in medicine
Effects of ELF magnetic fields on living matter
Coherent mechanism in interaction of electromagnetic radiation with biological system
What an electromagnetic biology could teach us
Neurobiology and Quantum Electro Dynamics (QED)
coherence of mental state
Coherent system in biology
QED and Medical practice
From drug intolerance to a SEP (Skin Electric Parameters)
driven therapy. Some preliminary observation.

Editors: Vincenzo I. Valenzi, Baldassare Messina
Published on Rivista di Biologia/Biology Forum, 93/2000
METEOROPATHIES

**PRIMARY**: NOT RELATED TO ANY OTHER DISEASES - THEY CONCERN THE “METEOROSENSIBILITY”

**SECONDARY**: THE EXACERBATION OF OTHER PATHOLOGIES - FOR EXAMPLE RHEUMATIC OR BREATH DISEASES

**Atmospheric factors implicate:**
Pressure, Humidity, Wind, solar radiation, electromagnetic field, air pollution etc.

Ippocrate, Dell’acqua dei luoghi e dei venti.
G. Piccardi, Proceeding du Simposium international sur les relations entre phenomena solaires et terrestres en che mie.phisique en biologie, Bruxelles, 8-10 octobre 1958.
The role of chemical antropics components in meteoropatology

### Sources, levels and effects on human health

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Sources</th>
<th>Acceptable level</th>
<th>Attention level</th>
<th>Alarm level</th>
<th>Effects on health</th>
</tr>
</thead>
<tbody>
<tr>
<td>SO₂</td>
<td>Oil and petroleum combustion</td>
<td>100 µg/m² (24-hrs average)</td>
<td>250 µg/m² (24-hrs average)</td>
<td>600 µg/m² (hourly average)</td>
<td>Increasing or mortality; Increasing or hospitalization for respiratory treatment</td>
</tr>
<tr>
<td>NO₂</td>
<td>Autovehicular traffic and combustion plant</td>
<td>135 µg/m² (hourly average)</td>
<td>200 µg/m² (hourly average)</td>
<td>400 µg/m² (hourly average)</td>
<td>Increasing or mortality; Increasing or hospitalization for respiratory treatment and asthma</td>
</tr>
<tr>
<td>CO</td>
<td>Autovehicular traffic and petroleum combustion</td>
<td>10 mg/m³ (3-hrs average)</td>
<td>30 mg/m³ (hourly average)</td>
<td></td>
<td>Increasing or mortality; Increasing or hospitalization for respiratory and cardio diseases</td>
</tr>
<tr>
<td>Ozone</td>
<td>Photochemical reactions</td>
<td>130 µg/m³ (hourly average)</td>
<td>180 µg/m³ (hourly average)</td>
<td>360 µg/m³ (hourly average)</td>
<td>Increasing or mortality; Increasing or hospitalization for respiratory treatment</td>
</tr>
<tr>
<td>PM10</td>
<td>Autovehicular traffic</td>
<td>40 µg/m³ (hourly average)</td>
<td></td>
<td></td>
<td>Increasing or mortality, especially for respiratory diseases</td>
</tr>
</tbody>
</table>
# Ions and Perception in Different Location

<table>
<thead>
<tr>
<th>Place</th>
<th>( n^- ) ions</th>
<th>( n^+ ) ions</th>
<th>( n^- / n^+ ) ratio</th>
<th>Smal ions (( K \geq 1 )) %</th>
<th>Big ions (( K &lt; 1 )) %</th>
<th>Best and worst perception</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country, sun, sea, level</td>
<td>306.7</td>
<td>251.6</td>
<td>1.21</td>
<td>88.0</td>
<td>12.0</td>
<td>+++</td>
</tr>
<tr>
<td>Sea, quiet, no wind</td>
<td>436.7</td>
<td>354.4</td>
<td>1.23</td>
<td>84.7</td>
<td>15.3</td>
<td>++++</td>
</tr>
<tr>
<td>Mountain 2000 m</td>
<td>560.3</td>
<td>602.5</td>
<td>0.92</td>
<td>92.0</td>
<td>8.0</td>
<td>++++</td>
</tr>
<tr>
<td>Town street no traffic</td>
<td>120.5</td>
<td>108.7</td>
<td>1.10</td>
<td>66.0</td>
<td>44.0</td>
<td>+++</td>
</tr>
<tr>
<td>Town street traffic</td>
<td>30.8</td>
<td>150.4</td>
<td>0.20</td>
<td>25.0</td>
<td>75.0</td>
<td>+</td>
</tr>
</tbody>
</table>
Another valuable parameter starting by Chyzhevsky


*Inquinamento atmosferico e ionizzazione in due siti dell'Italia centrale.*

BREATHLESSNESS AND PERTURBATED WEATHER
What are the Skin Electric Parameters (SEPs) or BAP?

They are electrical measurement made, with an ohmmeter, on the skin Chinese meridians, studied as circuit a variable resistance, in answer to physical signals measurable (Meteorological, magnetic and electric fields, drug, etc) and not measurable (vector potential, etc.).
The Skin Electric Parameters (SEP) in the Meteoropathies

<table>
<thead>
<tr>
<th>Ohm</th>
<th>Valore US</th>
</tr>
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<tbody>
<tr>
<td>10 000</td>
<td>91</td>
</tr>
<tr>
<td>27 000</td>
<td>78</td>
</tr>
<tr>
<td>39000</td>
<td>70.5</td>
</tr>
<tr>
<td>47000</td>
<td>66.5</td>
</tr>
<tr>
<td>95000</td>
<td>50</td>
</tr>
<tr>
<td>100 000</td>
<td>48</td>
</tr>
<tr>
<td>130000</td>
<td>43</td>
</tr>
<tr>
<td>200000</td>
<td>32</td>
</tr>
<tr>
<td>220 000</td>
<td>29</td>
</tr>
<tr>
<td>300000</td>
<td>24</td>
</tr>
<tr>
<td>560 000</td>
<td>14</td>
</tr>
<tr>
<td>1000 000</td>
<td>8</td>
</tr>
</tbody>
</table>
The Ohm Law in Therapy and Biology

- Measures highlighted in subjects with meteoropathies and various pathologies, that the electrical resistance increased in physical electric circuits with a medium of about 43 scale units of SEP corresponding to 130,000 Ω.

- After the administration of a coherent therapy, we saw a resistance fall in medium at 39,000 Ω (70 us), with an improvement of bioelectric performance due to an increase of physical electric currents, in accordance with Ohm’s law, $I = \frac{V}{R}$

- Power in the biological system vary with $W = V \times I$, with functional correlations (performance status, immunological status, muscle power, pain, inflammation, allergy, dyspnea, etc.)
Effects on the conductivity by magnetic field of cell phone antenna 10 V/mt - 900 GHz on seven men exposed in an amagnetic room.
Spa therapy effects on SEP

![Graph showing spa therapy effects on SEP]

- SEP-Fegato
- SEP-Fegato+Fango Epatico

The graph illustrates the effects of spa therapy on SEP, with two conditions: SEP-Fegato and SEP-Fegato+Fango Epatico. The y-axis represents a percentage scale from 0 to 100, and the x-axis represents time intervals from 1 to 12.
Mud therapy and rheumatic meteoropathic pain: muds are not all the same!
SEP variations on subjects with chronic constipation in hydroponic treatment

A. Pisani, V.I. Valenzi, M.C. Lucchetta, M. Grassi, A. Serio, P. Avino, M.V. Russo, A. Fraioli

VII International Conference “Cosmos and Biosphere”, 1-6 October 2007, Sudak, Crimea
Skin Electric Parameters

**DRUG EFFICACY AND/OR INTOLERANCE IN METEOROPATHIC OSTEOARTICULAR DISEASES WITH 8 FANS TESTED**

http://web.tiscali.it/numedi/arc2002/0902/12.html

V.I. Valenzi and M.L.Roseghini

**Without drugs**

**After Nimesulide 1,5 cm max far from body**
A fundamental progress for understanding the relationship between a drug and the cell components has been achieved when the concept of “drug receptor” has been formulated.

Paul Ehrlich (1845-1915) deserves the merit of having the insight that the effect of drugs could be understood against as the consequence of their chemical interaction with the tissue. Then he stood against the “vitalistic” approach, still deeply rooted in the early years of the century; the basic tenet of “vitalism” was that the effectiveness and specificity of drug could not arise from the laws of physics and chemistry, but would require the active presence of some supposed “vital forces”, Ehrlich (3), on the contrary, stressed that, to be effective, the molecular components of a drug should “bind” to some specific component of the cell. He defined accordingly the receptors as “the active group of molecule of the protoplasm where it is possible to bind a corresponding chemical group of a molecule not belonging to the protoplasm>>. To better explain this concept he proposed the suggestive definition of a <<magic bullet>> able to hit its specific target (the “receptor”) in the crowd of chemical components of the living organism.
Drug intolerance

- However the “magic bullet” is not always able to get the target. Frequently, in spite of the ceaseless progresses of pharmacology, adverse and intolerance against the drugs may occur and produce situations where a careful evaluation of the risk/benefit ratio of the use of the drug is mandatory. A fraction as the 70/75% of the disease induced by drugs cannot admit any explanation in terms of the usual immunological reactions, although those symptoms were induced by drugs which were well known allergens. In these cases the disease has been christened as “pseudo-allergy” or drug intolerance. The drugs which elicit largest pseudo-allergic response are the antiinflammation non steroid ones, some antibiotics, the local anaesthetics etc.

- The most frequent symptoms are quite similar to exhibited by “real” allergic reactions, but less intense and acute. In the “real” allergies the typical diagnostic probes are the skin reactions, the nose and mouth stimulation tests, the measurement of the specific IgE (Rast), the “in vitro” lymphocitary blastization and others.
An electromagnetic (e.m.) mechanism could underlie these strange pseudo-allergies

- In the last four years, Dr Umberto Grieco (see his contribution to this meeting) has made us familiar with the experiences of the Voll Electroacupunture, that have achieved surprising successes in the diagnosis of the food and drug intolerance. After many exchanges with Umberto and a number of tests at the Centre of Immuno-allergology led by prof. Franco Filiaci, we were convinced that a controlled investigation was useful with the aim of checking these surprising phenomena.

- In a nutshell, the appearance of electric voltage on the skin suggested that an electromagnetic (e.m.) mechanism could underlie these strange pseudo-allergies; since these symptoms were the effects of drug, the intriguing possibility arose that the molecules of drugs could extrinsecate an e.m. action apart from the universally accepted chemical action.
This equipment measures the electric conductance in the body along paths which coincide with the meridians as recognised by Chinese acupuncture.

- In order to probe this possibility, in the 1998-99 many discussions occurred in the Rome medical research community, which have included, among other, Dr Paolo Cascino, Prof. Baldassare Messina, Prof. Maria Luisa Roseghini, prof. Franco Filiaci and prof. Vincenzo Martinelli. The practical outcome of these debates has been the start-up in April ’99 of a wide-range research program, run by the Surgeon Department of the University of Rome “La Sapienza”, on a population of patients provided by Italian Treasury Police (Guardia di Finanza).

- The object of the research is the systematic measurement of the skin electric parameters and the search for correlation’s with the existence of food and drug intolerance.

- In the first experiments an EAV-Voll Electric acupuncture equipment has been used. This equipment measures the electric conductance in the body along paths which coincide with the meridians as recognised by Chinese acupuncture.

- Notice that the present understanding of the skin electrophysiological effects does not yet allow a satisfactory modelling of the phenomenon and, furthermore, the instrumentations, which is produced mainly in Germany, is not yet so reliable to guarantee a complete reproducibility of the tests. It in thus mandatory to correlate the EAV data with the usual clinical and diagnostic results.
Outlook of the research on SEPs driven therapy

The pilot study program has involved so far more than 250 volunteers and the crossing of the EAV and clinical evidence has opened a new horizon to the drug therapies.

The preliminary results, to be checked further with double blind tests, show a dramatic improvement of the risk/benefit ratio by the avoidance of the drugs which exhibit lowering of these adverse reactions by a skilful use of the EAV techniques.
The main problems for deciphering the physic dynamics play between chemical drugs and the body electric conductance.

We have observed how drug and food introduction in biological system, can increase or decrease the coherence of the system measured with the SEPs.

Analogous to what occurs in super conductive materials (see volume “From quark to crystals” of Giuliano Preparata) an increase of coherence is associated to phenomenon of high conductance.

It is in this way that we observe that an efficient drug produces, in the electrical circuit of the human body, an increase of conductance of approximately 30÷70%, correlated to an increase of energetic power provable with “chinesiological” tests and impressionable clinical improvements.

This was the rationale of Meeting on the possible role of Quantum ElectroDynamics (QED) in Medicine. We invited Giuliano Preparata and Emilio Del Giudice in order they helped us to understand by the QED mechanism, how drugs could show an action at-a-distance, which should underlie the body electric phenomena and open new ways to the drug electrodynamics.
An project of research that try “little heroes”

In the last study in preparation of double blind trial, we have observed in twenty allergic patients, that the association of an antihistaminic drug (loratidine, mizolastine, cetirizine, etc.) with a cortisone drug (betametasone, mometasone, deflazacort), driven from the SEP, gives an 90/% of regression of the symptoms allergic (rhinitis, etc.).

These results are obtained from patients without intake of drug, but using drug for electrodynamics action, with application of drug external to the body.

The development of intolerance to drugs seems strongly correlated to the fall of the conductance in the body.

The substitution of drugs with the improvements of conductance, is correlate to immediate regression of intolerance and allergic symptoms.
BAP or SEP Driven Therapy

Drugs, electromagnetic fields (High and Low), thermal therapy are active in electric circuits in humans and we can improve our ability to analyze environment influences, physiopathology state and driven therapy.

- Very extremely low signal (as in Benveniste experiment).
- farmaco electrodynamics observations-
- Morell’s test of drug.

- We need of more complex theoretical basis, that could be found via the BOHM AHRANOV effects in resistive networks in the field of quantum theory?

May be

Ahranov and Bohm: *Significance of electromagnetic potential in the quantum theory*” Physical Review 1959
The Potential Vector extends to a nearby large area, without transporting energy but just information, exerting a “fine influence”, we could say “informatica”, that alters the phase of the present coherent systems.

Giuliano Preparata & Emilio Del Giudice
(Scienza e Conoscenza, 17/2006)
Quantum Coherent Interactions

Luca Gamberale
Pirelli Labs – Materials Innovation Advanced Research
(Milano, Italy)

N scatters
Quantum incoherent
Cross section like N
Quantum coherent
Cross section like N^2

Quantum phase

N~10^{23}

!!!
Vector Potential in Puthof’s Patent 5845220

- "with advent of quantum theory, however, the traditional picture change. In the prior art literature, the (vector and Scalar potentials A and $\phi$) formalism has emerged as more fundamental because it predicts certain quantum interferer effects that have been observed and are not apparent from the (E, B) approach. This difference was first set forth in an unequivocal way in a seminal 1959 paper by Ahranov and Bohm, entitled *Significance of electromagnetic potential in the quantum theory*” Physical Review 1959 and 1961.

- In these papers it is shown that in certain two-leg electron-interferometer configuration in which the potential A and $\phi$ are established in a region of space, but B and E are absent. It is nonetheless possible for the potentials A and $\phi$ induce changes in electron quantum interference patterns.

- That is, electron that are in an electromagnetic field-free region and therefore do not encounter an electric or magnetic field are nonetheless acted upon by the presence of the A and or the $\phi$ potentials.
Vector Potential in Puthof’s Patent(2)

- Such an effect is now referred to broadly as a Ahranov-Bohm effect, and devices have been built which demonstrate this effect in laboratory. For a recent overview, see, Y Imry and R. A. Webb, “Quantum interference and the Ahranov-Bohm effect” Scientific American” 260 (April 1989).

- A second quantum interference effect demonstrate the independent reality of the $(A,\phi)$ potentials in the absence of the $(E,B)$ fields (and one which is significant for the technology disclosed by Puthof) is a single-leg electron interferometer effect known as the Josephson effect; see R.P. Feynman,. The Feynman Lectures on Physics 1965) The Josephson effect is based on the fact that the current density $J$ through a Josephson Junction (which consist of two superconductors separate by a thin insulator) is determined by the magnitude of the potential $A$ and $\phi$, independent of whether $E$ or $B$ are present.
Conclusion 1

From Maxwell to Bohm-Arhanov, from Josephson to Puthof and Del Giudice-Preparata, many scientists have developed works, published on Physical Review, won Nobel Prizes, and developed patents and new technologies.

It is time to develop a large controlled study to give scientists, medical doctors, governments, patients, a new opportunity for diagnostic and driven pharmacotherapy for improving the ratio of risk/benefits and costs/benefits. BAP or SEP way.
Conclusion (2 LM)

Application to Diagnostic
And
Monitoring of Therapies

Blood safety

Prevention of nosocomial diseases

Detection of microbial agents in chronic diseases

Neurodegenerative diseases and psychiatric
Arthritis
Cardiovascular
Cancer

Biomarker of HIV reservoir which remains after tritherapy
Conclusion (3)

We have, together nervous system, a new (or very old..... the Chinese meridian) Sensitive Bioelectrical System that answer to the Ohm’s Law?

Thanks for your attention and your contribution!

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