



PULSED TECHNOLOGIES

The Science of Bioenergetic & Bioelectric Technologies

and other Resonant Frequency Concepts

Jimmie L. Holman & Paul V. Dorneanu





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WHAT IS THE DIFFERENCE ?



**Between
THIS**



And THIS

It's THIS !!!

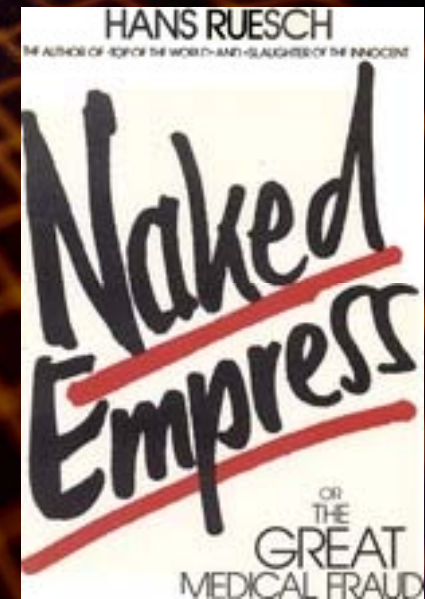


- With Electro-medicine THIS largely goes away

Hans Ruesch

"Even the most independent newspapers are dependent on their press associations for their national news. And there is no reason for a news editor to suspect that a story cooking over the wires of the Associated Press, the United Press or the International News Service, is censored when it concerns health matters. Yet this is what happens constantly... The *Journal of the American Medical Association* (JAMA), the organ of the Medical Syndicate in the U.S., had bragged as far back as January 20, 1940, that the United Press had been induced to issue a directive requiring all articles on cures and human health to 'be cleared' through its New York bureau and 'science editors.'"

Hans Ruesch, 1982, *Naked Empress* p102





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PART 1 - INTRODUCTION & FOUNDATION

Jimmie L. Holman & Paul V. Dorneanu





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PART 1 - INTRODUCTION & FOUNDATION

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The People

WHO and WHERE we are



Jimmie L. Holman

Dallas, Texas, USA



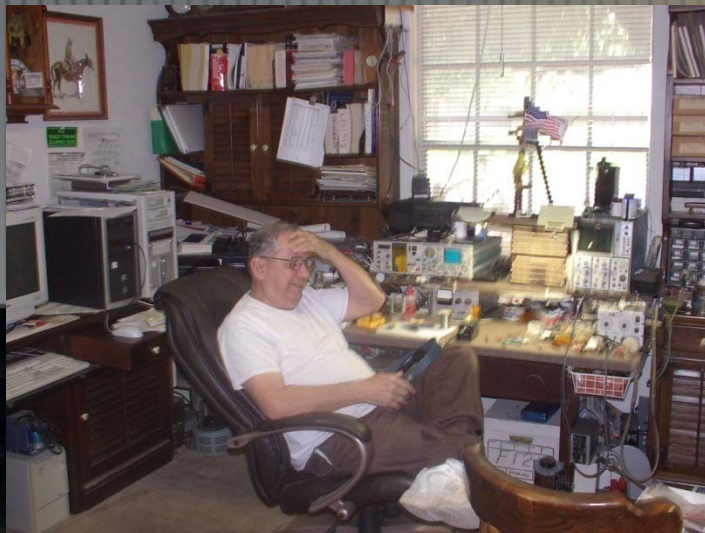
Paul Dorneanu

Bucharest, Romania



Jimmie L. Holman, Sr.

Plano, TX, USA





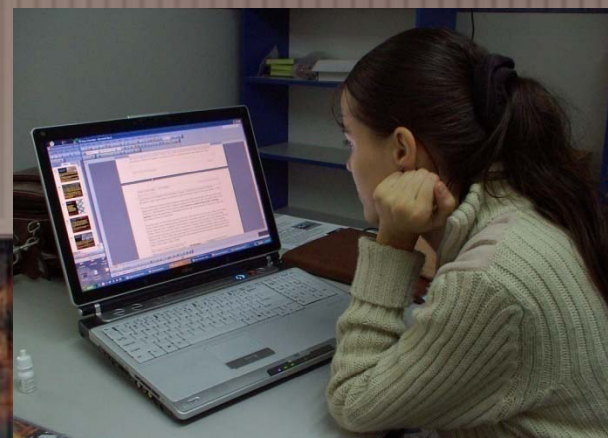
Florin Sirbu

Bucharest, Romania



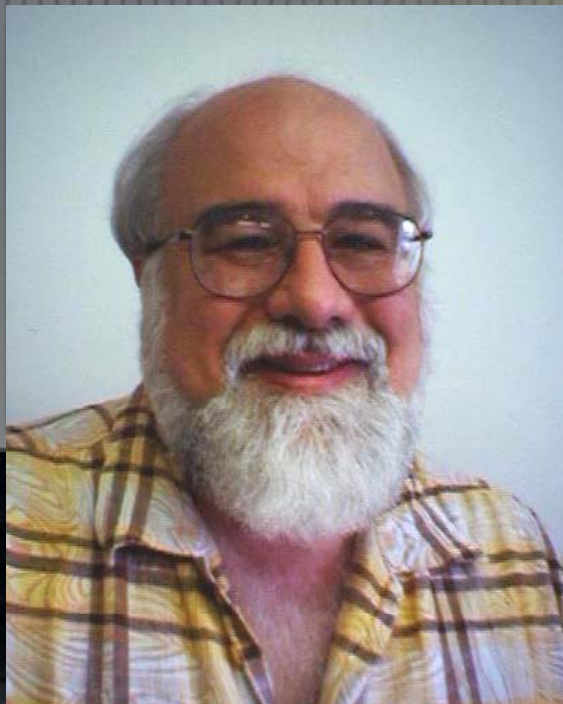
& Others

Romania



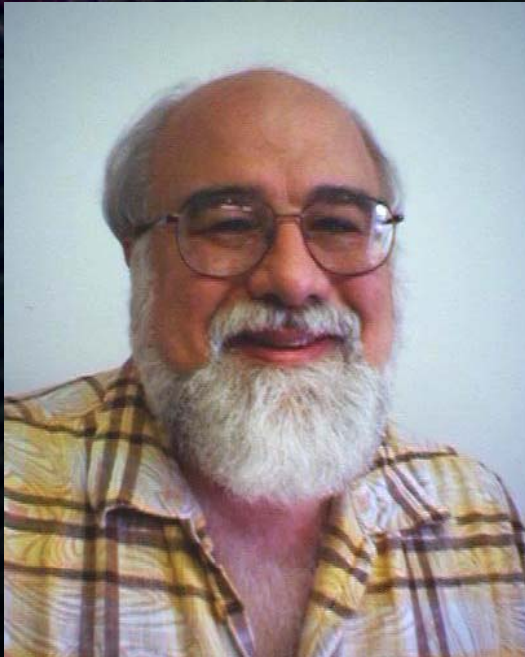
Dr. Steve Haltiwanger MD. CCN

Consultant, USA



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Dr. Steve Haltiwanger, M.D., C.C.N



The Electrical Properties Of Cancer And Disruption Of The Living Hologram:

By: Steve Haltiwanger, M.D., C.C.N.

Subtitle: The Truth is Out There

9/23/2003

Cell Membrane Health And Electronic Nutrition™

by Steve Haltiwanger MD

Biological Energy And Electronic Nutrition

by Steve Haltiwanger MD

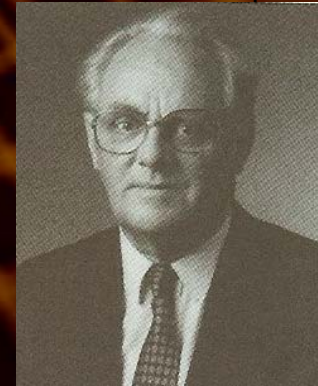
The Science of Phototherapy

Steve Haltiwanger, M.D., C.C.N.

1

- Dr. Haltiwanger has several detailed presentations dealing with both the electrical and nutritional relationships of the biological processes
- Dr. Haltiwanger worked with renown Dr. Hans Neiper in Germany

Dr. Hans Neiper



A stylized, modern interpretation of Leonardo da Vinci's Vitruvian Man. The figure is rendered in a light pink color with dark grey wings and limbs. It is centered within a white square, which is itself inside a larger orange circle. A thick pink horizontal line passes through the center of the figure's chest. A thick pink vertical line passes through the center of the figure's torso. A thick pink curved line arches over the figure's head. Two small pink circles are positioned at the bottom right of the white square. The background of the entire image is a dark, textured grid with a blue and green gradient.

Societatea de Medicina Bioenergoinformationala

"PUZZLE PIECES"



- Many of the key puzzle pieces are all around us in the very basic scientific foundations & history
- We may however have to examine from a slightly different perspective than classical training.





The Foundations & History

of the Science

Electromedicine

- By **9000 BC**, bracelets, necklaces, magnetic loadstones, common use, being worn or applied for healthful intentions. [Schechter 1971]
- **46 A.D.** the Greek physician Scribonious Largus prescribed the "seashore treatment"
- Violet Ray technology used throughout early and **mid 20th century.**



Rife/Tesla/Galvani (*video*)

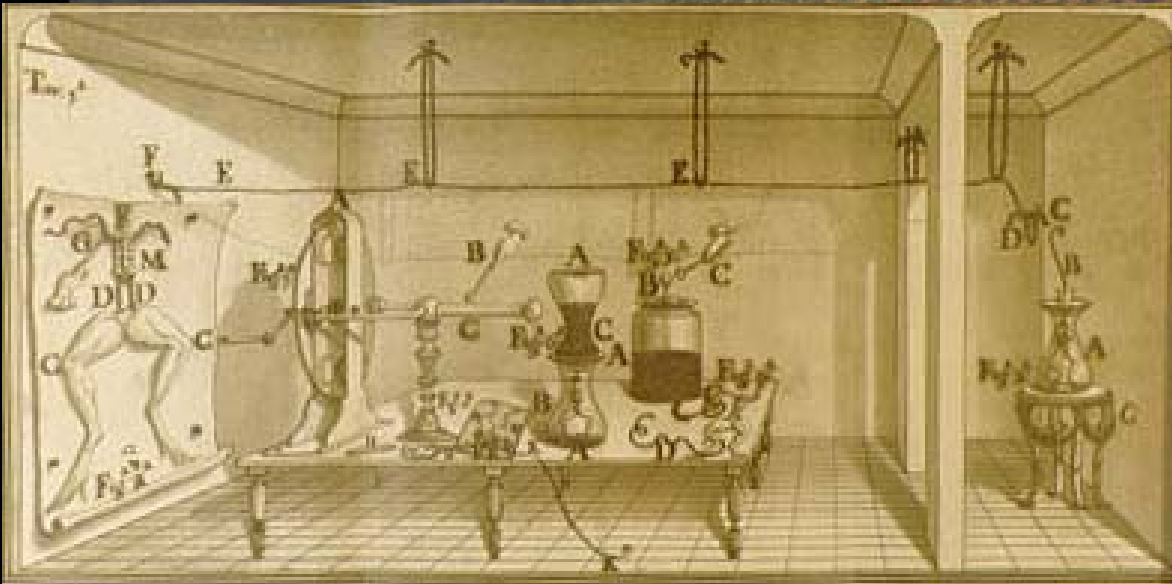


Luigi Galvani

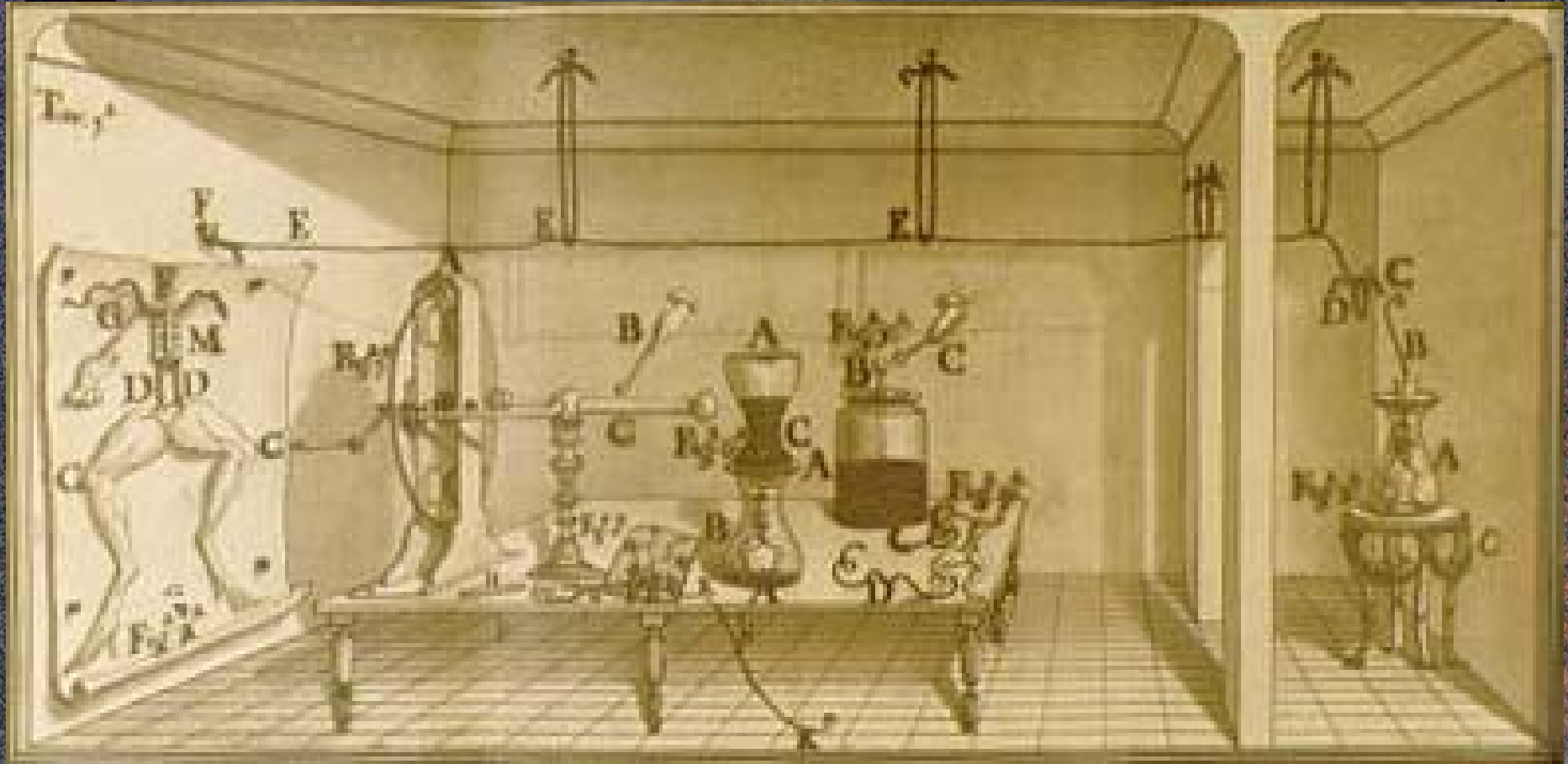
Electrophysiology

Luigi Galvani

- Most of us are well familiar with the Italian anatomist, physician and surgeon Luigi Galvani's electrical stimulation and activation of frog legs with an electrical current during the latter half of the 18th century.
- Of great significance, few persons realize that what was largely forgotten was that the frog leg muscle could be stimulated at a distance by a spark produced by a static generator.



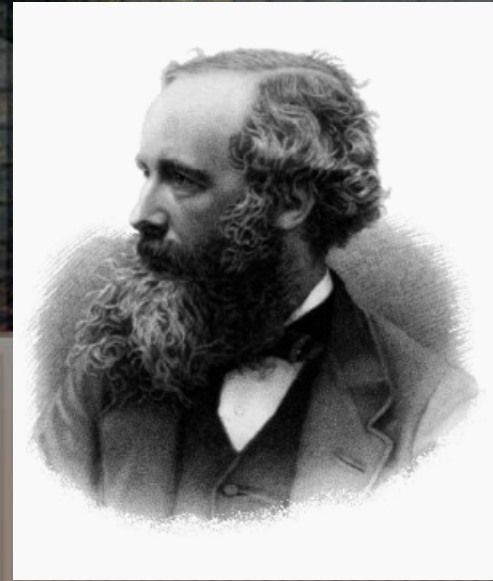
Luigi Galvani's Lab



Luigi Galvani Electrophysiology

- While misunderstood then, this simple concept is a very important foundation for some of the concepts of our area of study.
- He realized that at least some of the electricity he was observing was being generated within the tissues themselves.
- Galvani's historical experiments established the basis for the biological study of neurophysiology and neurology and he is credited for largely creating the science of **electrophysiology – the study of the connection between living organisms and electricity.**





Faraday & Maxwell

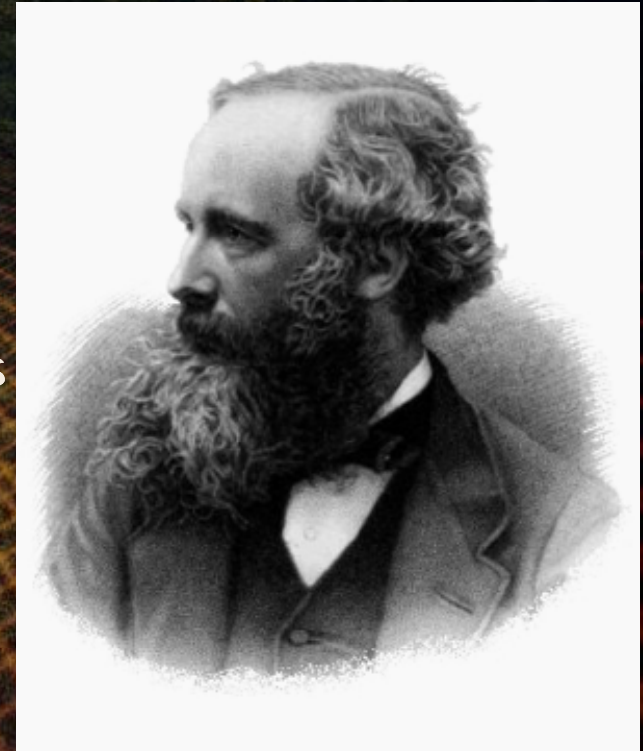
The Foundations & Pertinent Mathematics
of Conventional and Evolving Physics



Maxwell

JAMES CLERK MAXWELL (1831-1879)

- His most significant achievement was formulating a set of equations that for the first time expressed the basic laws of **ELECTRICITY** and **MAGNETISM** in a unified fashion
- He also developed the Maxwell distribution, a statistical means to describe aspects of the kinetic theory of gases
- **These two discoveries helped usher in the era of modern physics, laying the foundation for future work in such fields as **SPECIAL RELATIVITY** and **QUANTUM MECHANICS**.**



Faraday

MICHAEL FARADAY (1791-1867)



- Faraday established the basis for the magnetic field concept in physics.
- He discovered electro-magnetic induction, diamagnetism and electrolysis.
- He established that magnetism could affect rays of light and that there was an underlying relationship between the two phenomena.
- **Some historians of science refer to him as the best experimentalist in the history of science.**
- It was largely due to his efforts that electricity became viable for use in technology.

"Nothing is too wonderful to be true."

Royal Raymond Rife

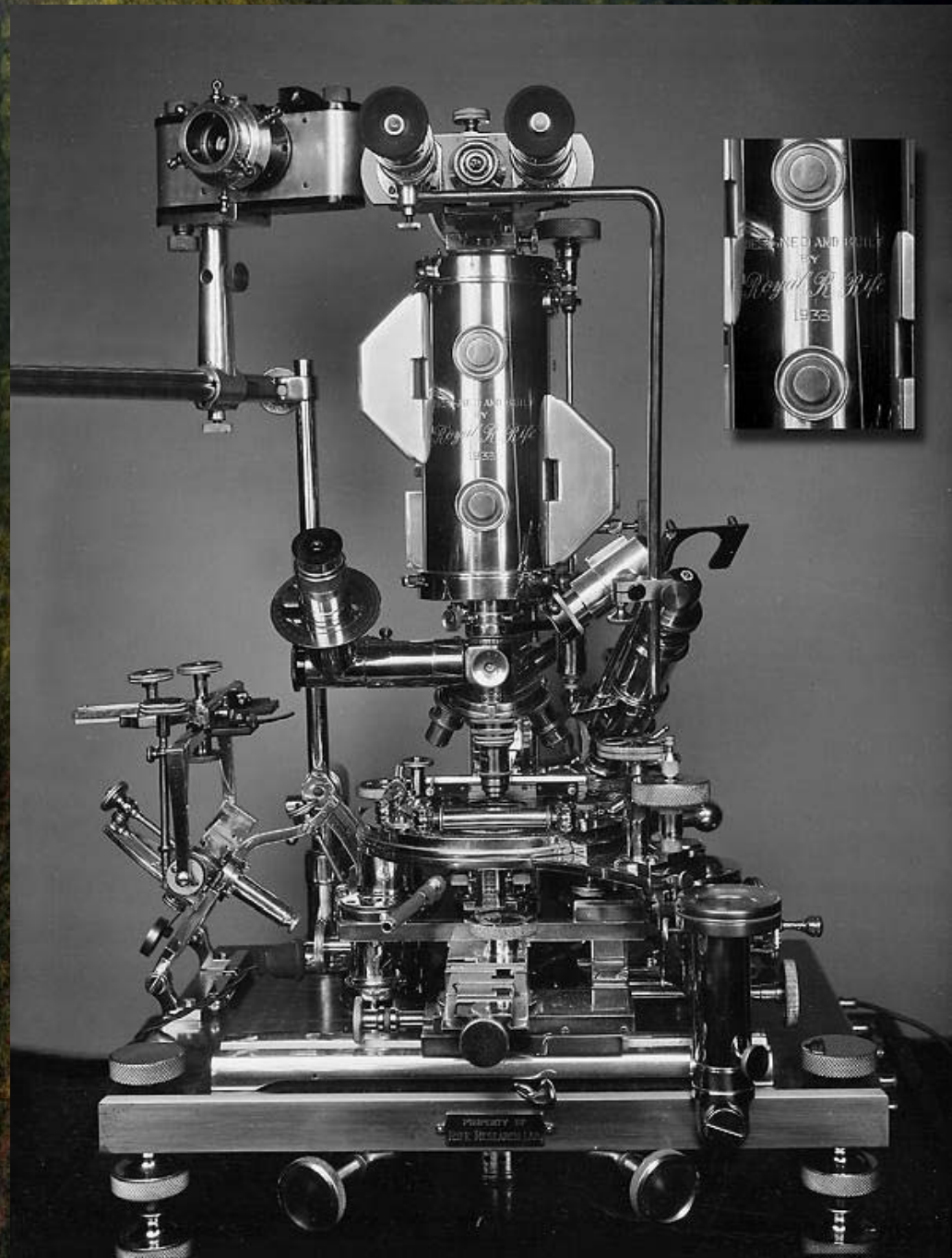
and his Universal Microscope



Rife's Universal Microscope

- Circa 1933
- Rife's Universal Microscope allowed the real time viewing of LIVE specimens at resolutions never before achieved
- Note: The (then new) electron microscope immediately killed any live specimens

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www.PulsedTech.RO



Tumor Preparation

- Rife meticulously prepared and recorded samples for study



Frequency Adjustments

- Rife would adjust his frequency generator to the known MOR

Mortal
Oscillatory
Rate



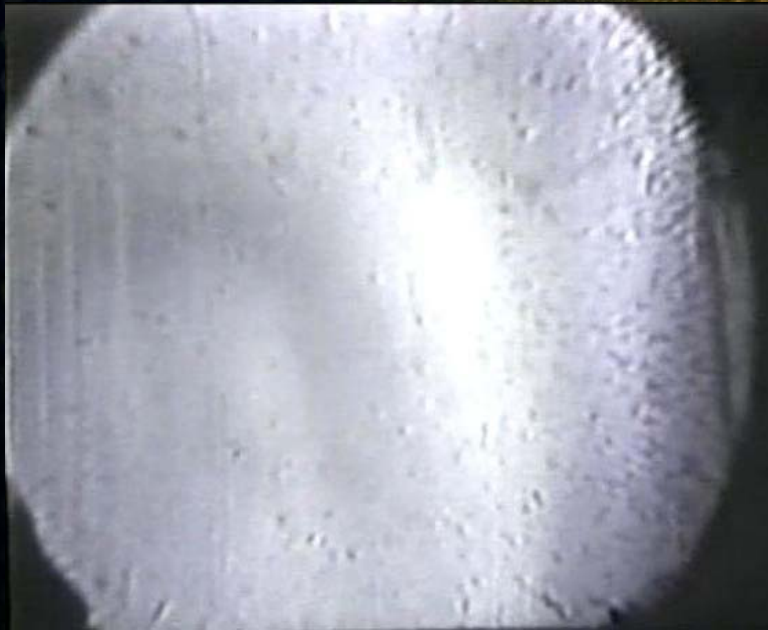
Observation of Destruction

- Rife would meticulously monitor the controlled destruction of the targeted pathogens



From Active to Dead

- The observer would witness the light-stained pathogen transform from a glowing violet to a dead black when the task was accomplished.



Gerry Vassilatos

- “Dr. Rife had developed and implemented what no contemporary medical research group has ever conceived,”... “and was prevented from doing so ever again on American ground.”

Vassilatos, Gerry, Lost Science, 1999



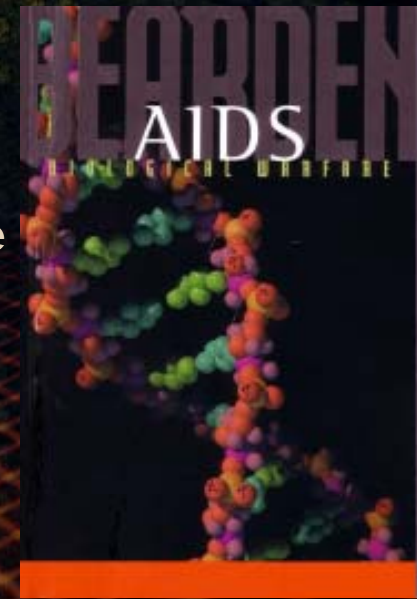
Tom Bearden

"In the 1930's and 1940's, Royal Raymond Rife revolutionized everything that has been done before or since in high resolution optical microscopy.

He also revolutionized everything before or since in cellular biology. He carried cellular structure far beyond anything ever dreamed of at the time or presently. He revealed the direct connection between organized living energy forms and organized biological systems. He revealed that life itself is organized and dynamic, to a far finer level than anything in the textbooks today. He revealed that our present theory of disease is fundamentally very, very wrong.

He produced direct, economical, electromagnetic cures of cancer, leukemia, and other such debilitating diseases. His work presages a future mankind could have had, where most debilitating diseases were quickly and economically corrected, and where no poisonous drugs, violent nuclear irradiation, and harsh chemotherapeutic "burning" of the patient would be necessary. "

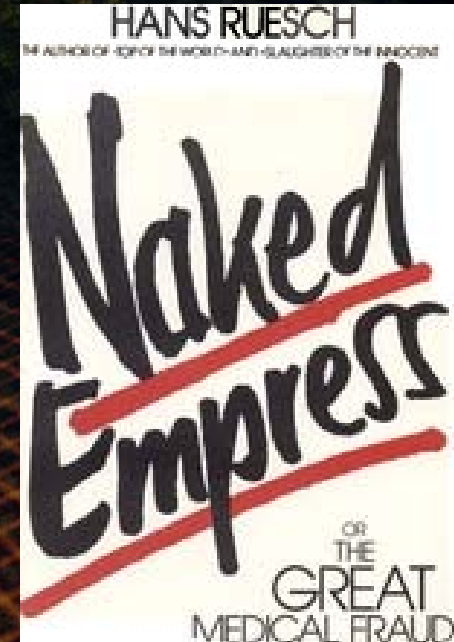
Bearden, T.E., AIDS – Biological Warfare, 1988



Hans Ruesch

"In the course of a vaccination trial that took place in France on October 1st, 1981, Professor Mercie, former director of the glamorous Pasteur Institute, was asked why the Institute kept producing and selling its anti-'flu vaccine despite its recognized worthlessness. Professor Mercie's candid reply: 'Because it helps financing the Institute's research'."

Hans Ruesch, Naked Empress p81





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PART 2 – UNDERLYING SCIENCE

Jimmie L. Holman & Paul V. Dorneanu





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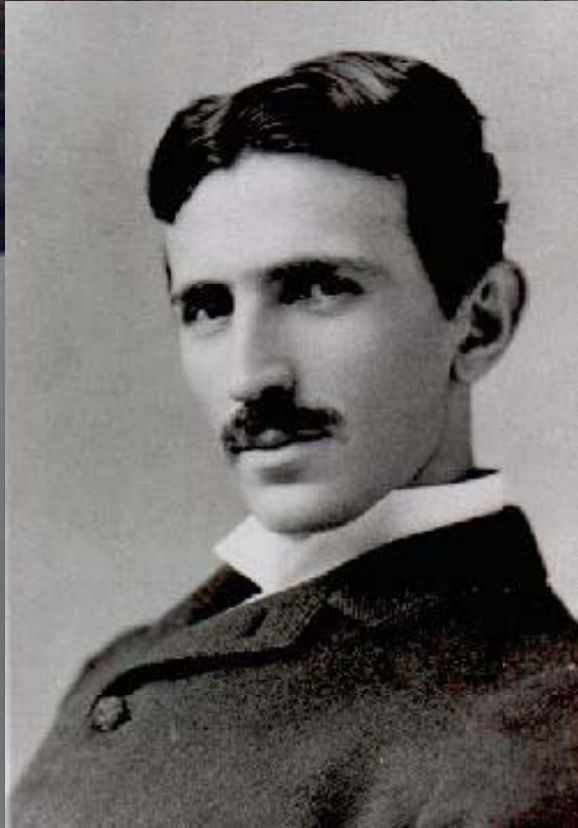
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Paul V. Dorneanu & Jimmie L. Holman



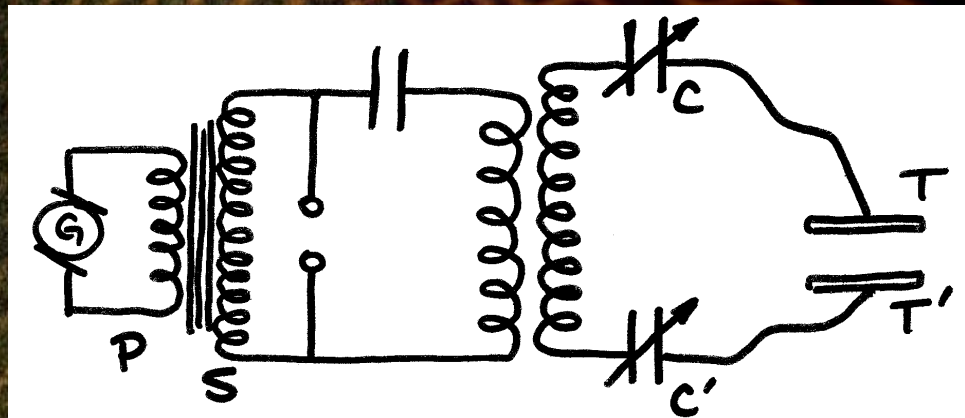
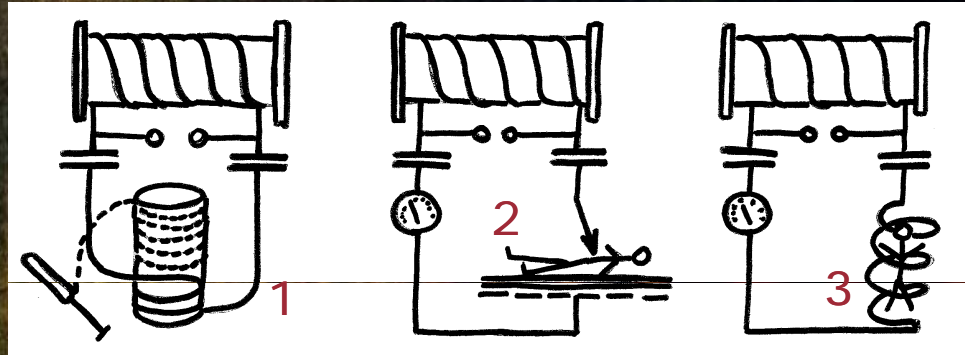


Nikola Tesla

Pulsed & Frequency Technologies

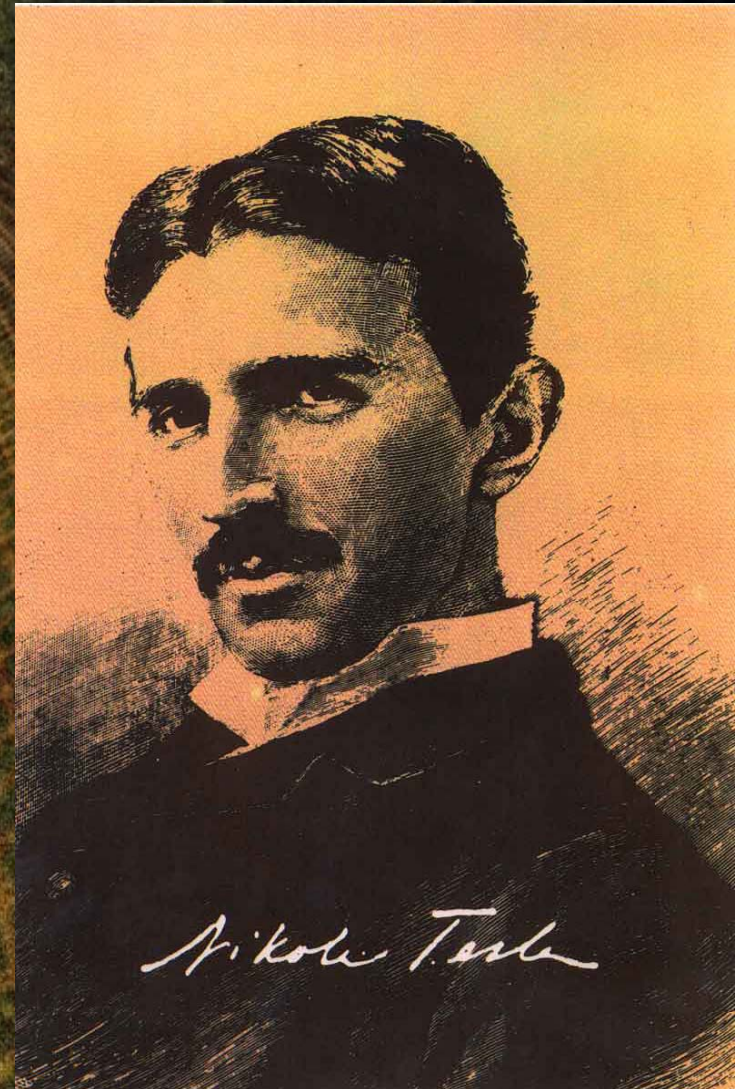
Frequency Based Electromedicine

- In the late 1890 and early 1900s, Tesla lectured both domestically and abroad about the virtues of frequency based electro-medicine
- These diagrams are from Tesla's private notes identifying methods of
(1) Sterilization,
(2) Electro-Surgery,
(3) Whole Body Heating

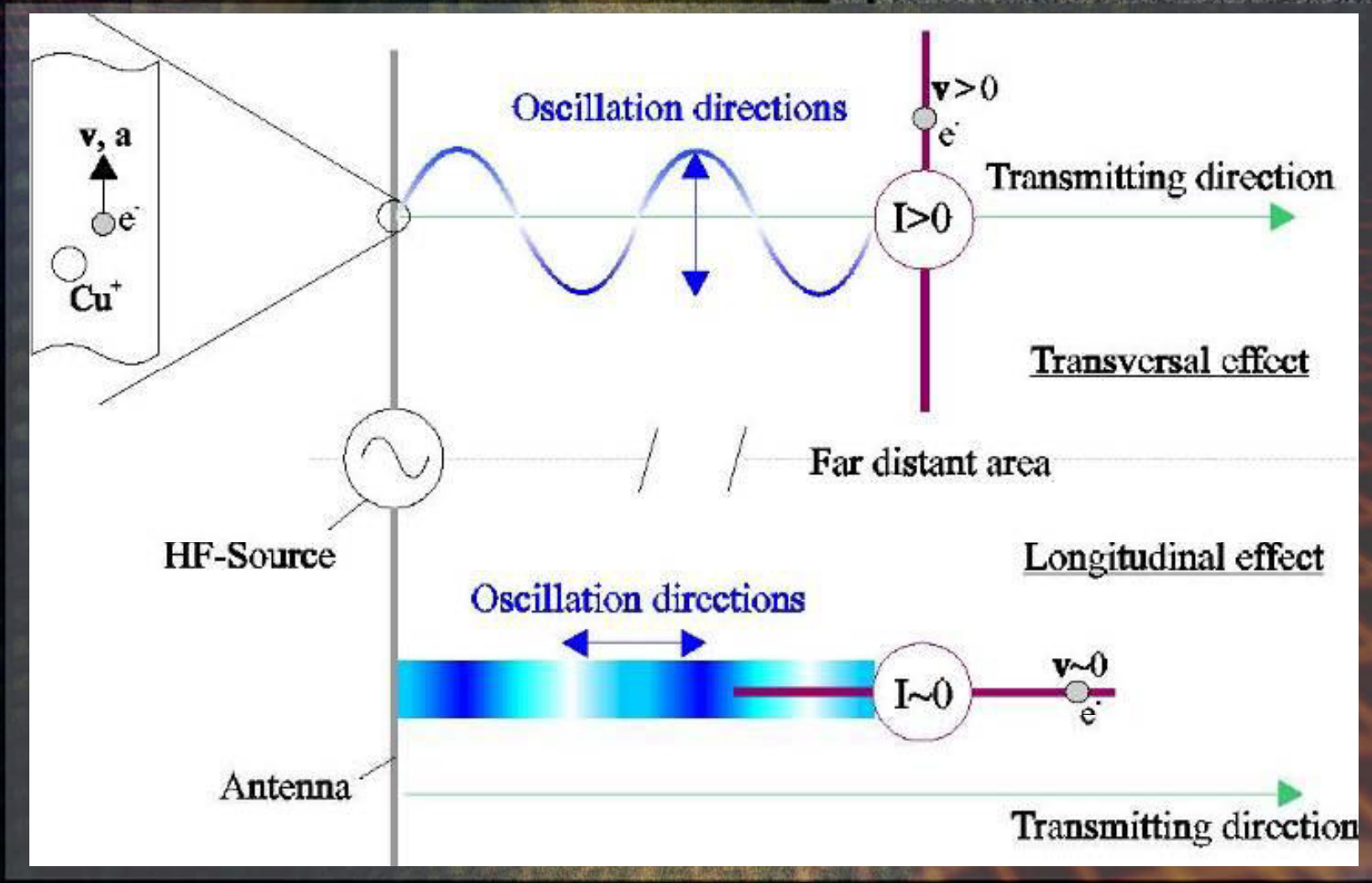


"Hertzian Thinking"

- Tesla declared in 1919 that Hertzian thinking "has stifled creative effort in the wireless art and has retarded it for 25 years"

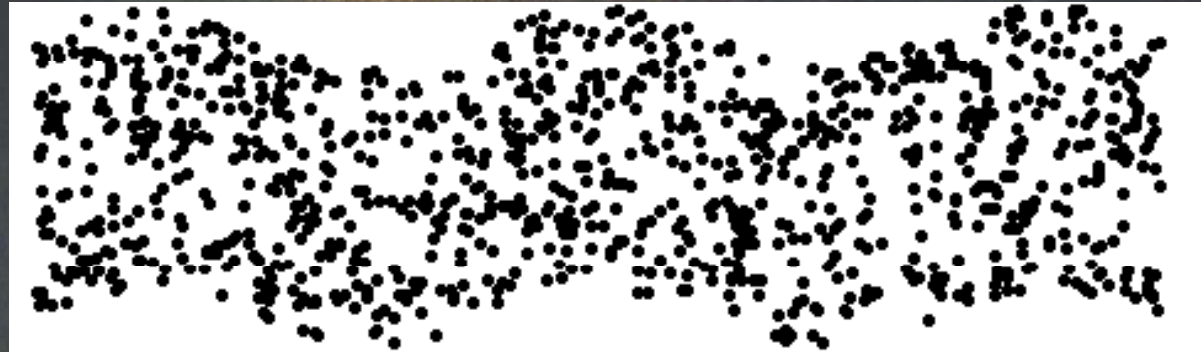


Transverse/Longitudinal Waves

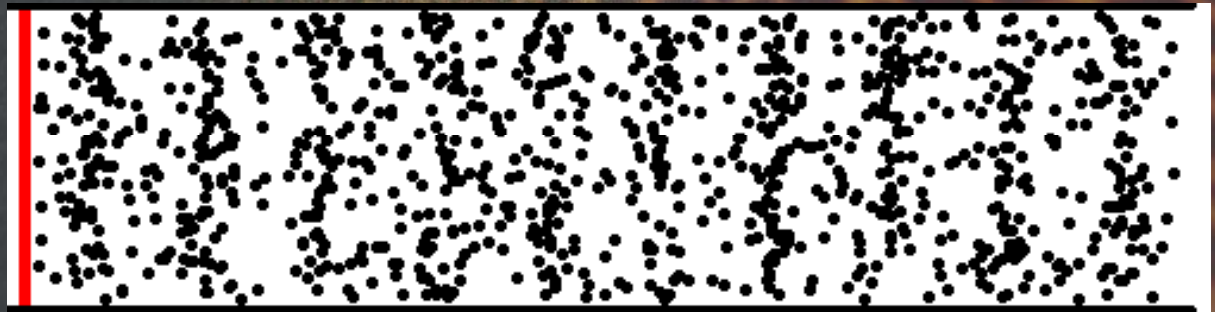


Wave Propagation


- Transverse Wave (conventional)



- Longitudinal Wave



"Jump Rope" Analogy

- Coupling
 - Frequency
 - Amplitude
 - Time
- 
- A photograph showing four people, two men and two women, on a red basketball court. They are all holding and jumping over a single rope, illustrating the 'Jump Rope' analogy. The background shows palm trees and a multi-story building.
- Loss of each in conventional EM
 - Remote Observer (monitor/meter) may not observe anything

Linus Pauling

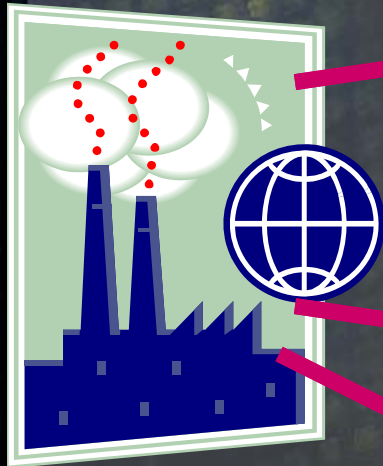
"A person should stay as far away from medical doctors as possible and try to avoid hospitals since they are dangerous places to be."

Linus Pauling - 1948

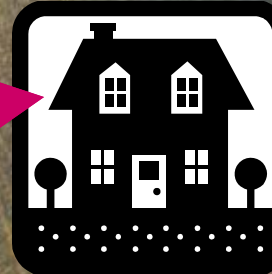


Wireless Transmission of Power

Power Generation
& Transmission



Destination Users



Wireless
Delivery

- Much of Tesla's work concerned the wireless distribution and transfer of energy based on resonant frequency concepts

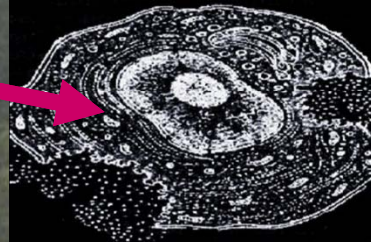


Energy Transfer and Manipulation

Plasma Radiant Emission



Selected Targets*



- We are technically using many of the same principles and concepts on a microscopic scale

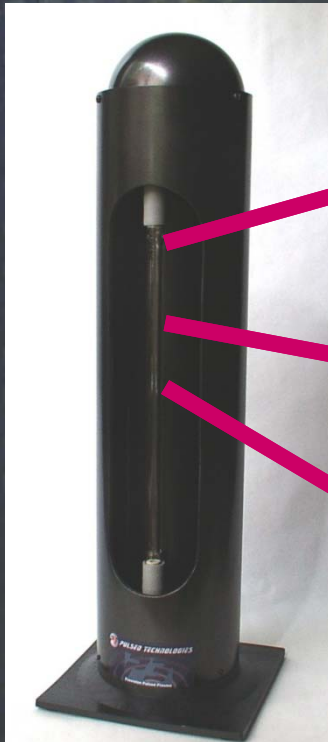


*Targets are selected by resonant frequency or MOR

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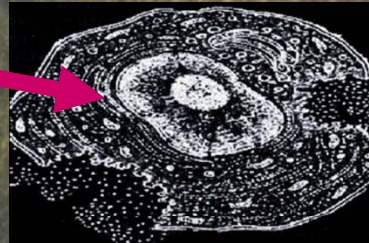
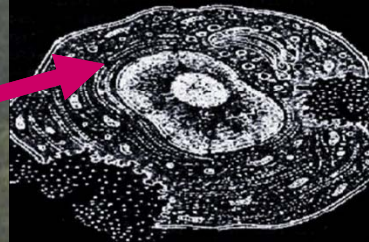
Energy Transfer and Manipulation

Plasma Radiant Emission



Wireless
Delivery

Selected Targets*



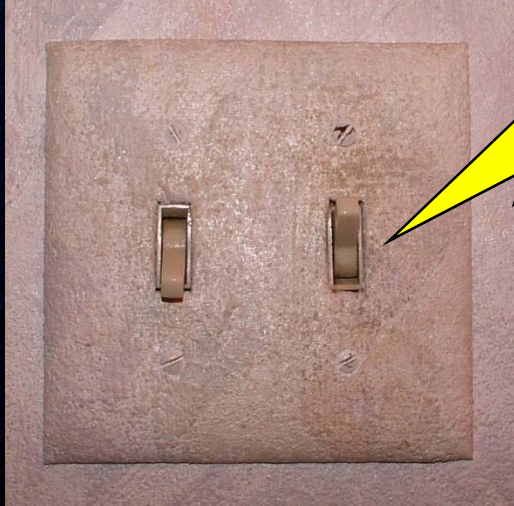
- We are technically using many of the same principles and concepts on a microscopic scale



*Targets are selected by resonant frequency or MOR

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Light Switch "Transmission"



Click

We have probably all noticed that many times when we snap on a light switch that a "POP" may be heard on a near by radio. There is no question that SOME sort of "transmission" not only occurredbut was also RECEIVED at the radio and processed by conventional means.

The abrupt turning "ON" of power, obviously caused a burst of energy to transfer via means that it could be received and amplified by conventional electromagnet means.



POP !

Aurora Borealis

- Natural Plasmas



WHY PLASMA

- Why do we use Plasma?
- Why do we use “light”?
- Why can we use other energy to accomplish the same things?

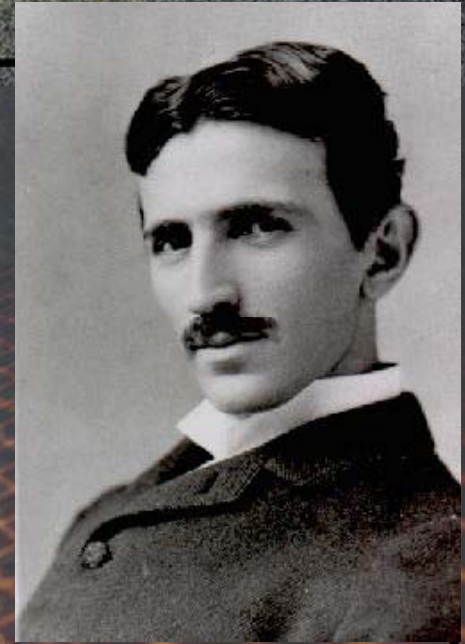
Plasma (Simple Explanation)

- Plasma is the 4th state of matter AFTER "GAS"
- When excited by Radio Frequency or High Voltage, the Gas can move to the highly excited "PLASMA" state
- When the excitation is removed, the atoms must give up some of their energy....
- This energy is in the form of PHOTONS of LIGHT!
- Plasmas can be triggered and manipulated to move from the ON to the OFF state at VERY HIGH SPEEDS

Human Progress

The light of human progress is not a dim glow that gradually becomes more luminous with time. The panorama of human evolution is illuminated by sudden bursts of dazzling brilliance in intellectual accomplishments that throw beams far ahead to give us a glimpse of the distant future, that we may more correctly guide our wavering steps today.

1944 - Prodigal Genius by J. O'Neill





Prof. Dr.-Ing Konstantin Meyl

Examining the Underlying Physics
and connections to the Past
www.k-meyl.de

Dr.-Ing K. Meyl

- Power Engineering
- Scalar Emission
- Mathematical Validation of Tesla / Maxwell
- Practical Demonstration



- Has also made some incredible observations in biological relationships

Dr. Meyl's Formula Work

Maxwell equations:

$$\text{rot } \mathbf{E} = -\delta \mathbf{B} / \delta t$$

$$\text{rot } \mathbf{H} = \mathbf{j} + \delta \mathbf{D} / \delta t$$

$$\mathbf{B} = \mu \cdot \mathbf{H} \quad \mathbf{j} = 0 \quad \mathbf{D} = \varepsilon \cdot \mathbf{E}$$

$$\text{rot rot } \mathbf{E} = -\mu \cdot \delta (\text{rot } \mathbf{H} / \delta t) = -\mu \cdot \varepsilon \cdot \delta^2 \mathbf{E} / \delta t^2$$

$$\mu \cdot \varepsilon = 1/c^2$$

wave equation:

$$\Delta \mathbf{E} = \underbrace{\text{grad div } \mathbf{E}}_{?} - \text{rot rot } \mathbf{E} = \frac{1}{c^2} \frac{\delta^2 \mathbf{E}}{\delta t^2}$$

- Meyl's Pioneering work in examining and extending Maxwell's original equations is effectively demonstrating the underlying science and claims of much of Tesla's "misunderstood" work.

- Meyl's work is laying the foundation for much of the plasma work of our interest.

Laplace-
operator

$\text{rot } \mathbf{E} = 0$:
longitudinal
wave

$\text{div } \mathbf{E} = 0$:
transversal
wave

$c =$
speed
of light

$$\Delta \mathbf{E} = \text{grad div } \mathbf{E} - \text{rot rot } \mathbf{E} = \frac{1}{c^2} \frac{\delta^2 \mathbf{E}}{\delta t^2}$$

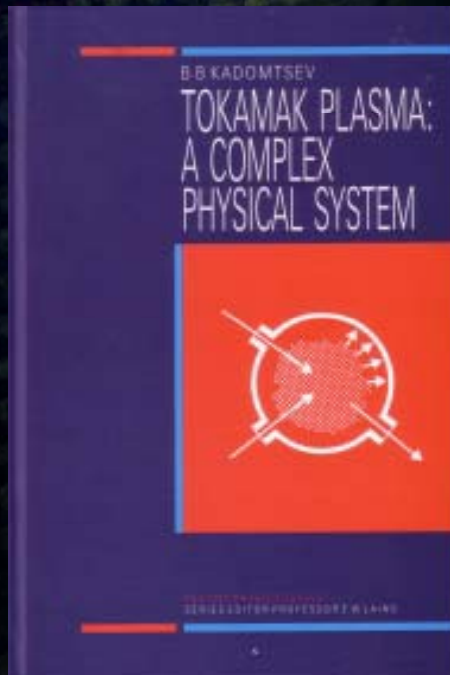
$\text{Div } \mathbf{E} \neq 0$ is a scalar \Rightarrow scalar wave!

$$\mathbf{E} = -\text{grad } \varphi : \begin{cases} (1) \quad \cancel{\text{grad div } \mathbf{E}} = -\cancel{\text{grad}} \frac{1}{c^2} \frac{\delta^2 \varphi}{\delta t^2} \\ (2) \quad \text{div } \mathbf{E} = -\text{div grad } \varphi \\ (3) \quad \text{div } \mathbf{E} = \rho / \varepsilon \end{cases}$$

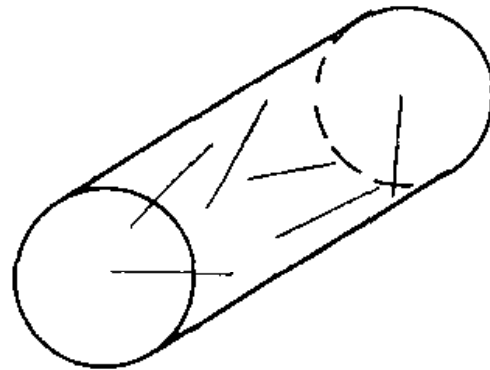
plasma wave:

$$\Delta \varphi = \frac{1}{c^2} \cdot \frac{\delta^2 \varphi}{\delta t^2} - \frac{\rho}{\varepsilon}$$

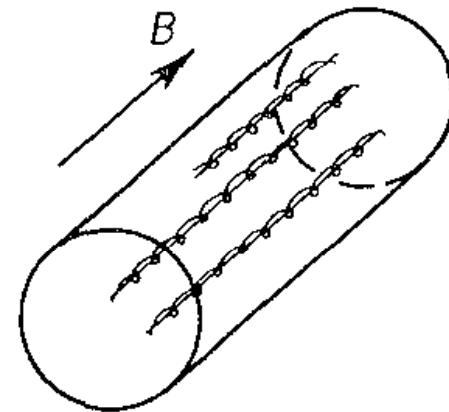
Charged Particles in Plasma



- Text1Source: Tokamak Plasma: A Complex System, B.B. Kadomtsev



(a)

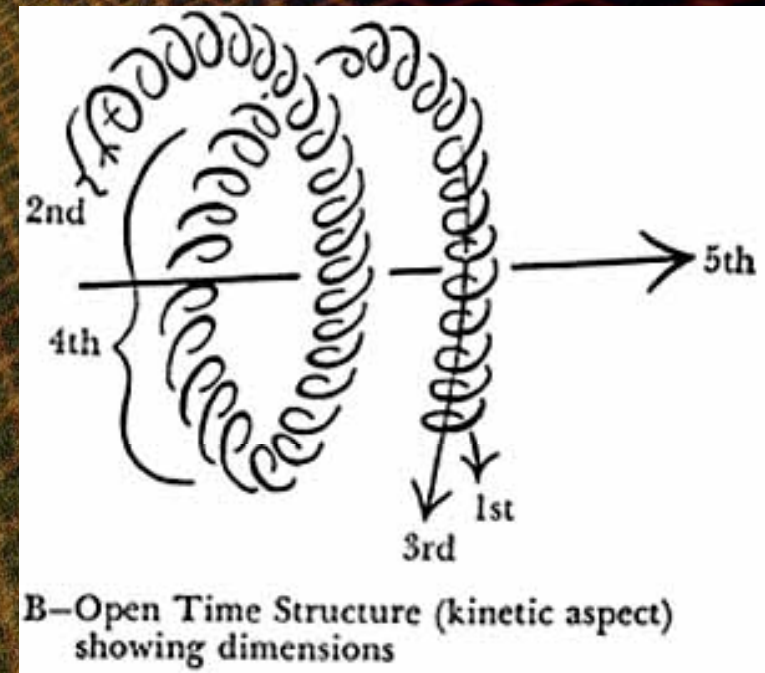
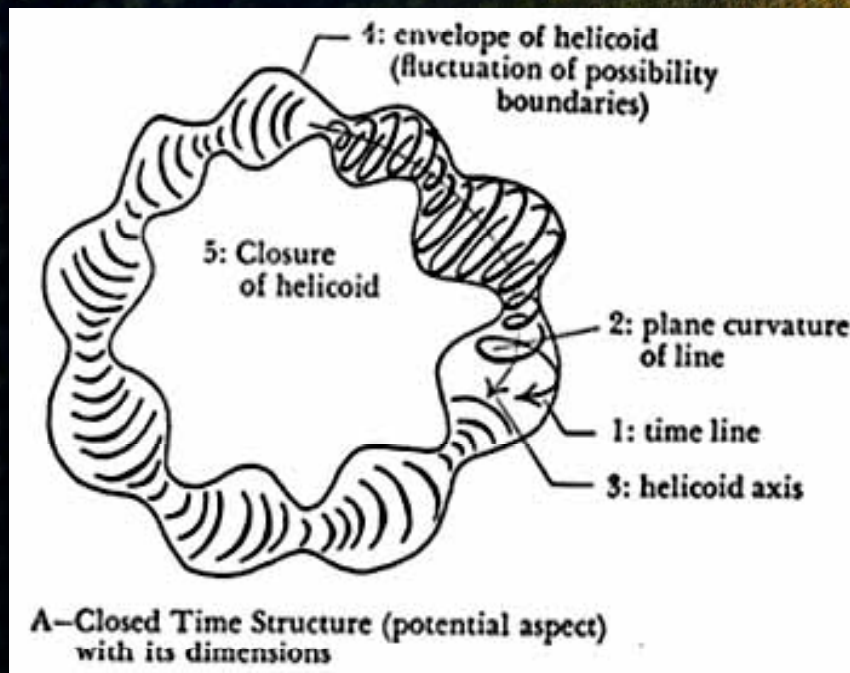


(b)

Trajectories of charged particles (a) without and (b) with a strong magnetic field.

Space-Time

- The ACTUAL emission geometries cannot easily be visualized in 3-D Space-Time BUT ... more advanced math allows us to better see internal geometrical structures and relationships





Nerve Cell Illustration

Overlay or Comparison to static Scalar
Wave.

Scalar Wave Animation



The Biophotonic Connection

Popp, Gurchich, Kaznacheyev, Stancilescu

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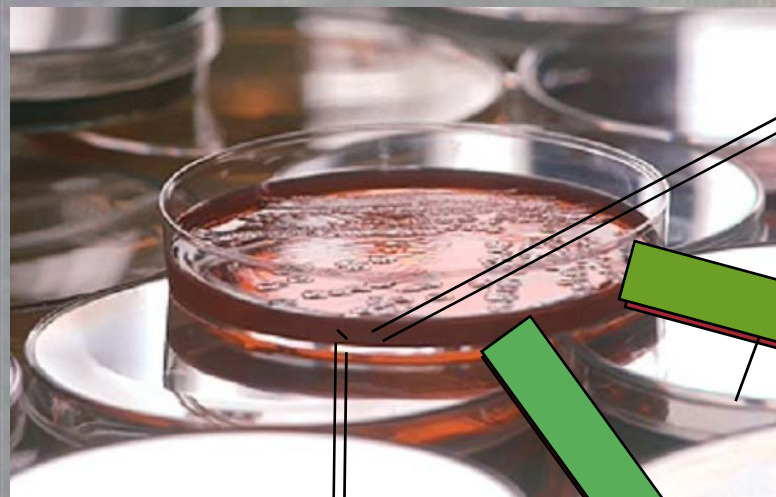
Prof. Alexander Gurvich

- Biophotons first discovered in 1923 by Russian medical scientist Professor Alexander G. Gurvich (who named them "mitogenetic rays") and in the 1930s widely researched in Europe and the USA, biophotons have been rediscovered and backed since the 1970s by ample experimental and theoretical evidence by European scientists.



АЛЕКСАНДР ГАВРИЛОВИЧ
ГУРВИЧ
(1874—1954)

Gurvich/Kaznachev Experiment



Test Culture
(being
"fatally
abused")

Leaded Glass
(no UV)



Remote Culture 2

Remote Culture 1
Unchanged

Quartz Glass
(full spectrum)

DEATH!

Quantum Entanglements

- Quantum Entanglement of Photon Pairs

Biophotonic Emissions

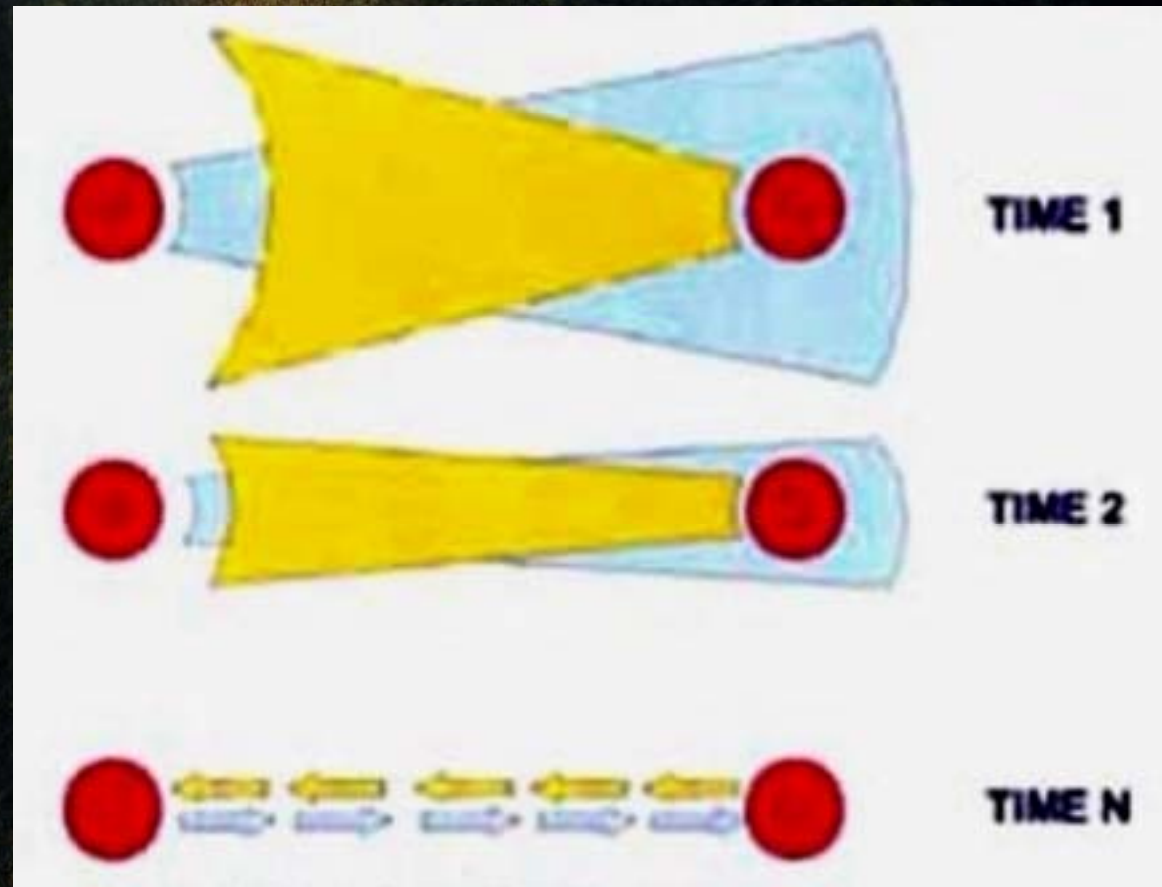
- There are so many ramifications to the study of biophotonic emissions that it is difficult to elucidate at this time.
- Biophoton studies seem to indicate that the emission is coherent and that biophotons may be modulated and communicate information not only throughout the body but into the extended environment.
- It may be the process by which DNA actually communicates its information to protein molecules in the process of morphogenesis.
- It may have relevance to extra-sensory modes of communication with other life forms and explain many mysteries of life.

Too “Far Out” for Most Folks

- According to the biophoton theory developed on the base of these discoveries the biophoton light is stored in the cells of the organism - more precisely, in the DNA molecules of their nuclei - and a dynamic web of light constantly released and absorbed by the DNA may connect cell organelles, cells, tissues, and organs within the body and serve as the organism's main communication network and as the principal regulating instance for all life processes.
- The processes of morphogenesis, growth, differentiation and regeneration are also explained by the structuring and regulating activity of the coherent biophoton field.
- The holographic biophoton field of the brain and the nervous system, and maybe even that of the whole organism, may also be basis of memory and other phenomena of consciousness, as postulated by neurophysiologist Karl Pribram and others. The consciousness-like coherence properties of the biophoton field are closely related to its base in the properties of the physical vacuum and indicate its possible role as an interface to the non-physical realms of mind, psyche and consciousness.

Quantum Potential Self Targeting

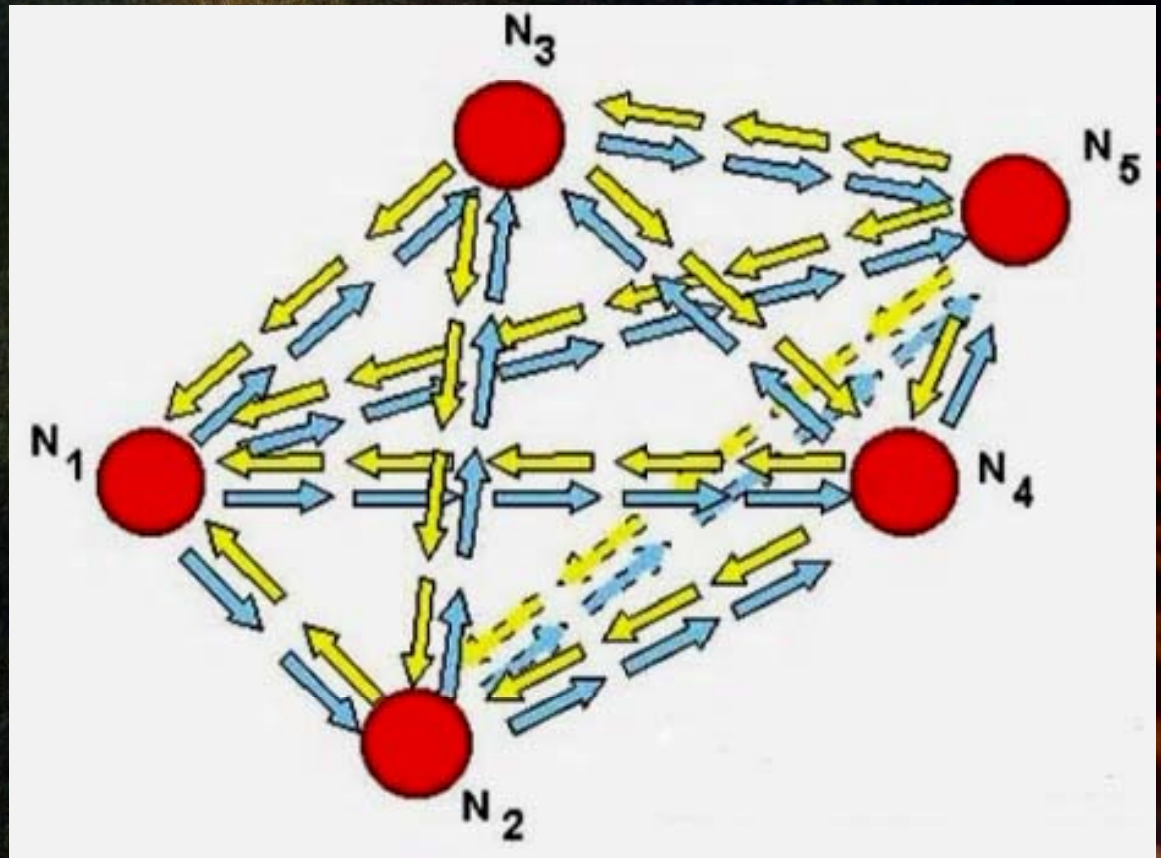
- Narrowing if interacting potentials into laser-like beams, between two pumped sources
- Now only Longitudinal Waves Connect the Linked Objects



Credit: T.E. Bearden – Radionics: Action at a Distance

Nodes Participating in the Quantum Potential

- Quantum potential exists as narrow, laser-like beams between participating nodes, even when the nodes are widely separated
- Beam space is multiply-connected; transmission is instantaneous



Credit: T.E. Bearden – Radionics: Action at a Distance

Dr. Fritz-Albert Popp

- Biophotons & light energy
- German biophysicist Fritz-Albert Popp has proved their existence, their origin from the DNA and later their coherence (laser-like nature), and has developed biophoton theory to explain their possible biological role and the ways in which they may control biochemical processes, growth, differentiation etc.
- Popp's biophoton theory leads to many startling insights into the life processes and may well provide one of the major elements of a future theory of life and holistic medical practice based on such an approach.



Traian D. Stanciulescu



◆ Traian D. STĂNCIULESCU



SIGNS OF LIGHT

A BIOPHOTONIC APPROACH TO
HUMAN (META)PHYSICAL FUNDAMENTALS

- A Biophotonic Approach to Human (Meta)Physical Fundamentals



The background of the slide features a dark, textured grid pattern. A large, light-colored semi-circle is centered horizontally, spanning across the middle section. The top and bottom sections of the slide have a similar grid pattern with some colorful, abstract light effects. The central text is overlaid on the semi-circle.

The Equipment

Pulsed Technologies

P3 – Precision Pulsed Plasma



PULSED TECHNOLOGIES



Precision Pulsed Plasma

The Pulsed Technologies P3 and P3pro - Precision Pulsed Plasma devices are the premier plasma systems. The P3 requires the PFG – Precision Function Generator as a system control device the P3pro has the PFG device and optional oscilloscope/spectrum analyzer incorporated into the device.



The P3pro Precision Pulsed Plasma Research Prototype



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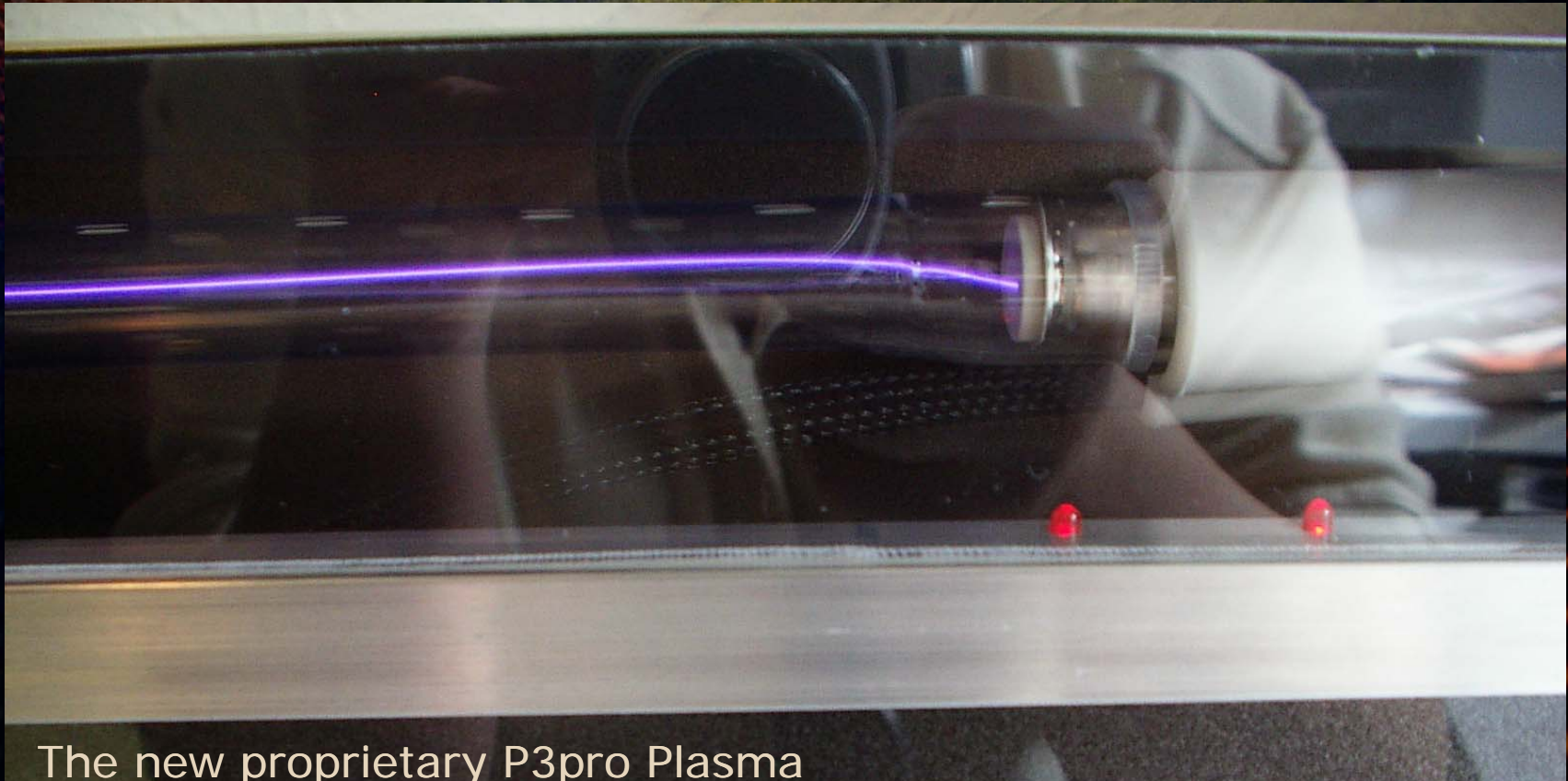
P3 Plasma Technology



Pulsed Technologies P3 represents the latest developments in precision pulsed plasma for resonant frequency research.

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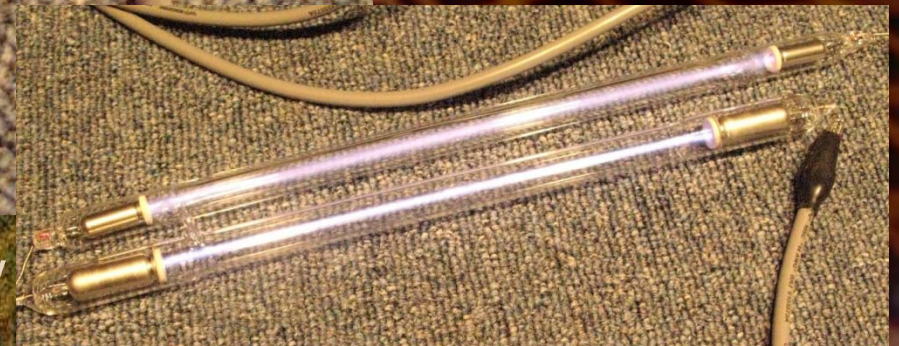
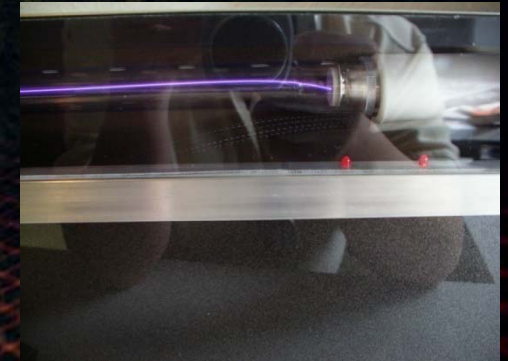


The new proprietary P3pro Plasma prototype tube activates exceptionally well across a large frequency spectrum



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Plasma Tube Comparison



Even on burn-in, the new proprietary design indicates a comparative higher level of responsiveness. Under actual drive conditions, this difference is exceptional

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P3pro Device Details



The P3pro Precision
Pulsed Plasma Research
Production Device



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PFG1



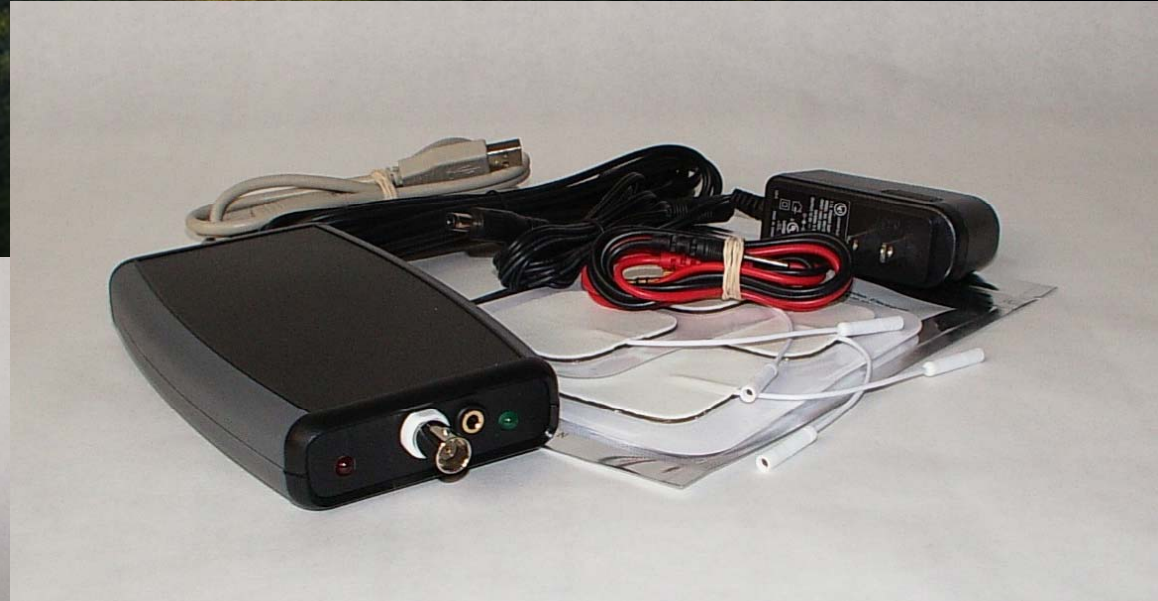
The current PFG Precision Function Generator is soon to be superseded by the next evolution of specialized waveform generators





PFG2 Configurations

PFG
2
Precision
Function
Generator



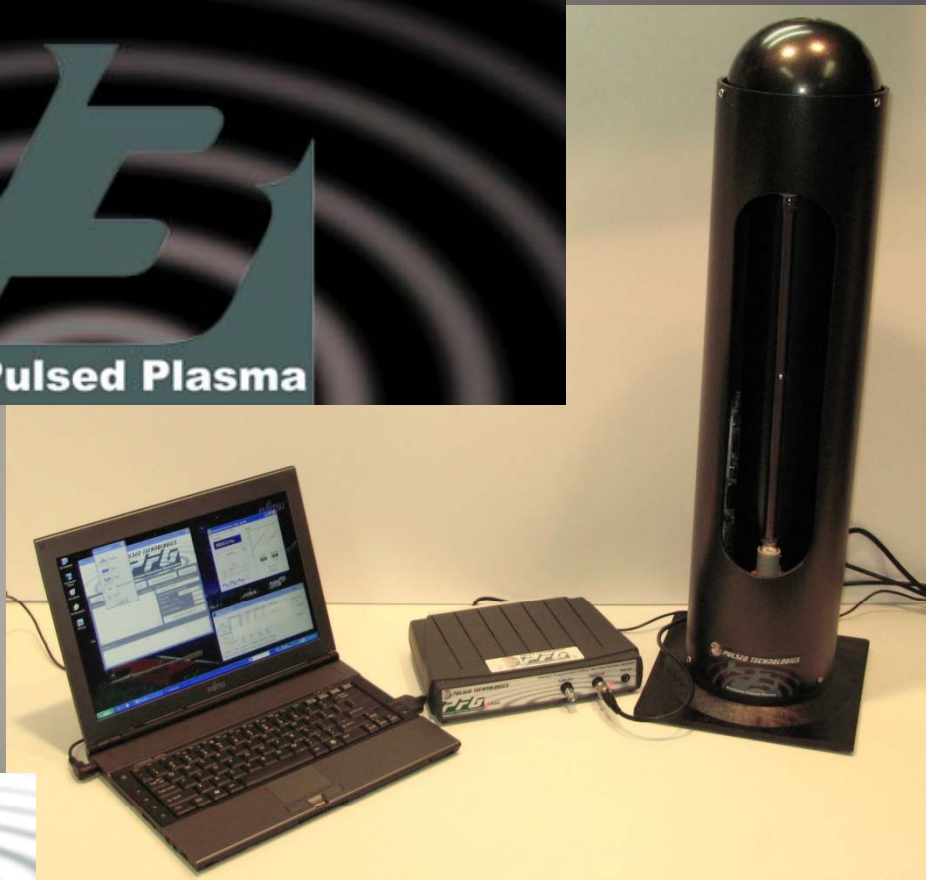
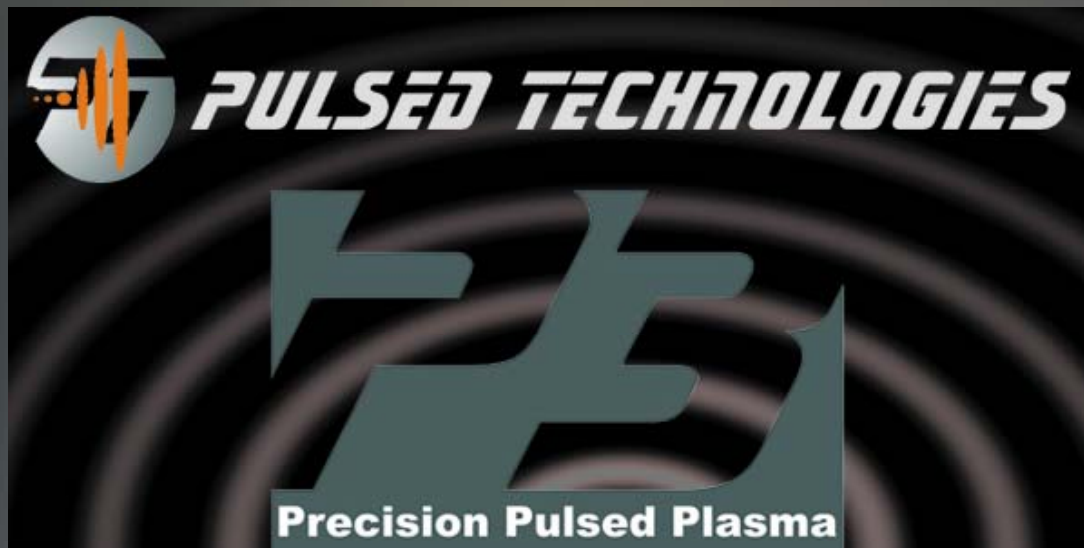
The new series of PFGs maintain the most requested features with USB interface for more portability.

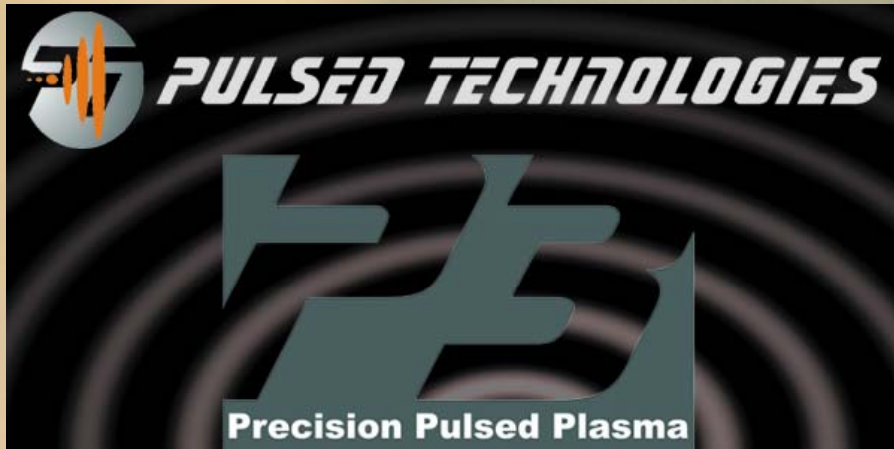
PFG2 Personal Device



PFG
2
Precision
Function
Generator

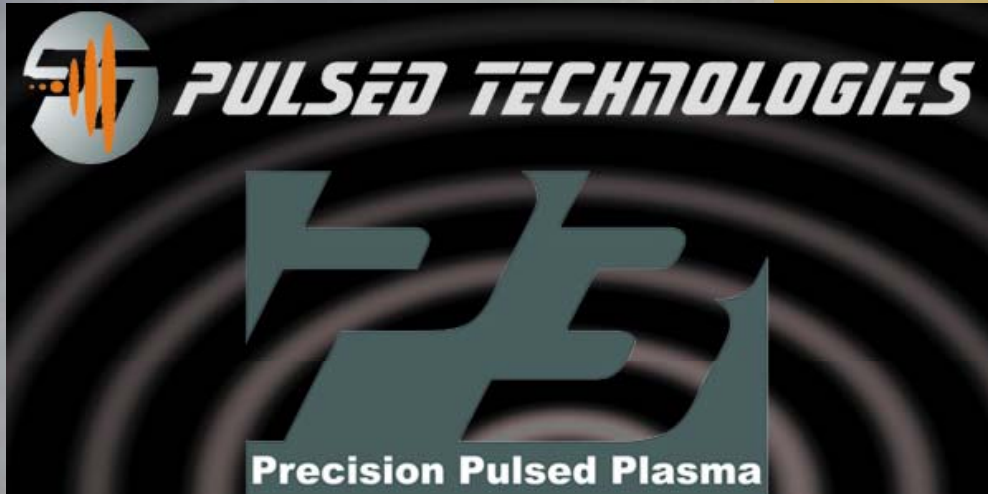
The Pulsed Technologies P3 - Precision Pulsed Plasma device requires the PFG – Precision Function Generator as a system control device.





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The P3 and P3pro are currently Pulsed Technologies' primary focus in radiant plasma devices.



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PFG – Precision Function Generator



The Pulsed Technologies PFG - Precision Function Generator is the required control device for both Pulsed Technologies plasma devices and use in programmed radiant applications

Additionally the PFG – Precision Function Generator may be used with it's additional output as a precision contact device utilizing the same programmability as with the plasma devices but with extended operating range



Pulsed Technologies PFG is suitable for both contact applications or for precision control of plasma drive devices.



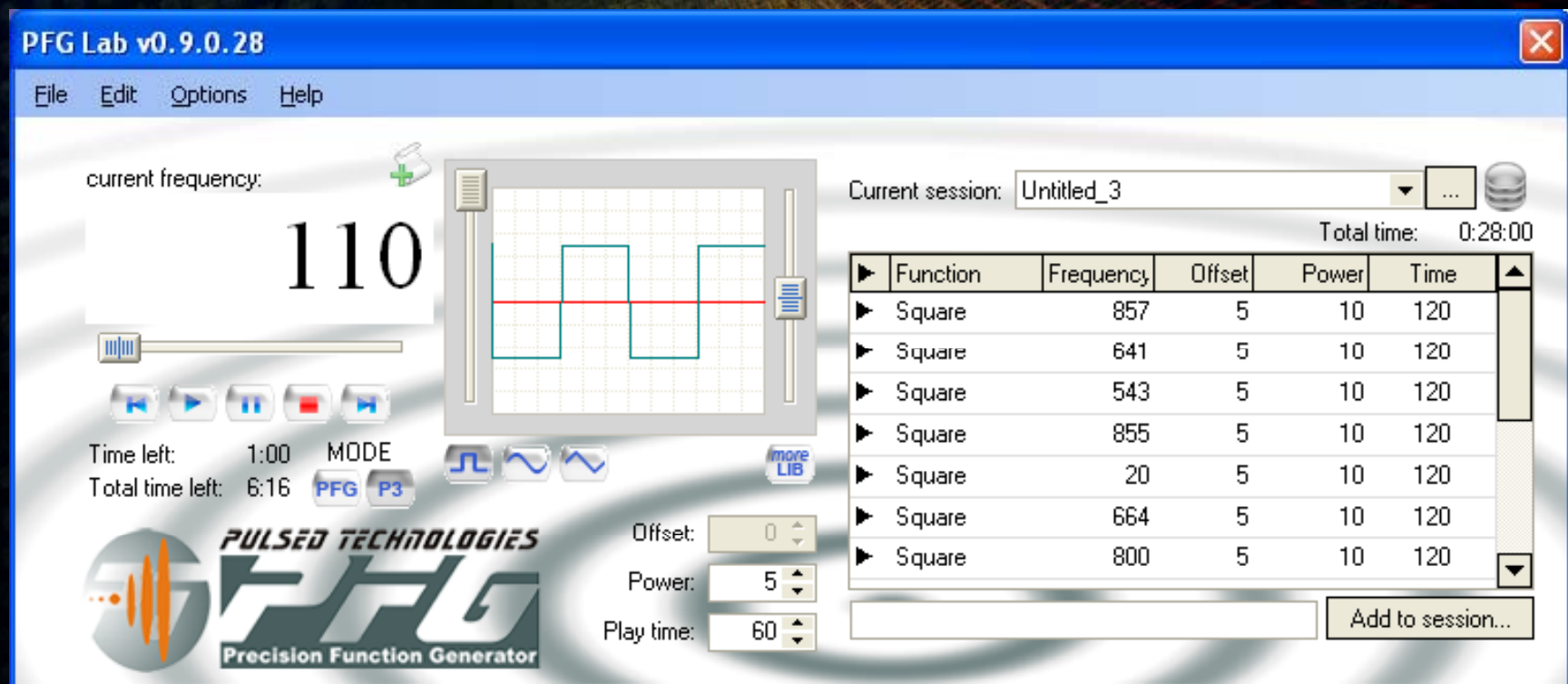
PPLIED

- Precision Pulsed (high output) new generation of LEDs
- Spectral output across "therapeutic spectrum"



PFG Lab Operating Interface

- Versatile Operating Controls and Extensive Editing of Scripts and Script Library



PFG Lab Libraries & Editing

PFG Lab v0.9.0.28

File Edit Options Help

current frequency: 855

Current session: Untitled_3 Total time: 0:28:00

Function	Frequency	Offset	Power	Time
Square	857	5	10	120
Square	641	5	10	120
Square	542	5	10	120
burst1.lib	855	5	10	120
burst01.lib	20	5	10	120
Triangular	664	5	10	120
Square				
Sinusoidal				

Sequence Libraries

Choose a library: test22 Import from file...

Search:

Abdominal inflammation	Creation date: 2007-04-08 02:01:42.0930 Modify date: 2007-04-08 02:01:42.4370
Abdominal pain	
Abscesses	
Abscesses 1	
Abscesses secondary	
Acidosis	
Acne	
Cancer glioblastoma	
1	

Frequencies:
1, 20, 72, 95, 125, 146, 250, 380, 428, 440, 444, 450, 465, 660, 727, 776, 787, 802, 832, 880, 1550, 1600, 1800, 1865, 2000, 2170, 2489, 2720

Parameters

Function: Square

Offset: 0

Amplitude: 5

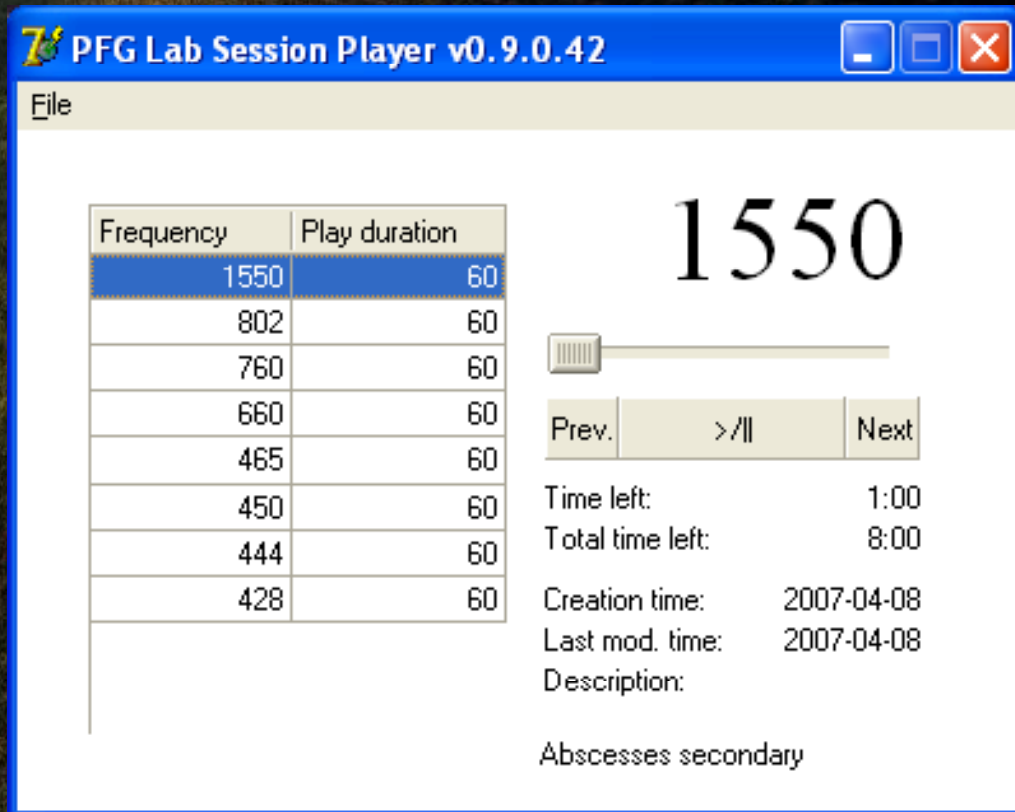
Play time: 60

Cancel Set frequencies

857 641 543 855 20 664 800 832 728 2182
2180 2128 2008 720

PFG Lab Player

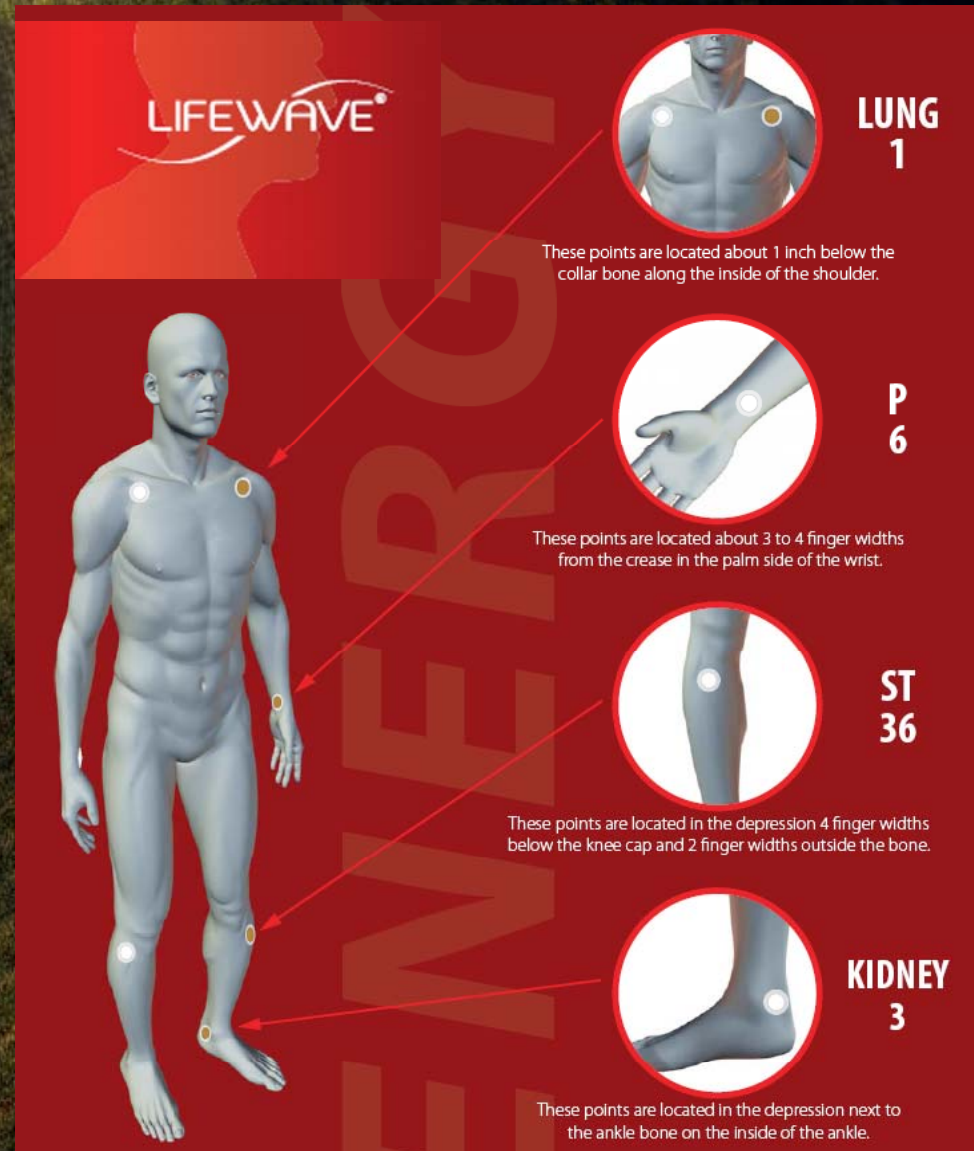
- The “Player” allows easy, use of premade scripts/protocols from the users library or provided by the end-users practitioner.
- The “Player” requires minimal knowledge by the user for practical operation



Bio-Patches

- Although seemingly unrelated bio-patches actually incorporate some of the same principles of physics
- Resonance, absorption, and retransmission of natural signaling and communication may be taking place
- Enhancement of existing stimuli ?
- Suppression of disruptive signals
- Although typically marketed for sports/endurance uses

....
From a practical standpoint this also has great potential in assisting recovery from health crisis





The Science, Art & Physics

The Underlying Mechanisms

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Modus Operandi

- Destructive
- Constructive
- Supplemental
- Combinations

Modus Operandi

- **Destructive**
- Constructive
- Supplemental
- Combinations

Cellular Destruction 1 (*video*)



Cellular Destruction 2 *(video)*



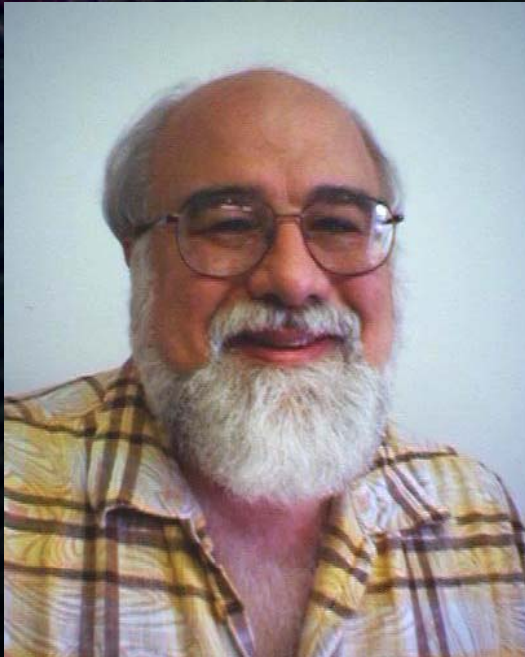
Cellular Destruction 3 (*video*)



Cellular Destruction 4 (*video*)



Dr. Steve Haltiwanger, M.D., C.C.N



The Electrical Properties Of Cancer And Disruption Of The Living Hologram:

By: Steve Haltiwanger, M.D., C.C.N.

Subtitle: The Truth is Out There

9/23/2003

Cell Membrane Health And Electronic Nutrition™

by Steve Haltiwanger MD

Biological Energy And Electronic Nutrition

by Steve Haltiwanger MD

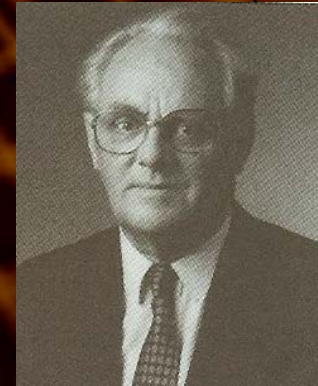
The Science of Phototherapy

Steve Haltiwanger, M.D., C.C.N.

1

- Dr. Haltiwanger has several detailed presentations dealing with both the electrical and nutritional relationships of the biological processes
- Dr. Haltiwanger worked with renown Dr. Hans Neiper in Germany

Dr. Hans Neiper



Jimmie L. Holman

Those who choose to look at Rife ONLY in the destructive mechanisms that have typically become associated with the technology, ... are probably missing out on about 98% of the capabilities the science has to offer.

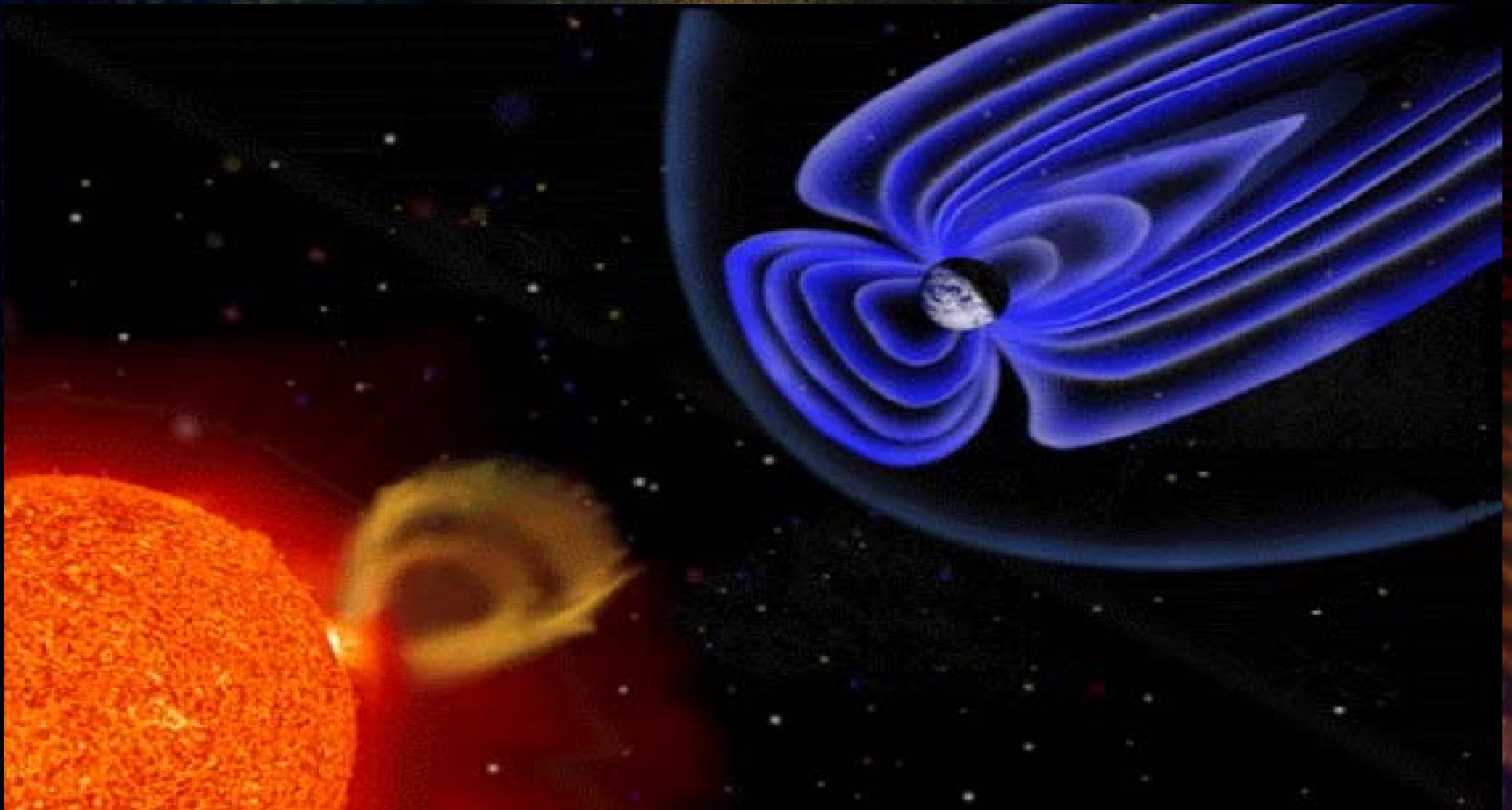


*Jimmie Holman
Pulsed Technologies*

Modus Operandi

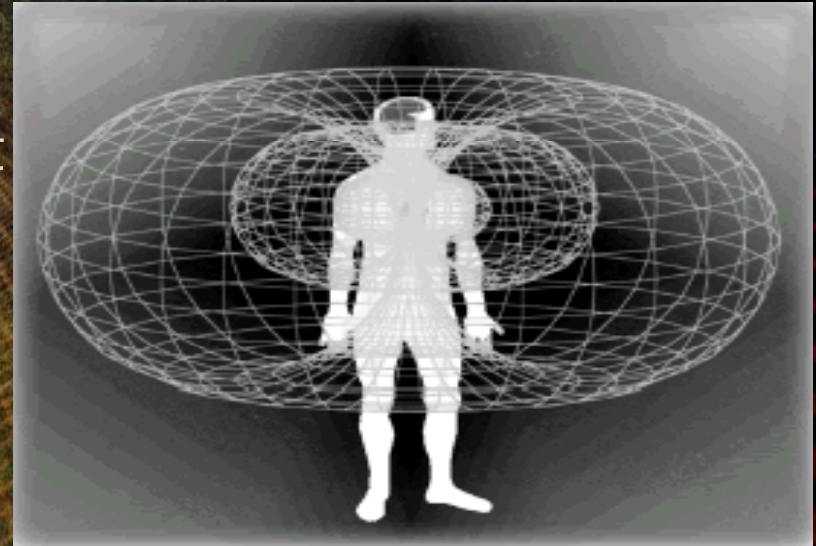
- Destructive
- **Constructive**
- **Supplemental**
- Combinations

All Living Organisms Evolved & Exist in a Sea of Electromagnet Energy



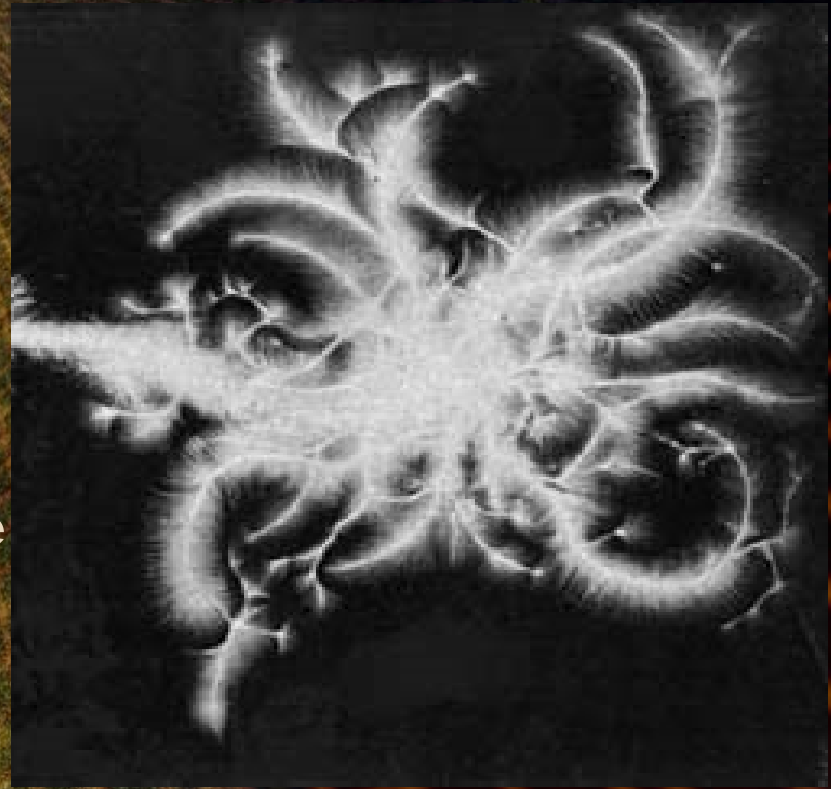
The Human Energy Field

- The human body continually has energy moving through it which creates an organizing Quantum Electro Dynamic Field that creates, surrounds and permeates the matrix of the body
- This standing energy field may regulate the neural and chemical control systems of the body
- This field is the primary information system of the body and is involved in pattern formation



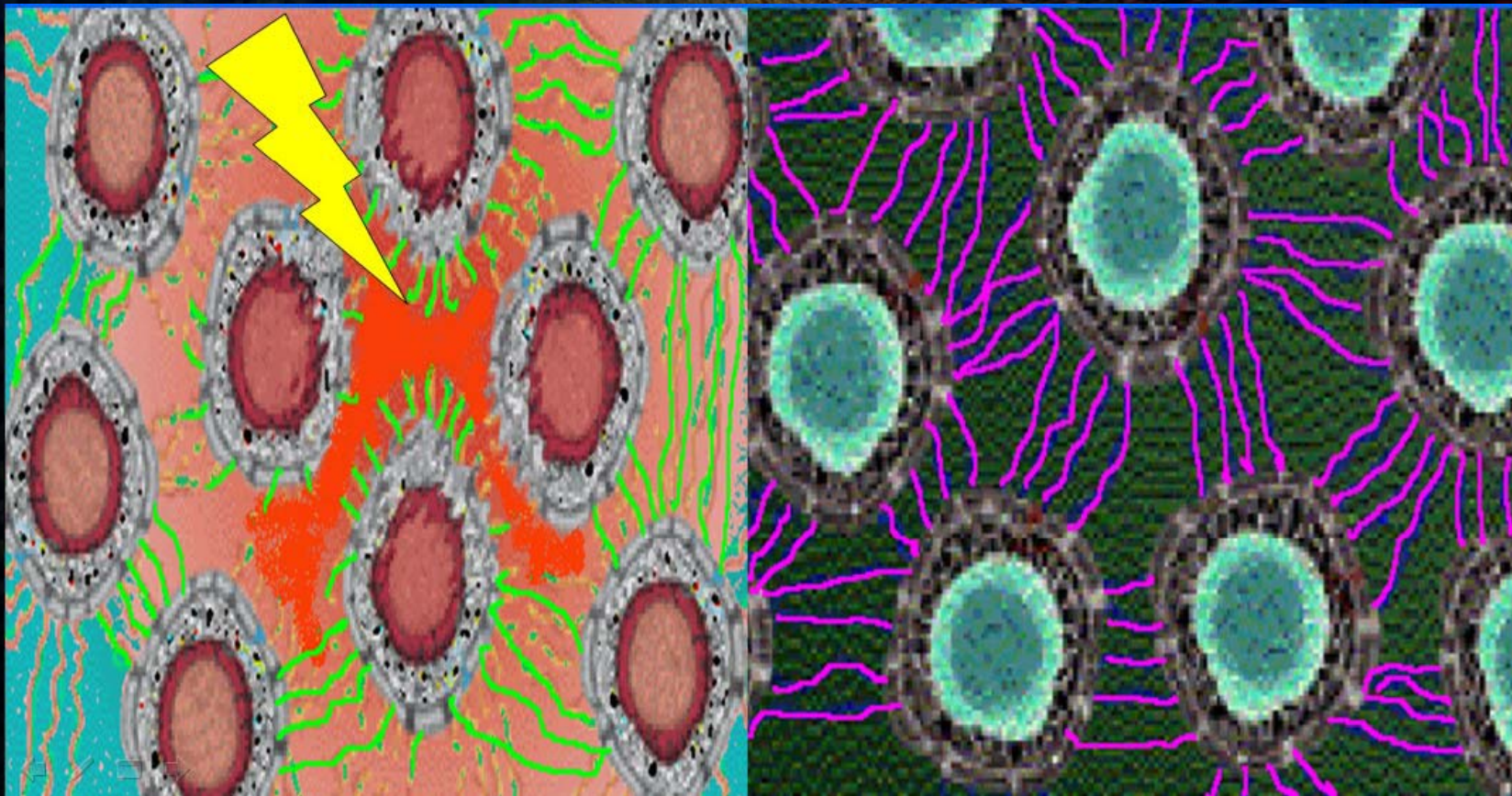
The Human Template

- According to Robert Becker the body has a DC electric field (Becker, 1990).
- According to Valerie Hunt, changes occur in the human energy field prior to changes occurring in physical systems (Hunt, 1989).
- One could theorize that disease and healing manifests first in the energy matrix and then the physical matrix
- Therefore reorganization of damaged energy matrix could facilitate healing.



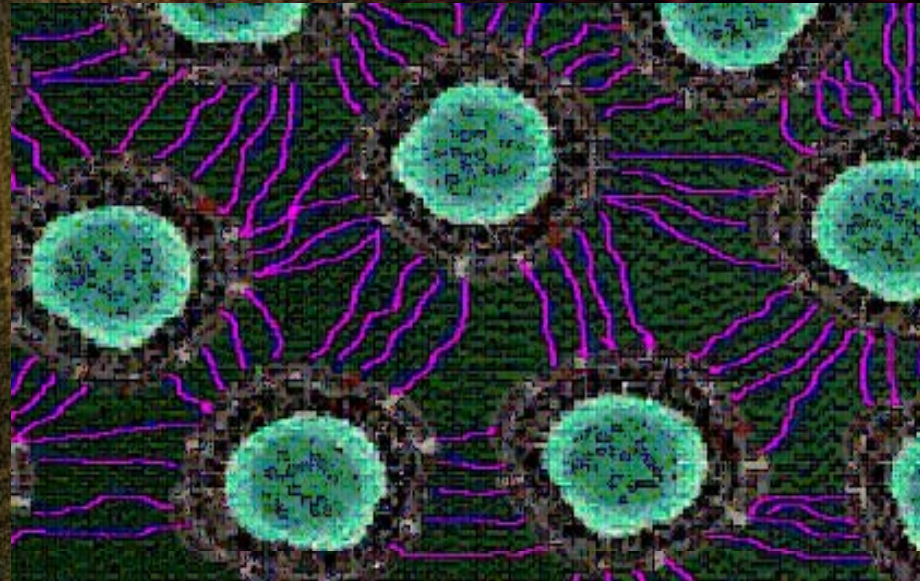
Disease / Breakdown

- Disease may be a result of the breakdown in integrity of the connections within and between the cells



Electrical Restoration

- Use of frequencies that match biological resonance promote healing
- By restoring current flow, recharging cell membranes, improving cell-to-cell communication,
- And by increasing nutrient uptake by cells, toxin release, protein synthesis, energy production, etc.



Regeneration into the Matrix



Continued Regeneration



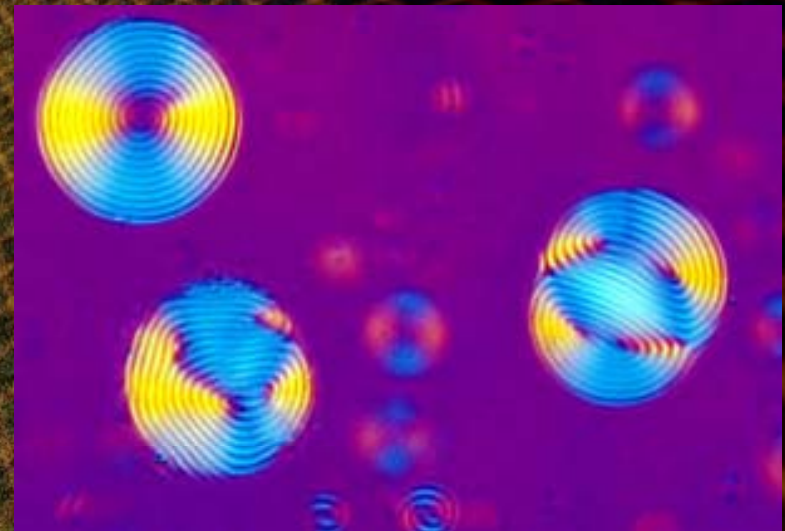
Complete Regeneration

- Regeneration complete including fingernail and unique fingerprint



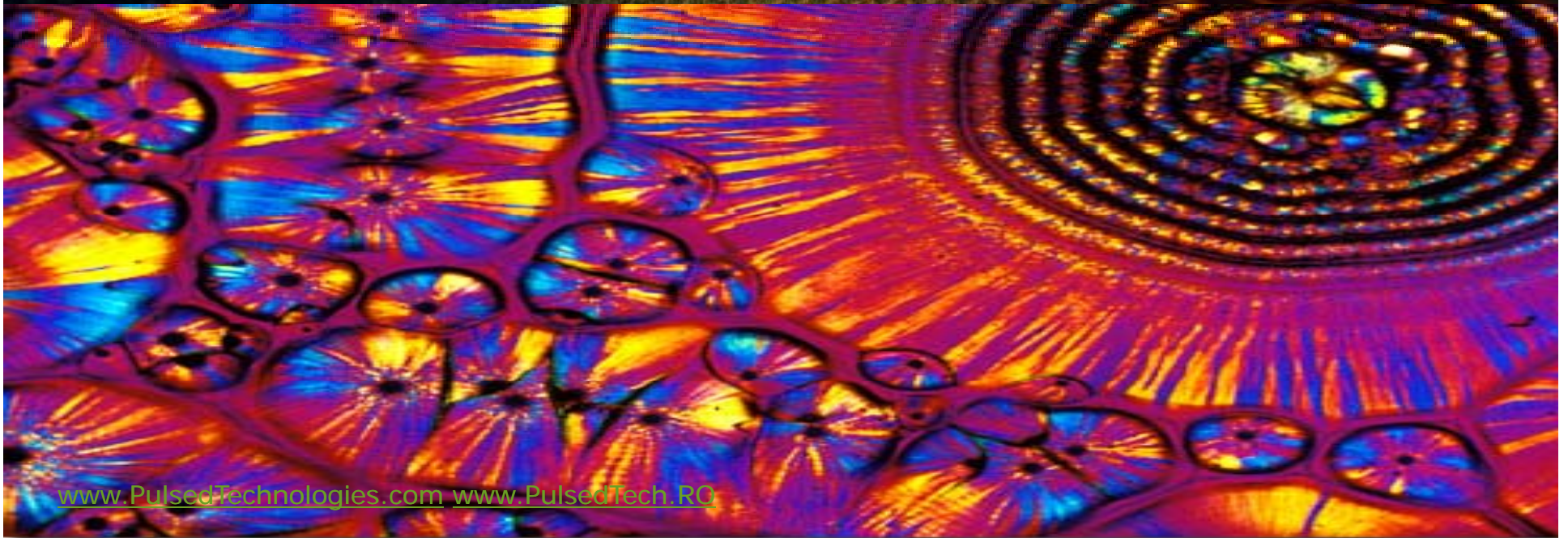
Destruction or Healing

- With Rife technology, pathogens can be oscillated to destruction by applying specific frequencies that increase their resonant frequency amplitude.
- Healing of cells and tissues can also be enhanced by the correct resonance, since every substance has its own unique vibration or signature.
- HOW?

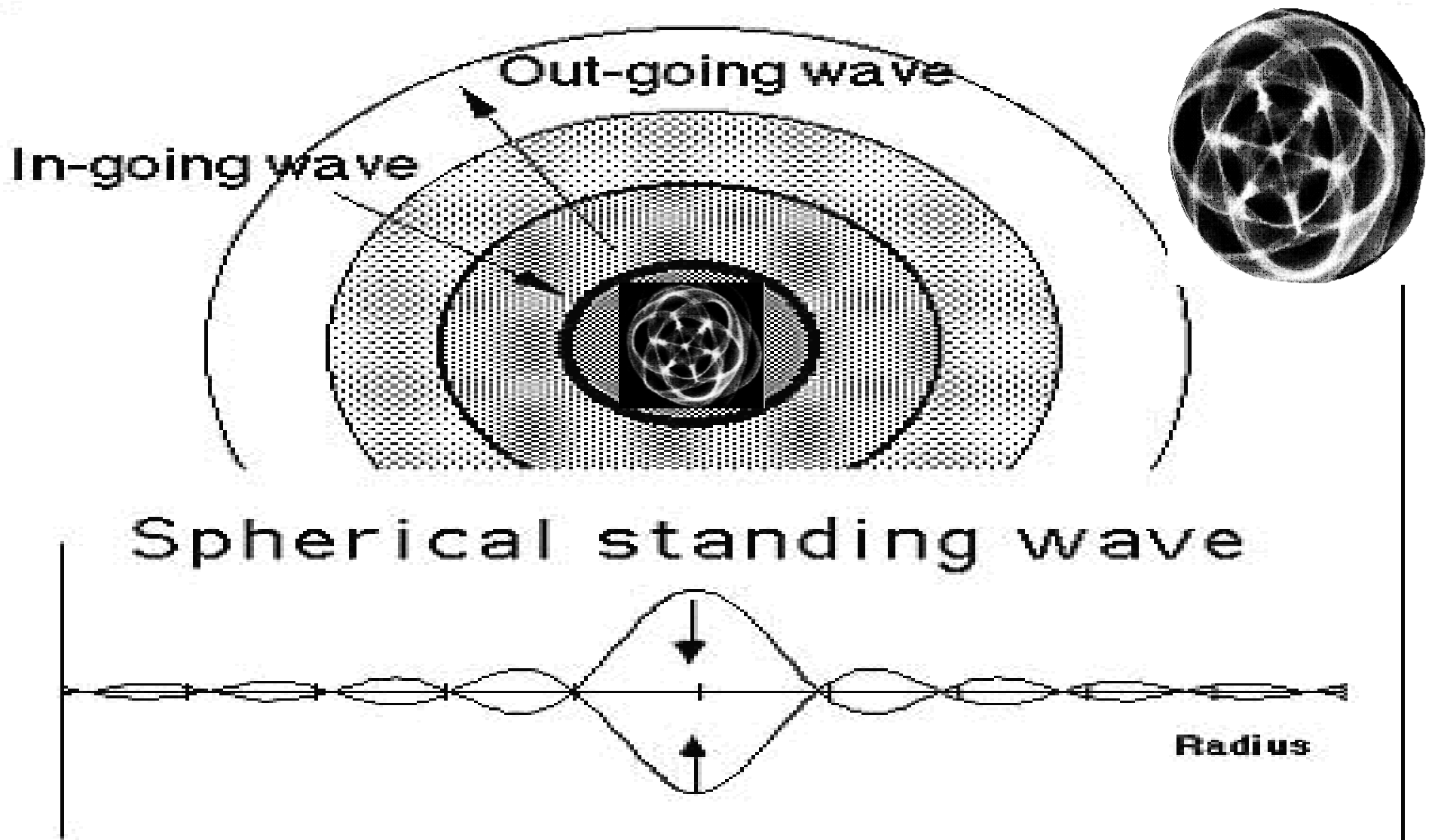


Wave Interaction

- According to quantum theory, an entity whether it is an atom or a molecule simultaneously possesses both localized (particle) and distributed (wave) properties.
- When two waves come together they interact with each other producing an interference pattern, this is a pattern capable of holding information.

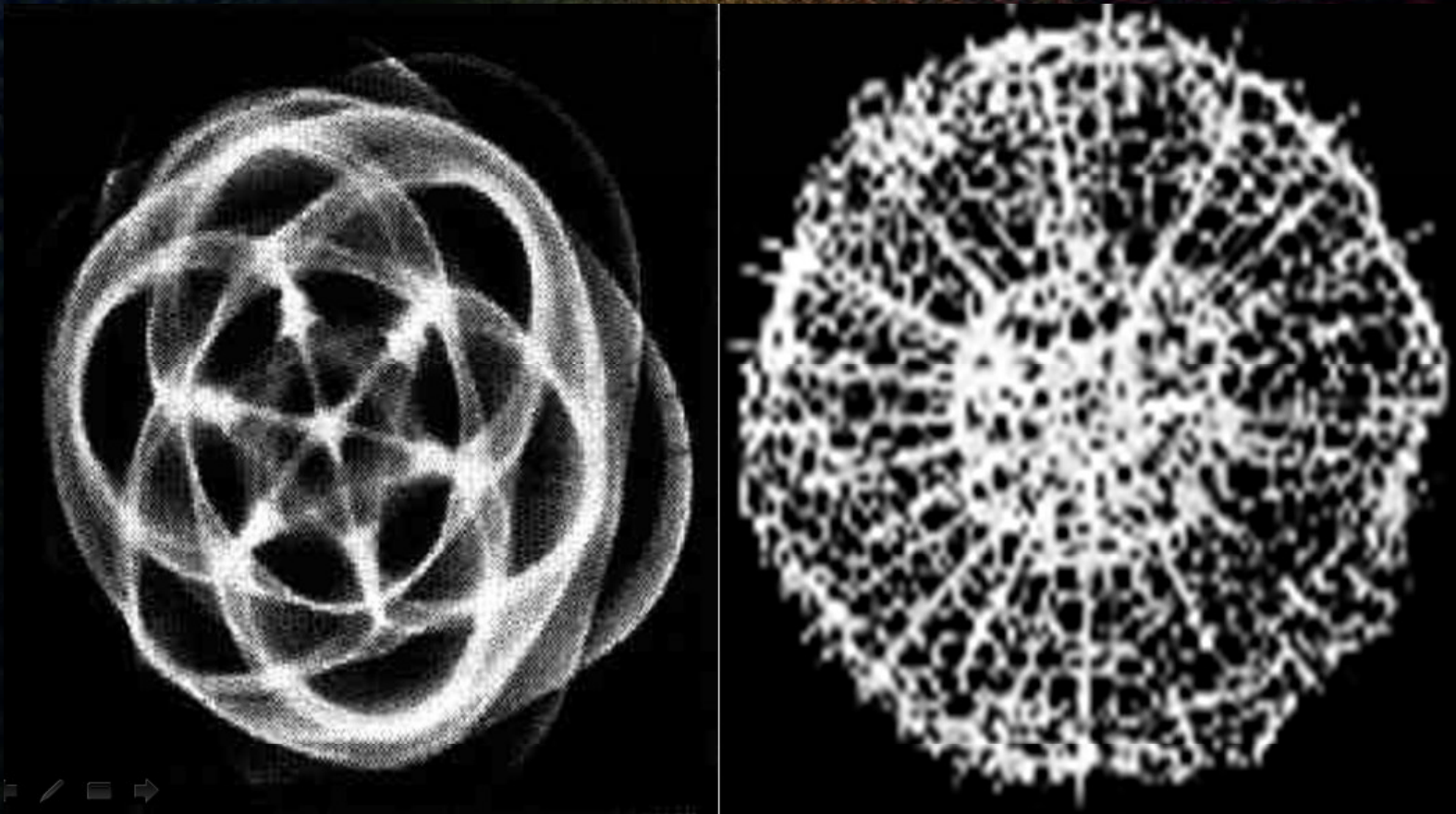


Biological cells and tissues are organized by standing waves

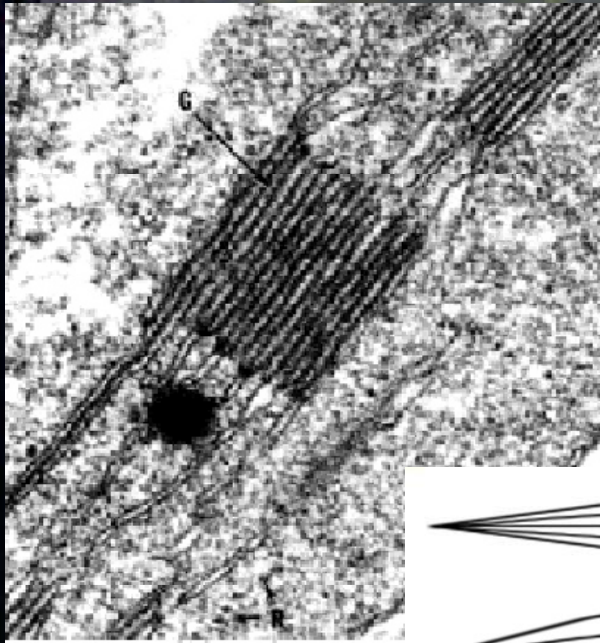


Coherent Forms

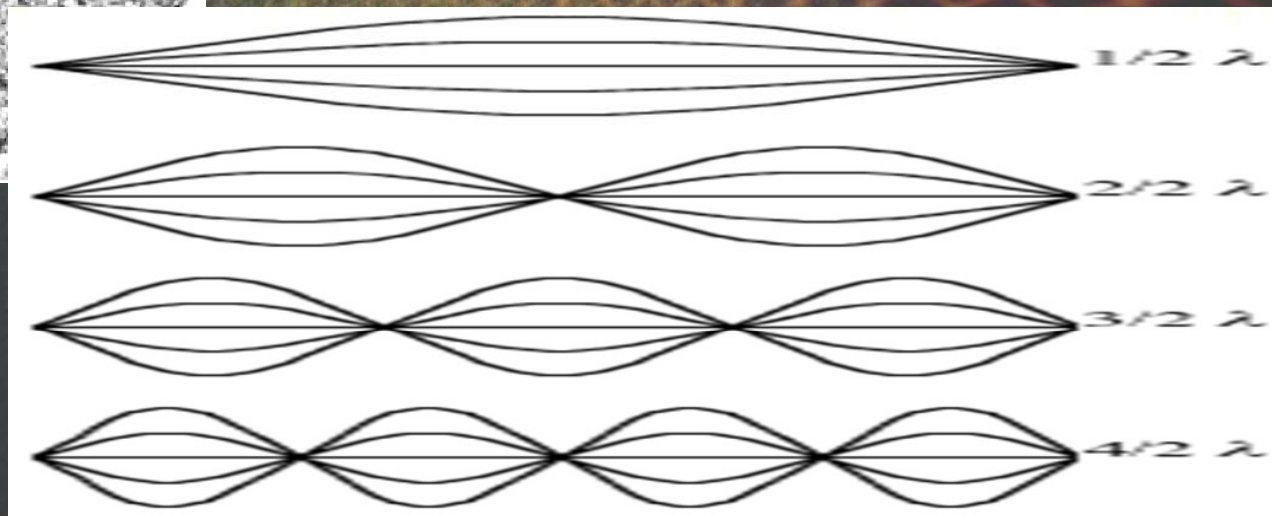
- Physical forms are representative of the energy fields present. Energy is stored in coherent forms



Resonance/Wavelength

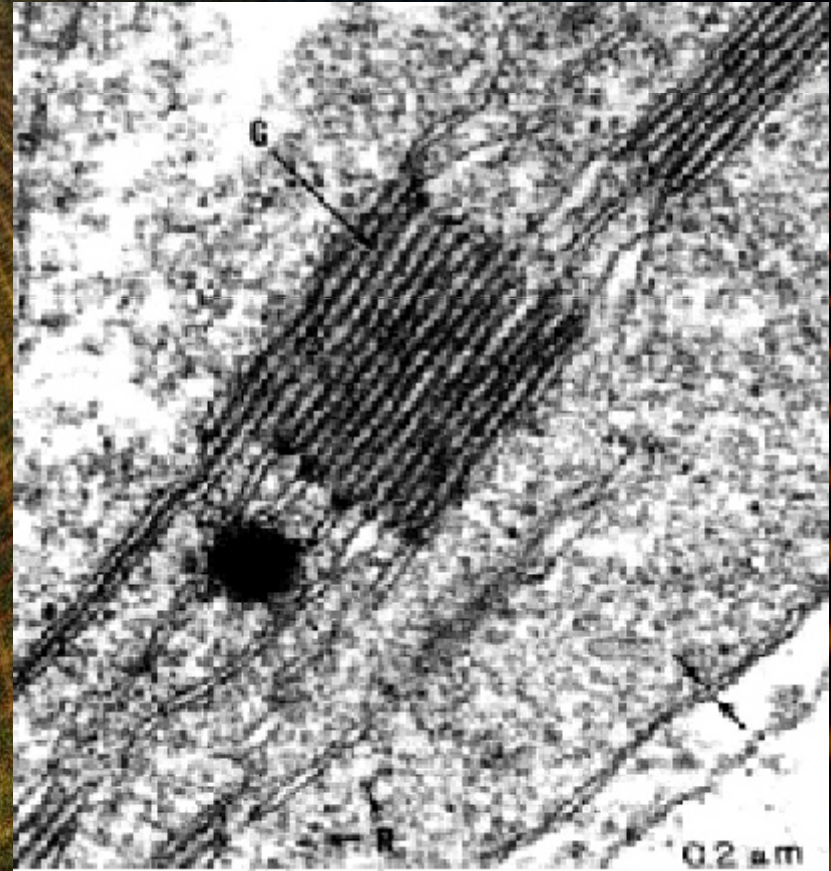
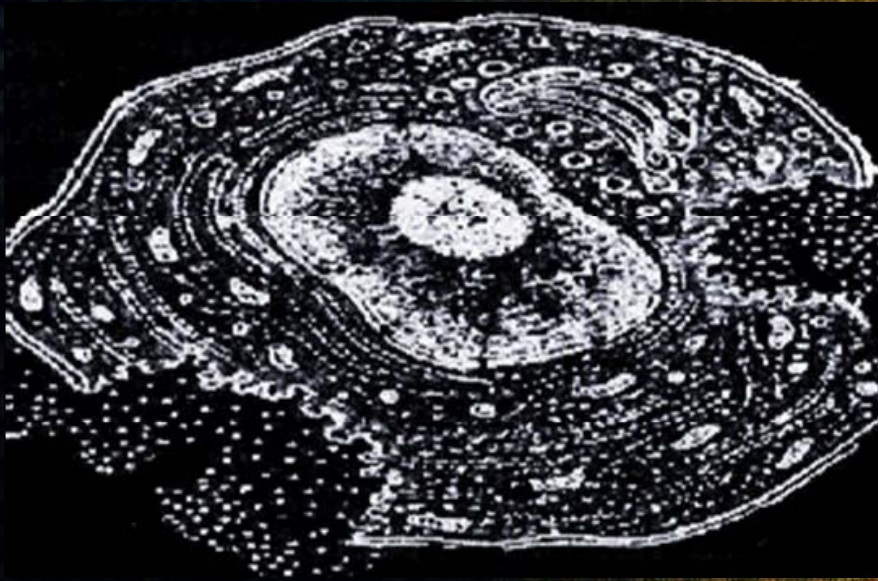


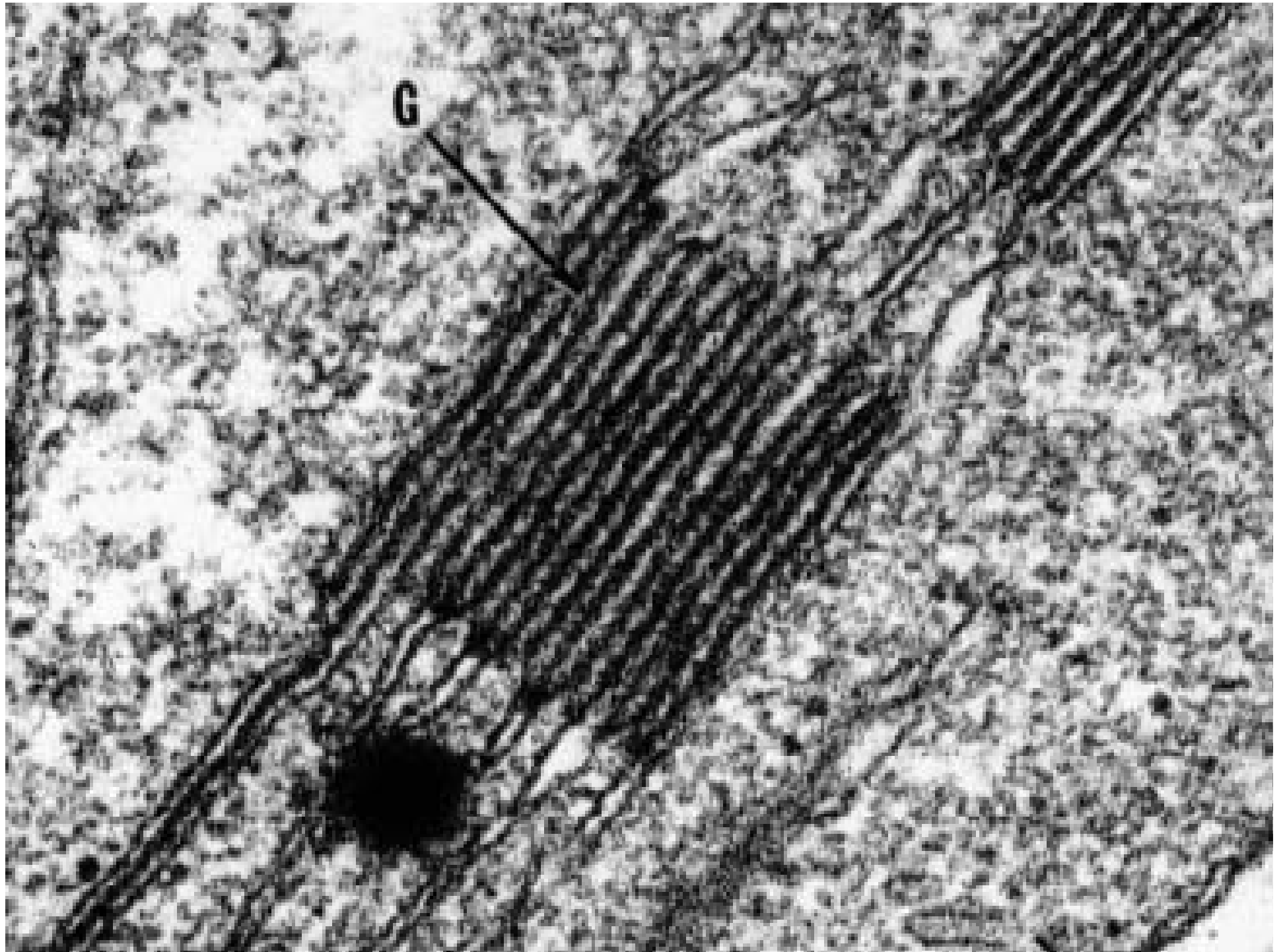
- Physical match or resonance of wavelength is where transfer of energy most efficiently takes place



Cellular Components

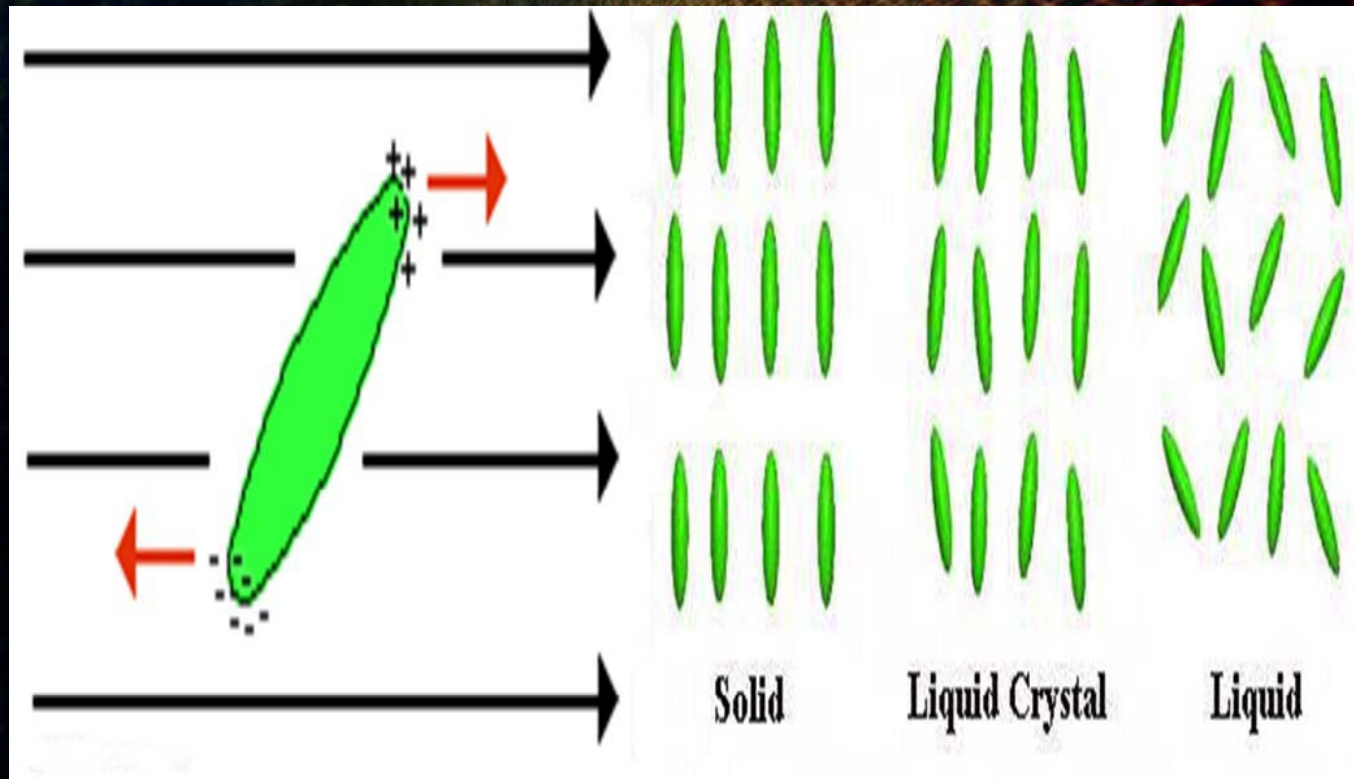
- Natural Semiconductors





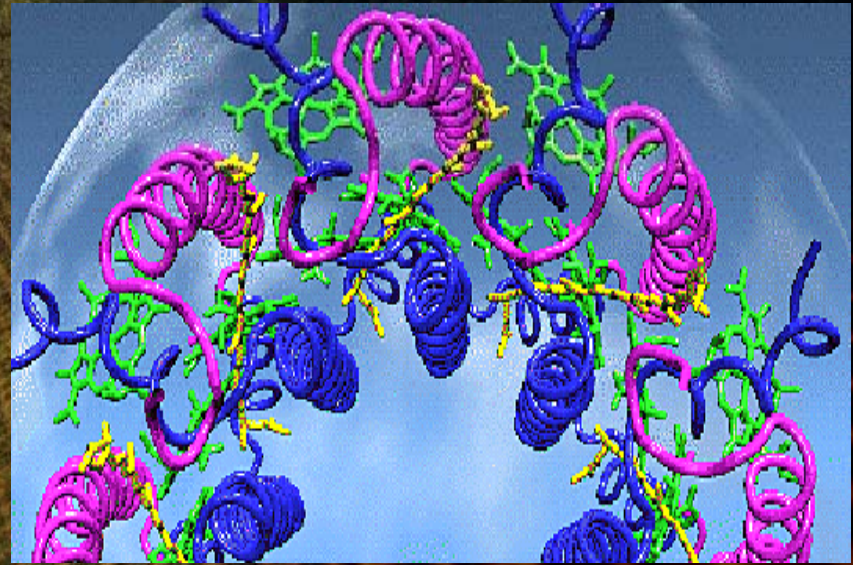
Liquid Crystal Arrays

- Biological molecules are -Liquid Crystals, which will array in coherent patterns when exposed to EMFs



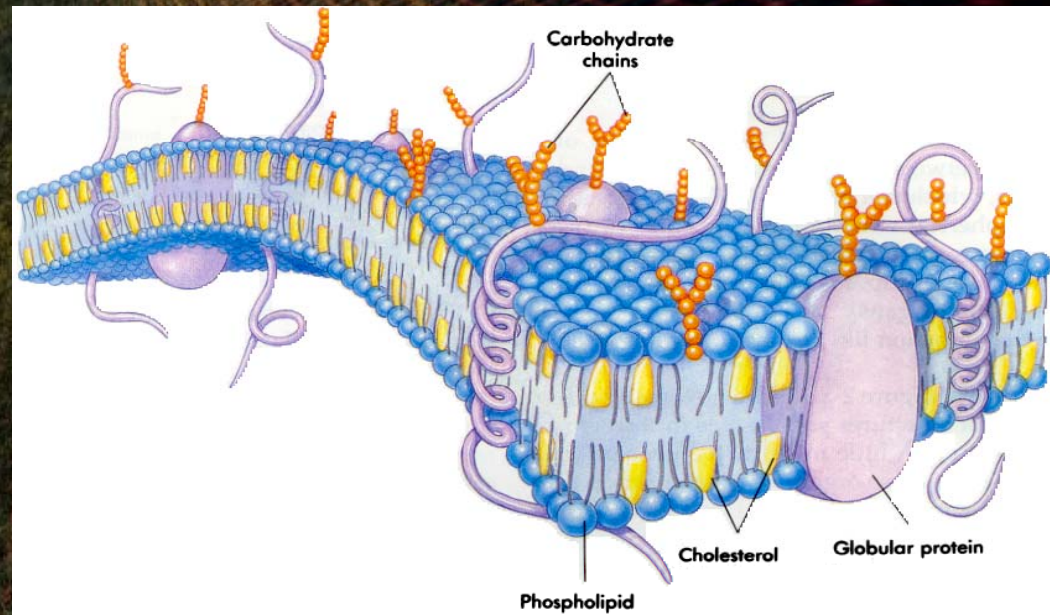
Molecular Antennas

- In the body, every protein and nucleic acid has a specific length and molecular weight, both of these physical aspects can be used to calculate the resonant frequency of a molecule.
- The length of an object can determine the resonant frequency of the object because of its correlation with wavelength.

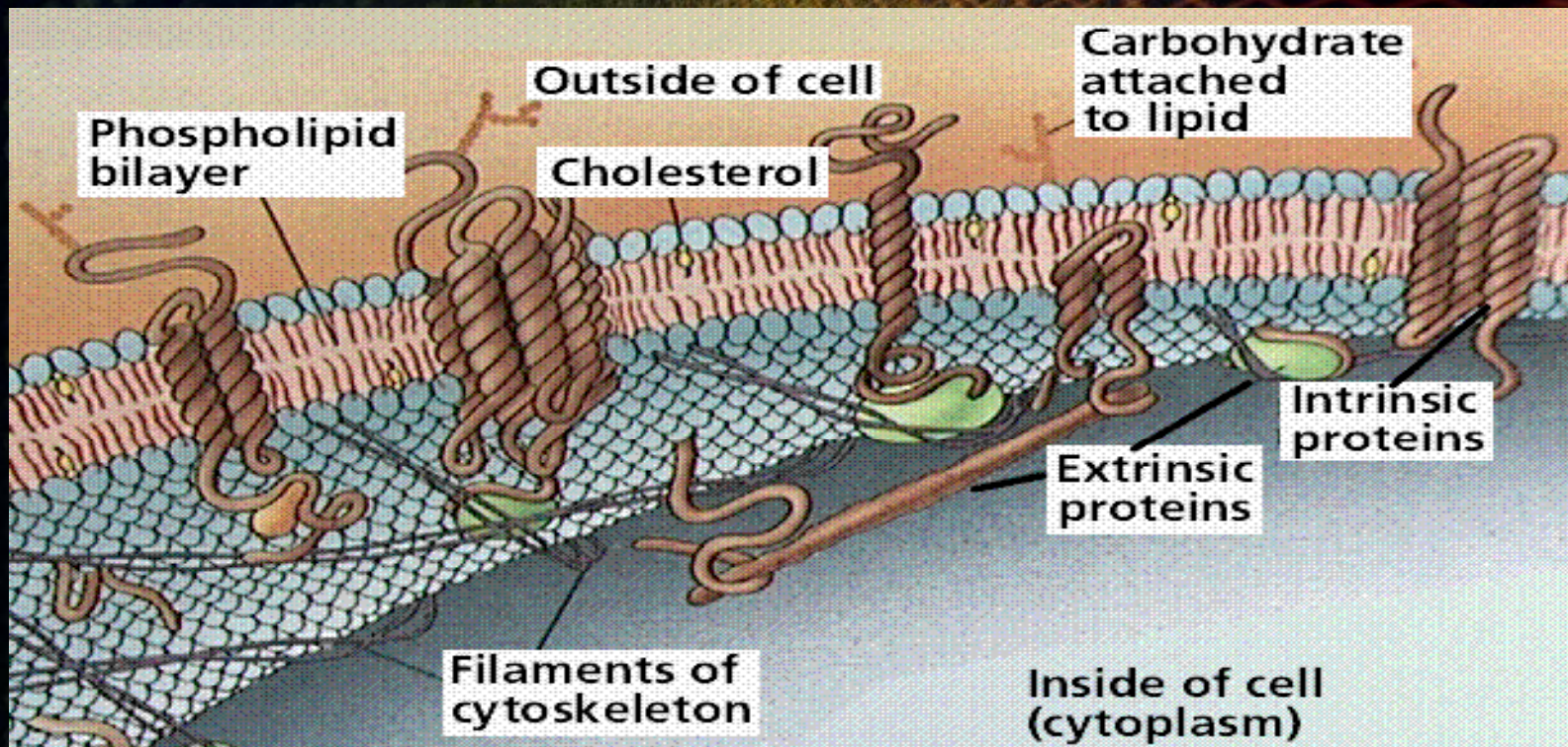


Membrane Electronics

- Diet, presence of essential nutrients and type and level of toxicity play important roles in controlling membrane composition (structure) and **Capacitance function**.
- The cell membrane because of its structure has electrical properties that are involved in power transmission along the membrane and **energy transduction**, which permits certain wavelengths of energy to initiate biological effects.

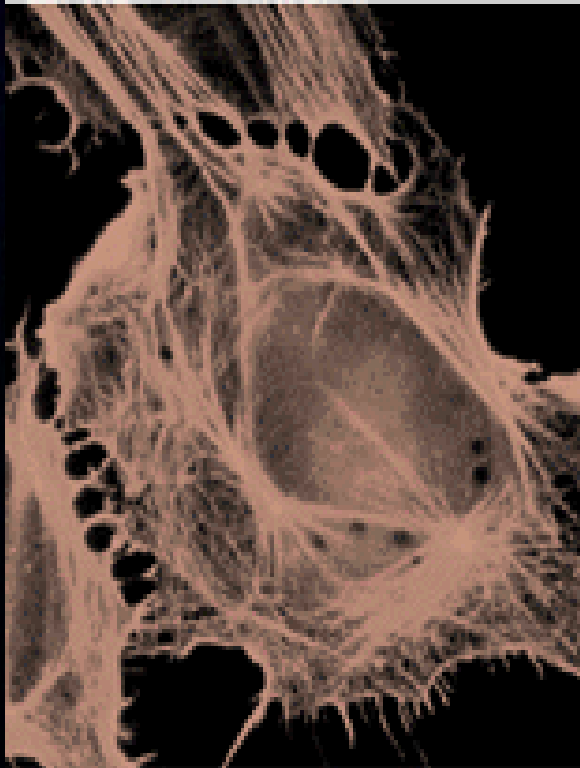


- **Conformational changes** in the membrane-receptor complexes initiate intracellular chemical reactions in enzymes bound to the **cytoskeleton**
- **First messenger signals** can be chemical, mechanical (needling), tensional (piezoelectric) thermal (moxibustion), acoustical (infrasonics), EMF (light lasers and LED phototherapy, radio waves, microwaves), magnetic and electrical)

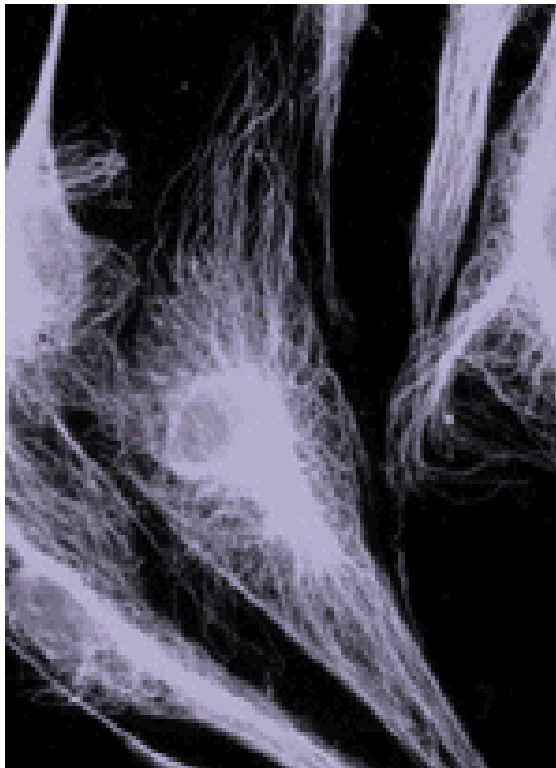
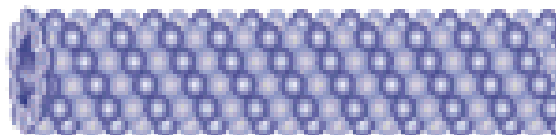


Targetable Structures

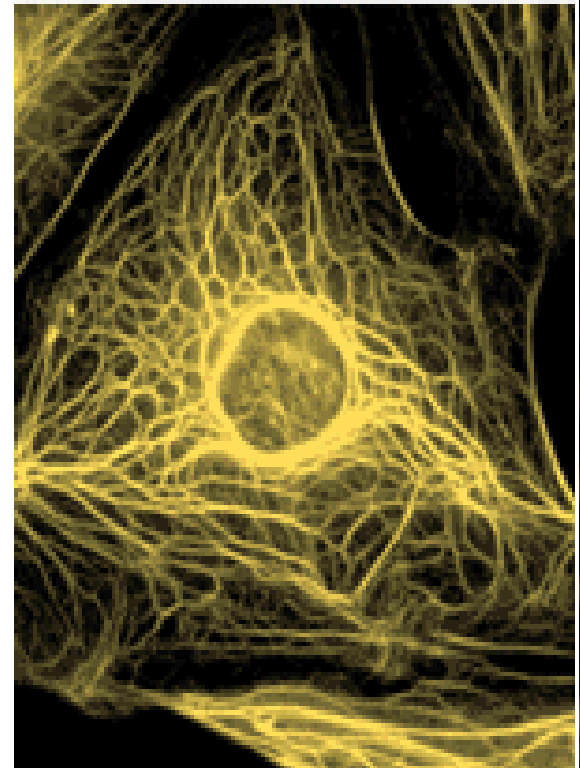
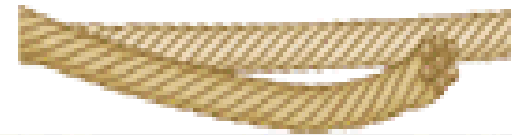
MICROFILAMENTS



MICROTUBULES



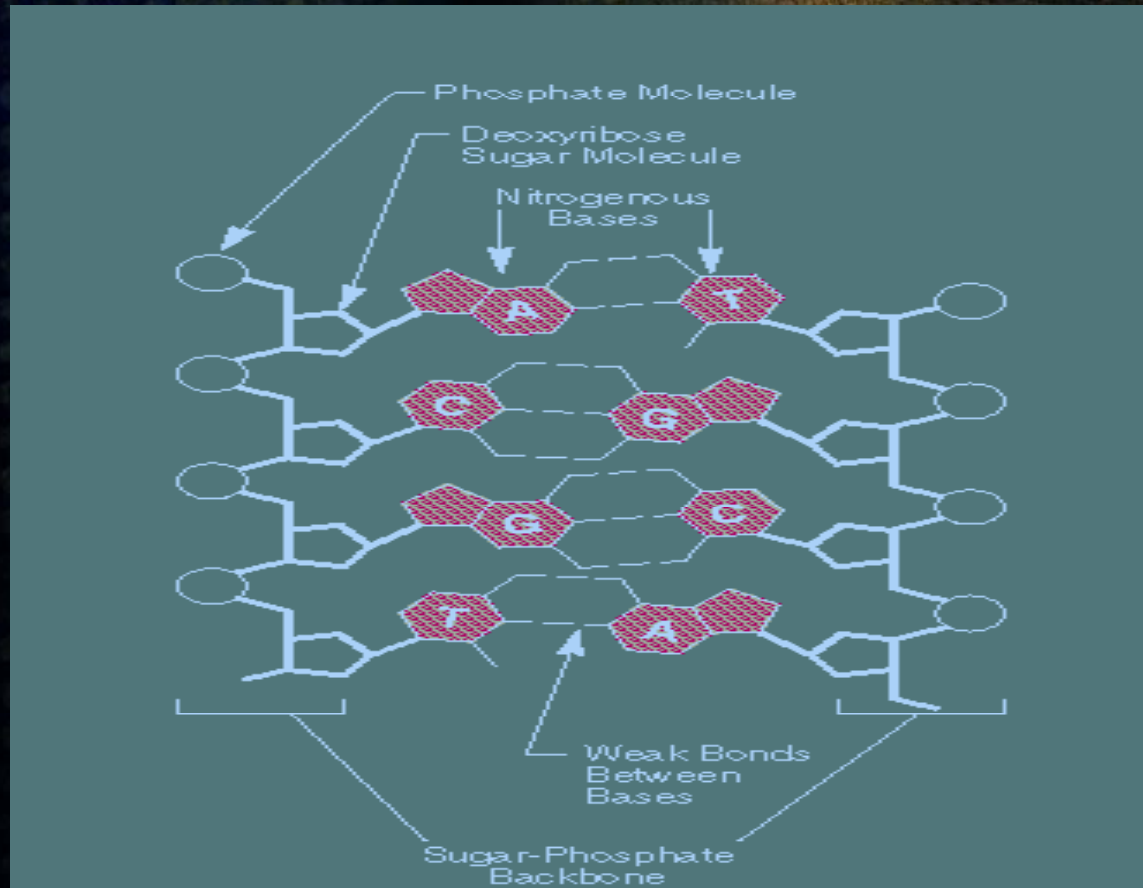
INTERMEDIATE FILAMENTS



Illustrations: Laurie Grace; Photos: Donald E. Ingber; Robert D. Goldman, Northwestern University Medical School

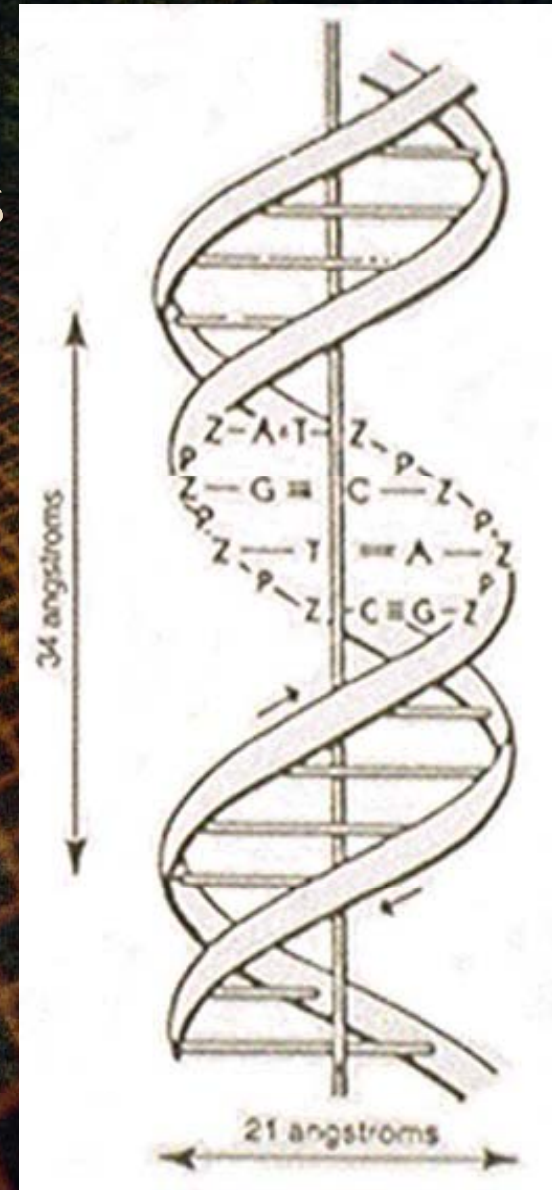
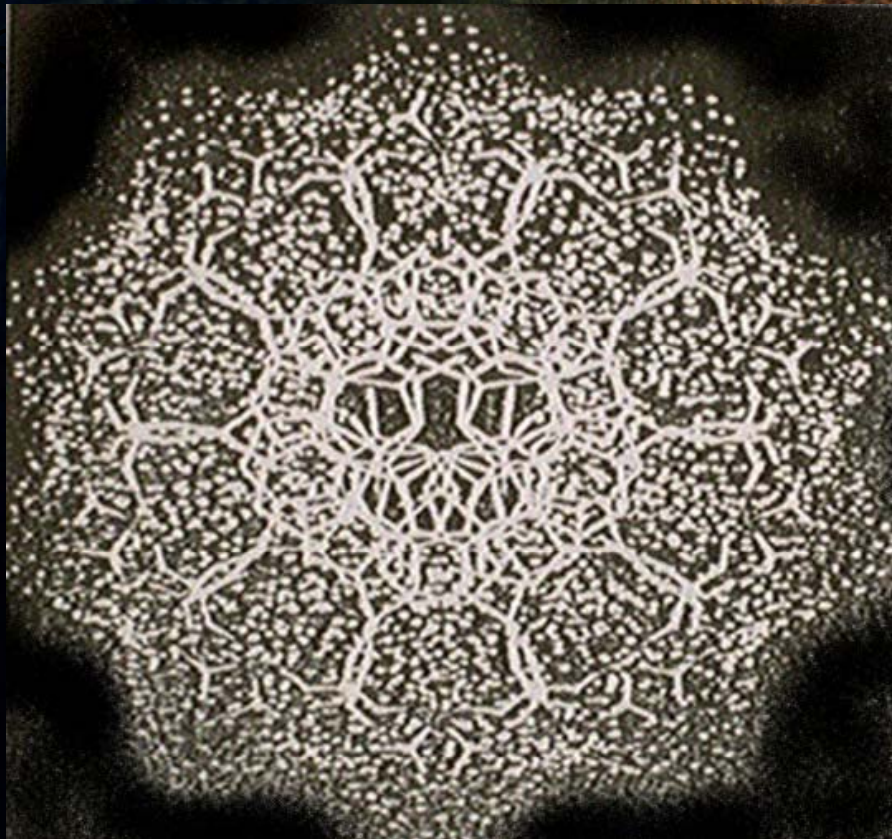
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Targetable Molecular Bonds



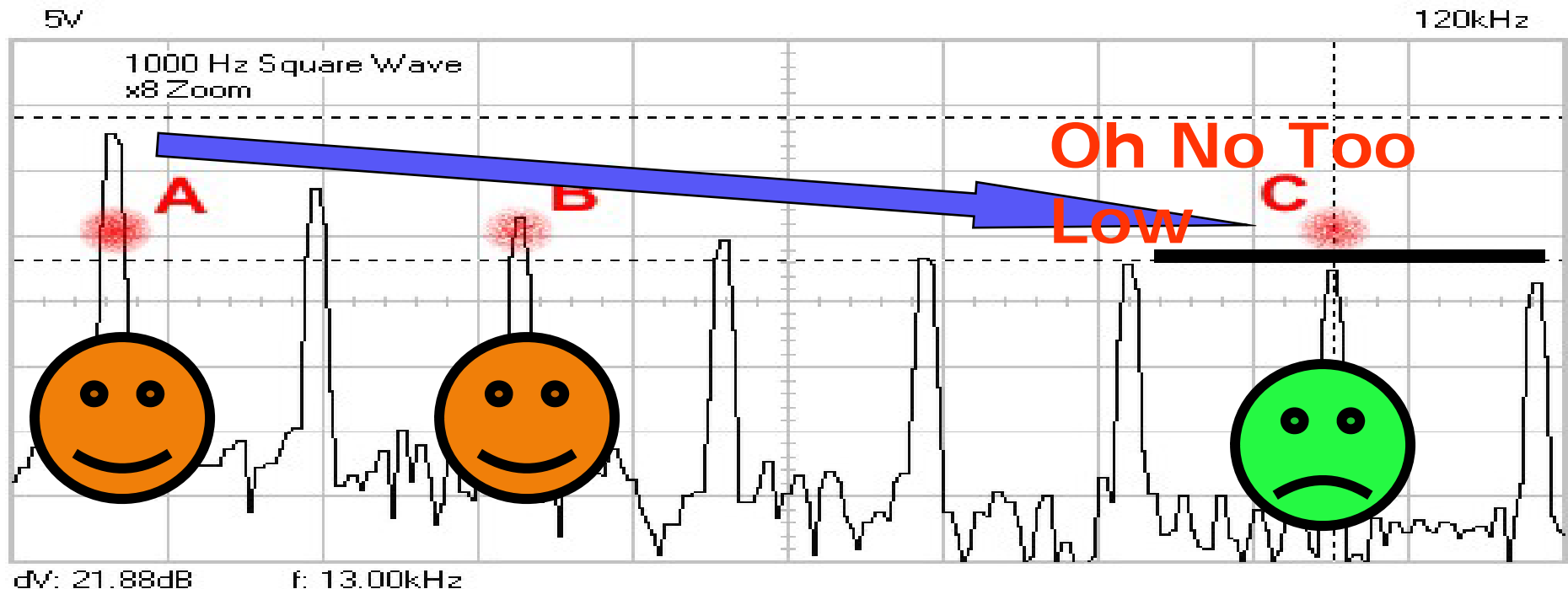
DNA

- The physical DNA structures provide "target-able"



Target With Amplitude and Frequency Windows

If you match the frequency window, but not the amplitude window there may not be enough energy transferred to initiate the action.



Cancer Scenerio

Before Exposure



24 hrs
After
Exposure



After 2nd Exposure
24 hrs later



Cancer (before exposure)



Cancer (24 hrs after exposure)



Cancer (24 hrs after 2nd exposure)



LED vs. LASER

- They **produce multiple combinations** of healing wavelengths of light unlike laser devices, which produce light in fixed wavelengths "Laser light has shown some benefit for wound healing, but has limited surface area and wave lengths (Whelan et al., 1999)."
- They **can treat large areas** as opposed to the small areas that laser devices treat.
- They use advanced super bright LEDs that are capable of creating the right energy densities, light intensities and **multiple wavelengths** necessary for biological effects.

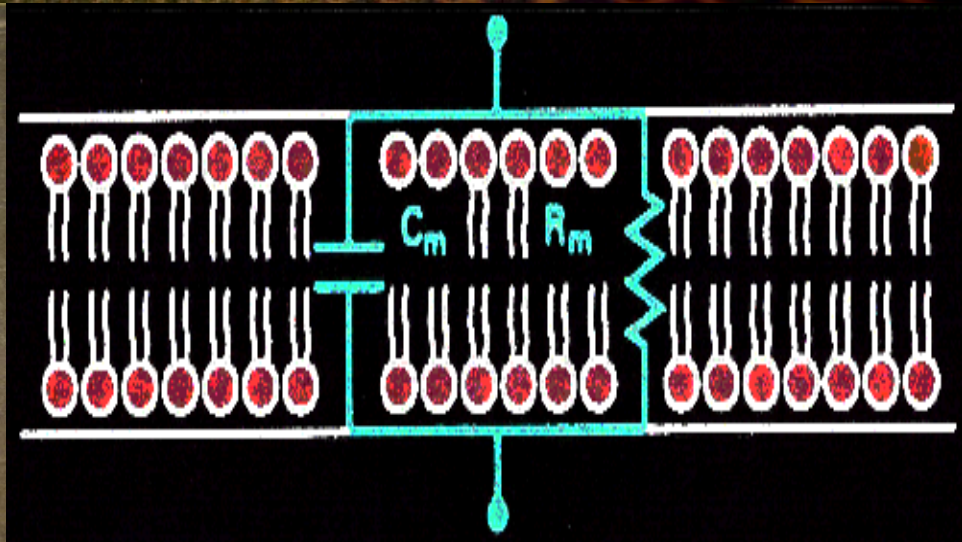
PPLED Arrays for Localized Application

- Precision Pulsed LED Arrays may have many of the same characteristics & effects as do Pulsed Plasmas



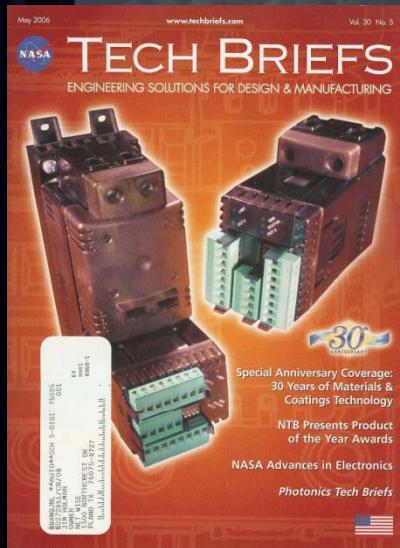
"Charging" of Cell Membranes

- Healthy cells have an electrical potential across the cell membrane of about 70 - 100 millivolts. Cell membrane potential is often lower in disease.



WARP 10

Warfighter Accelerated Recovery by Photobiomodulation



Source: NASA Tech Briefs – May 2006

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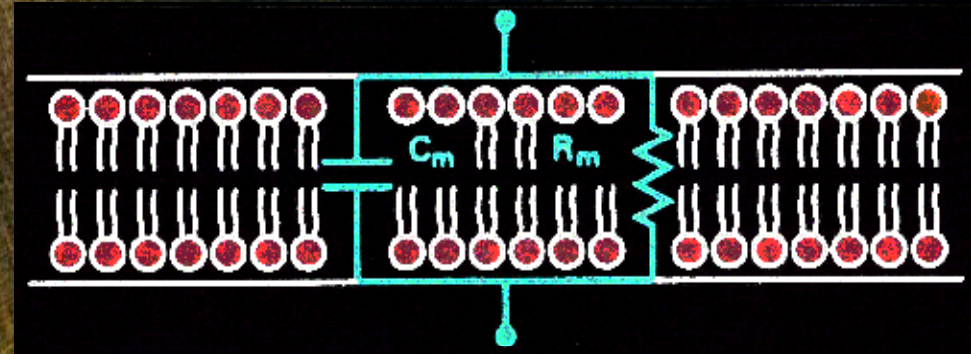
PPLED

- Precision Pulsed (high output) new generation of LEDs
- Spectral output across "therapeutic spectrum"

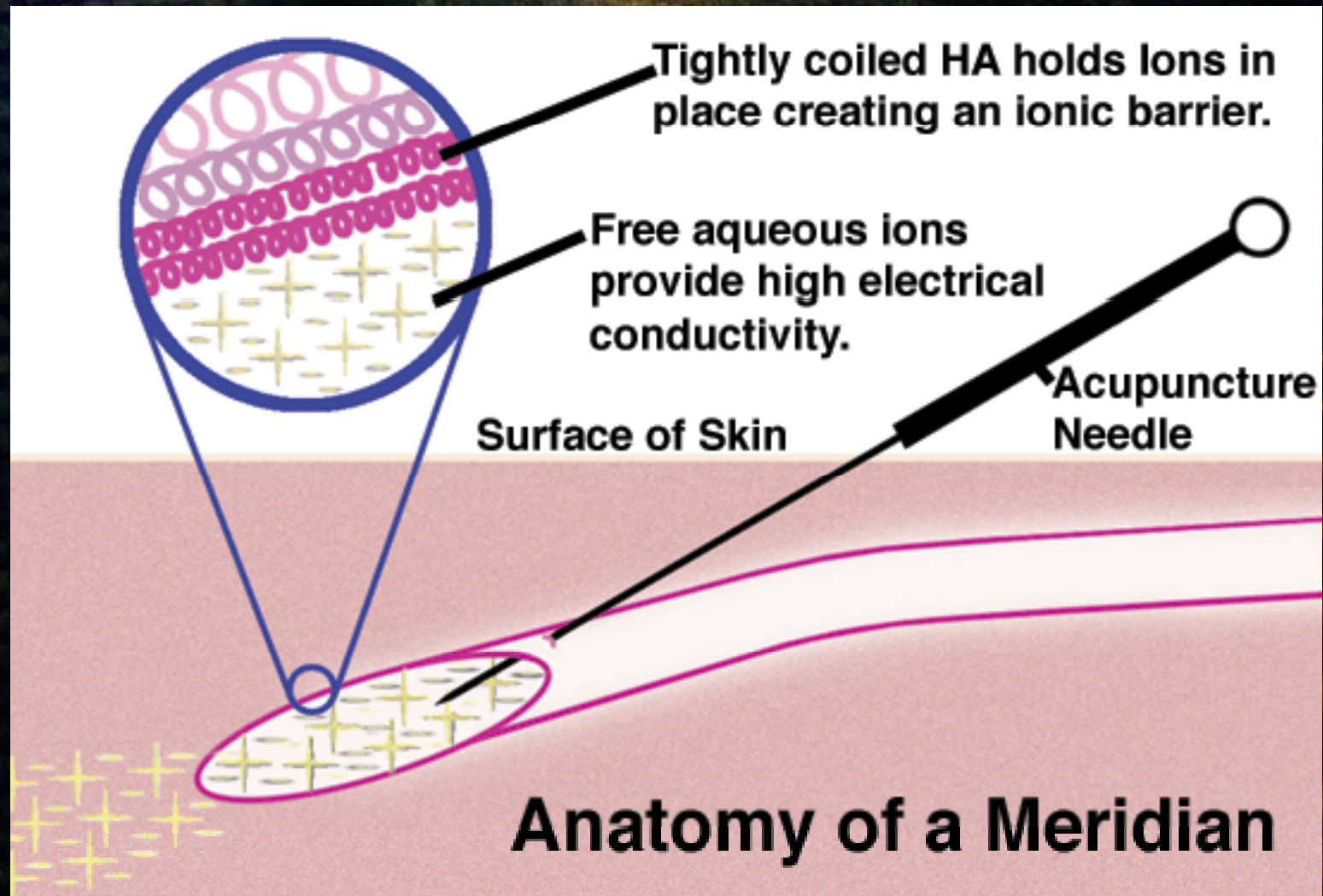


"Charging" of Cell Membranes

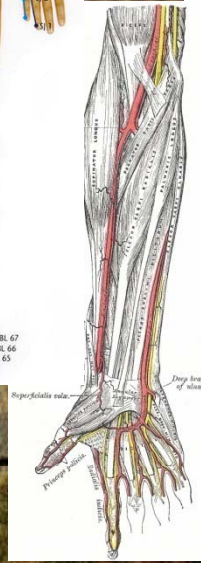
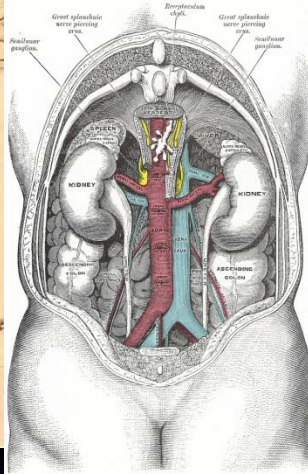
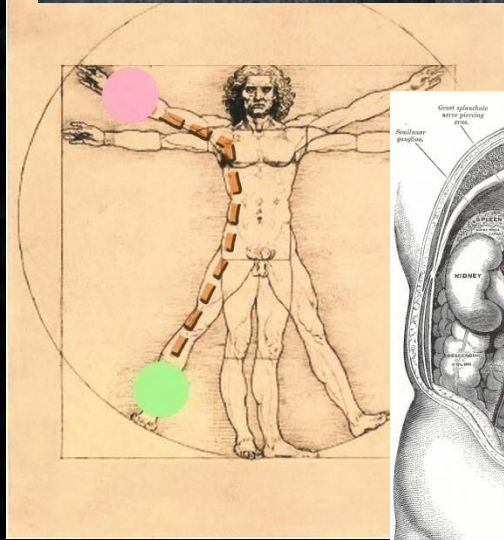
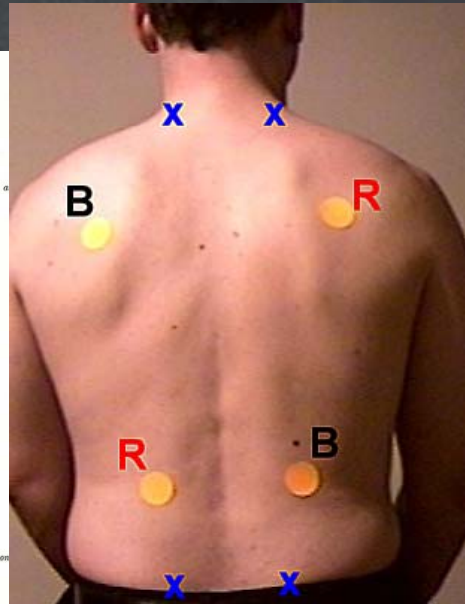
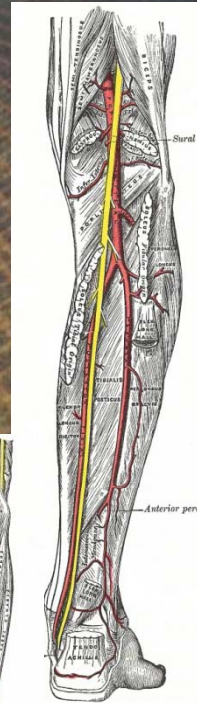
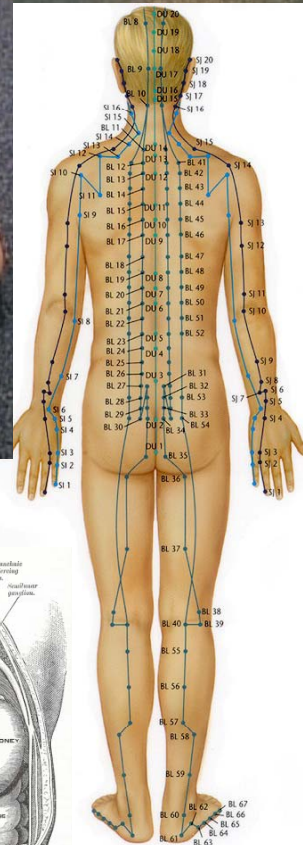
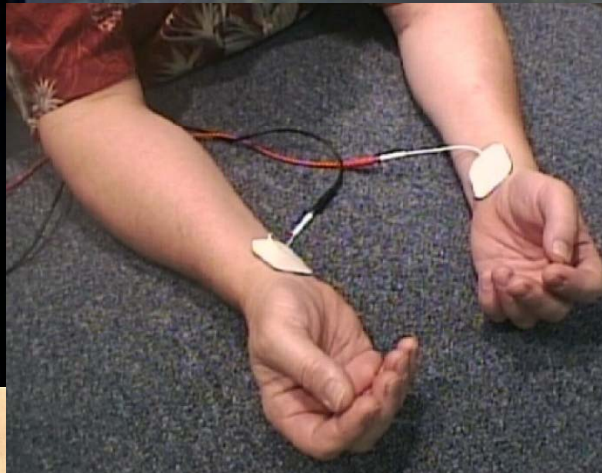
- Multi-frequency delivery systems provide a range of electrical frequencies that will allow cells and their molecular components to match impedances and absorb energy at their resonate frequency.
- When energy is absorbed in the membrane the membrane potential will increase, which helps activate cellular mechanisms.



Conductive Meridian

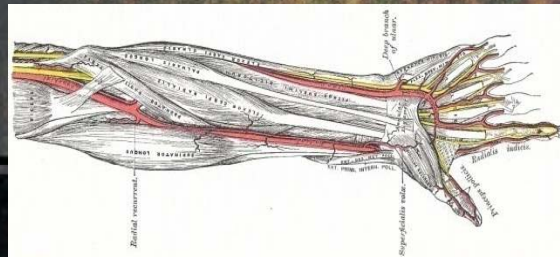
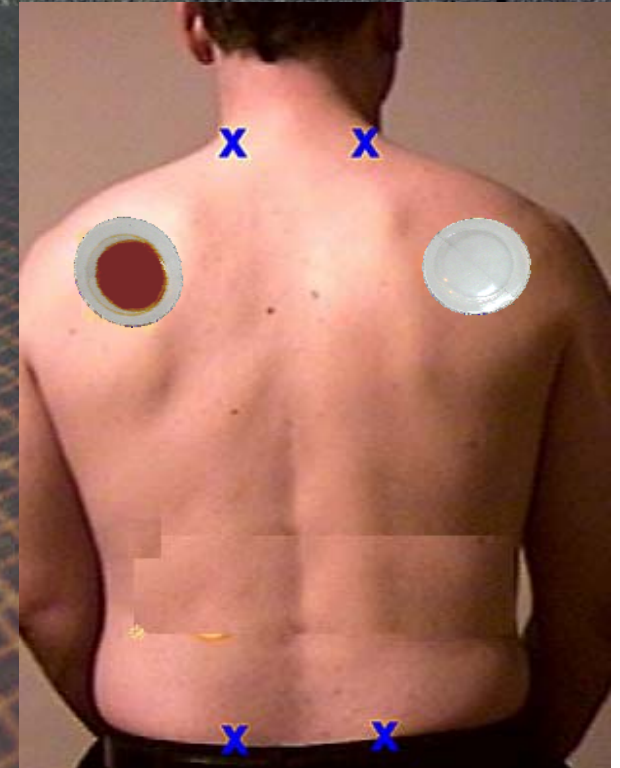
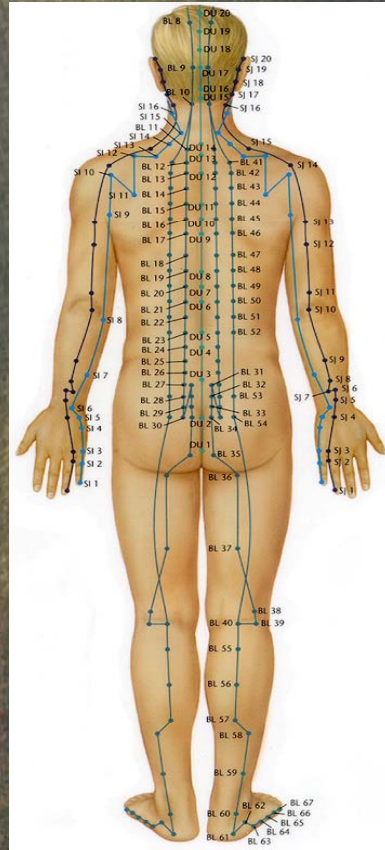
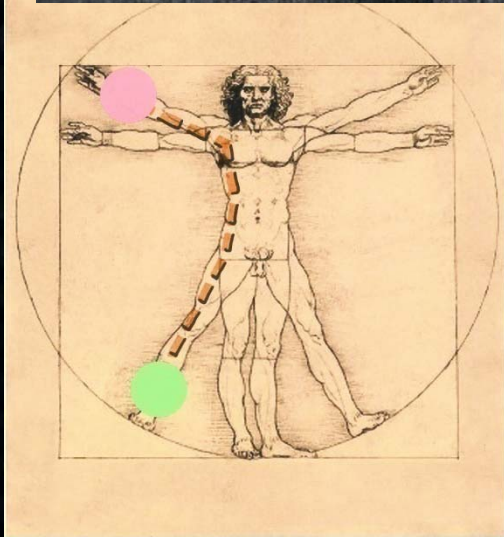
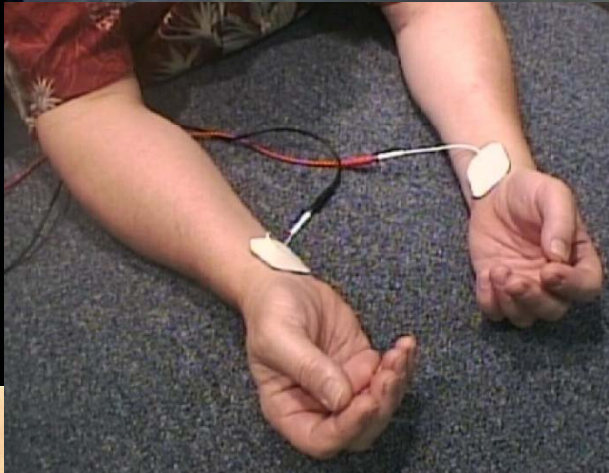


Delivery Considerations

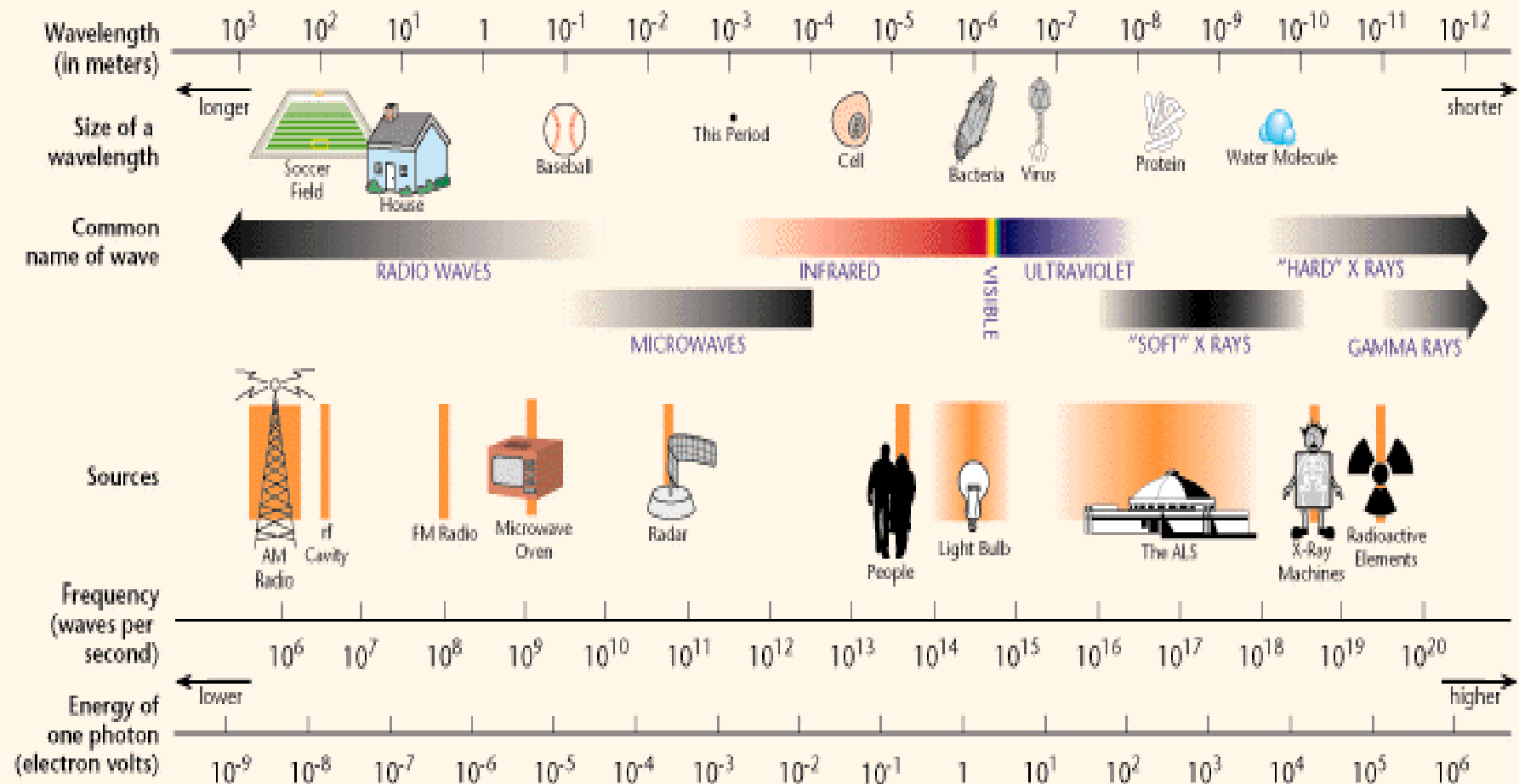


Delivery Considerations

Direct Contact

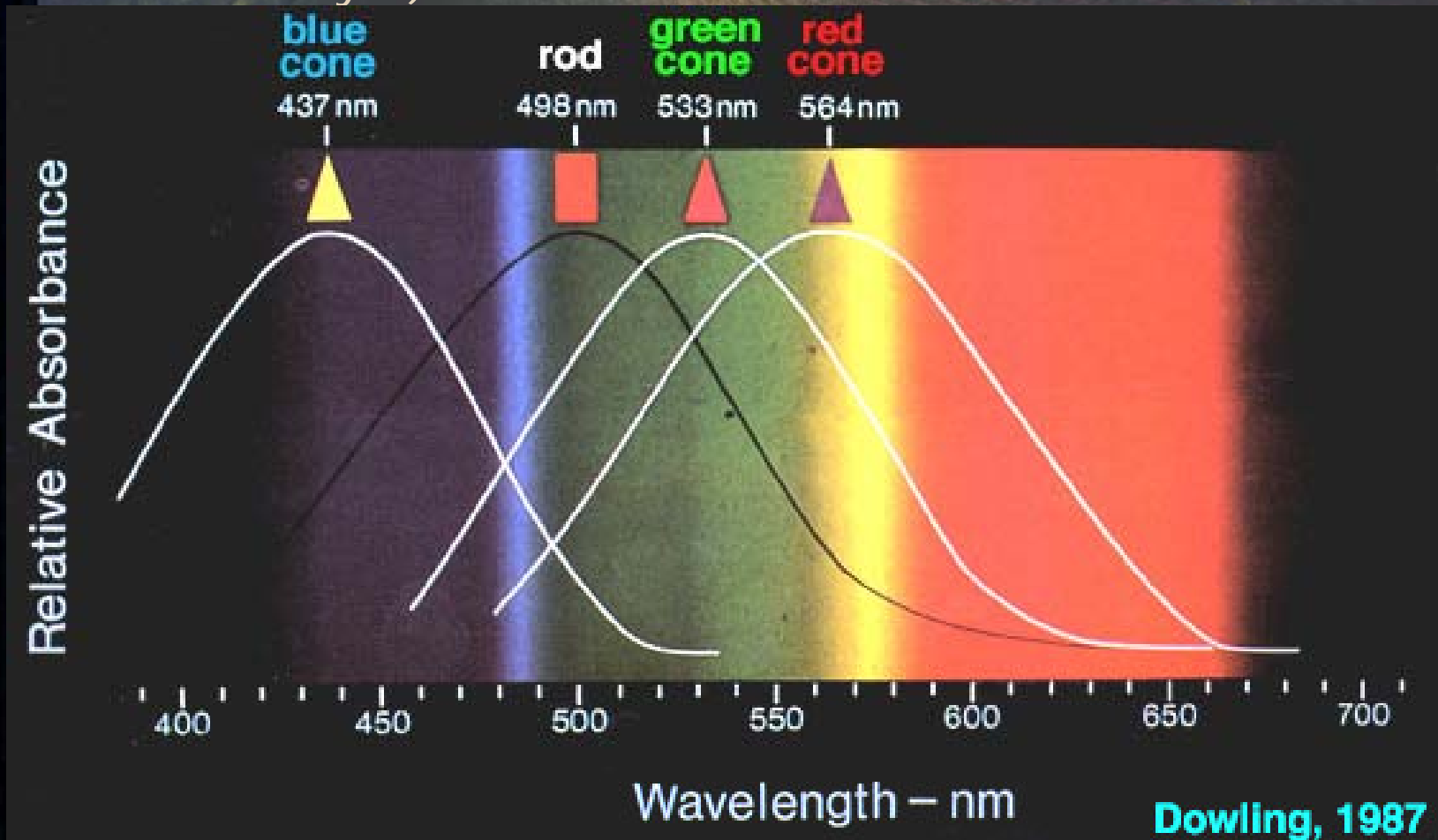


THE ELECTROMAGNETIC SPECTRUM



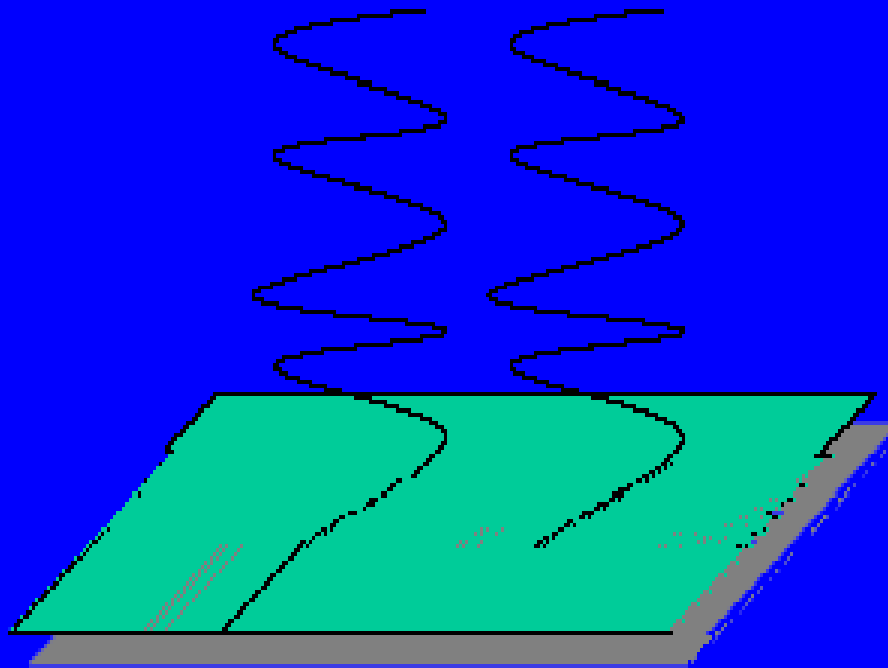
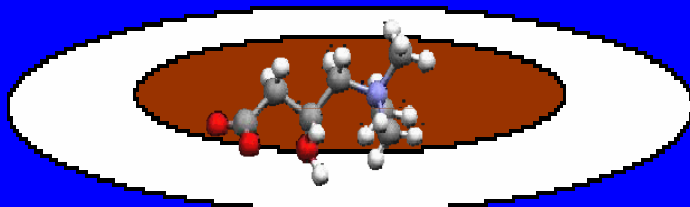
Biological Absorption & Conversion

- Different biological structures absorb specific wavelengths of energy and convert to other types of energy (electrical in the case of the eyes)



A Passive Photonic Device

patch

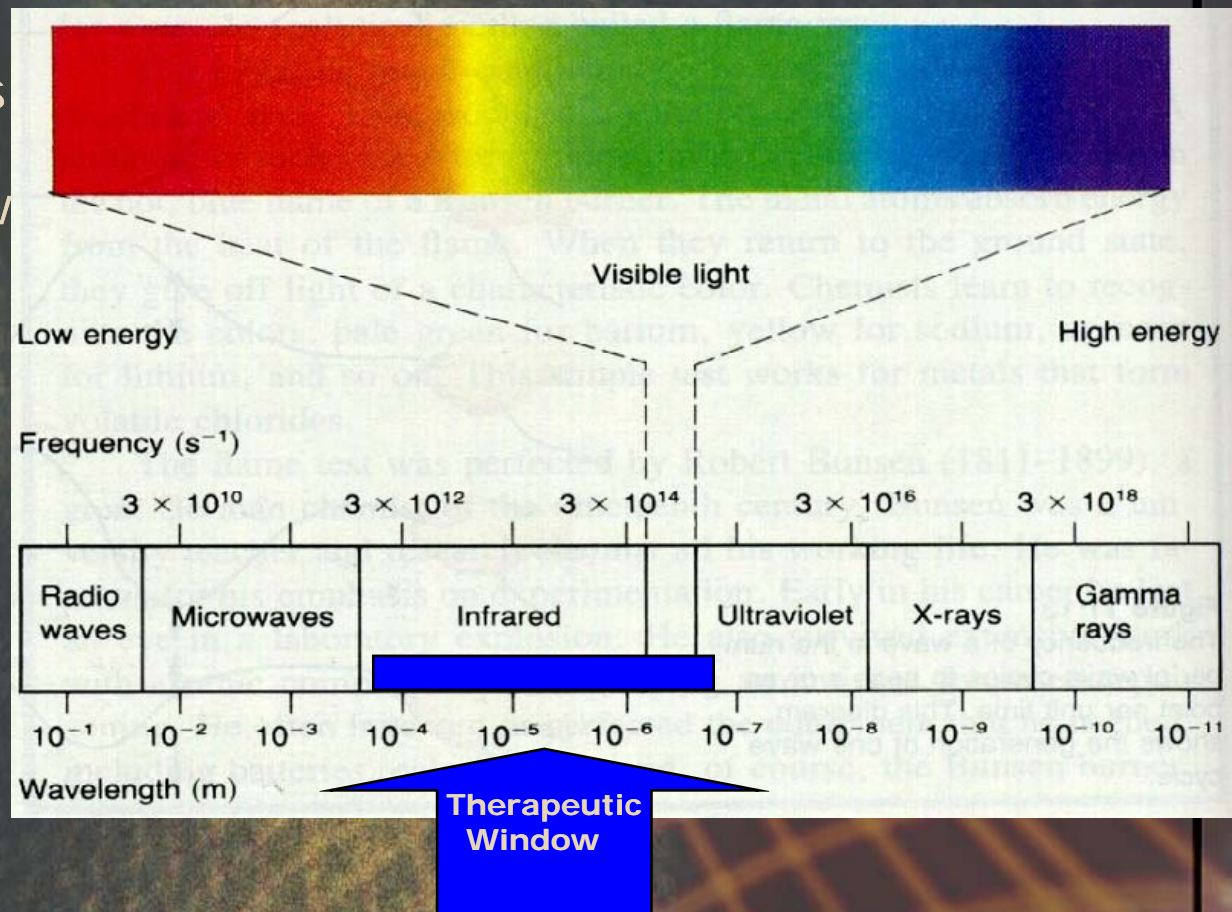


Wideband Infrared radiation coming off the skin is absorbed by organic molecular liquid crystal stereoisomer antennas

Creating a narrow band infrared signal specific enough to activate metabolic processes such as energy production from fat or initiate pain control

Therapeutic Window

- Currently known "positive" biological effects fall within a relatively narrow "therapeutic window"
- EM Emissions outside this window can be relatively "devastating" to living bodies and processes



Therapeutic Effects of Light

- In 1989 Jeffrey R. Basford, M.D. of the Mayo Clinic's Department of Physical Medicine and Rehabilitation, pointed out that the therapeutic effects of light therapy occurred both with lasers and non-laser light delivery systems. It is the basic properties of certain wavelengths of light that creates the effects (Basford, 1989).
- Wave-length dependent photobiological reactions that are well recognized and scientifically proven include: photosynthesis, vision, treatment of neonatal jaundice, and Vitamin D metabolism.
- **It takes no great leap of imagination to recognize that certain wavelengths of light may also affect healing, pain control and anti-aging.**

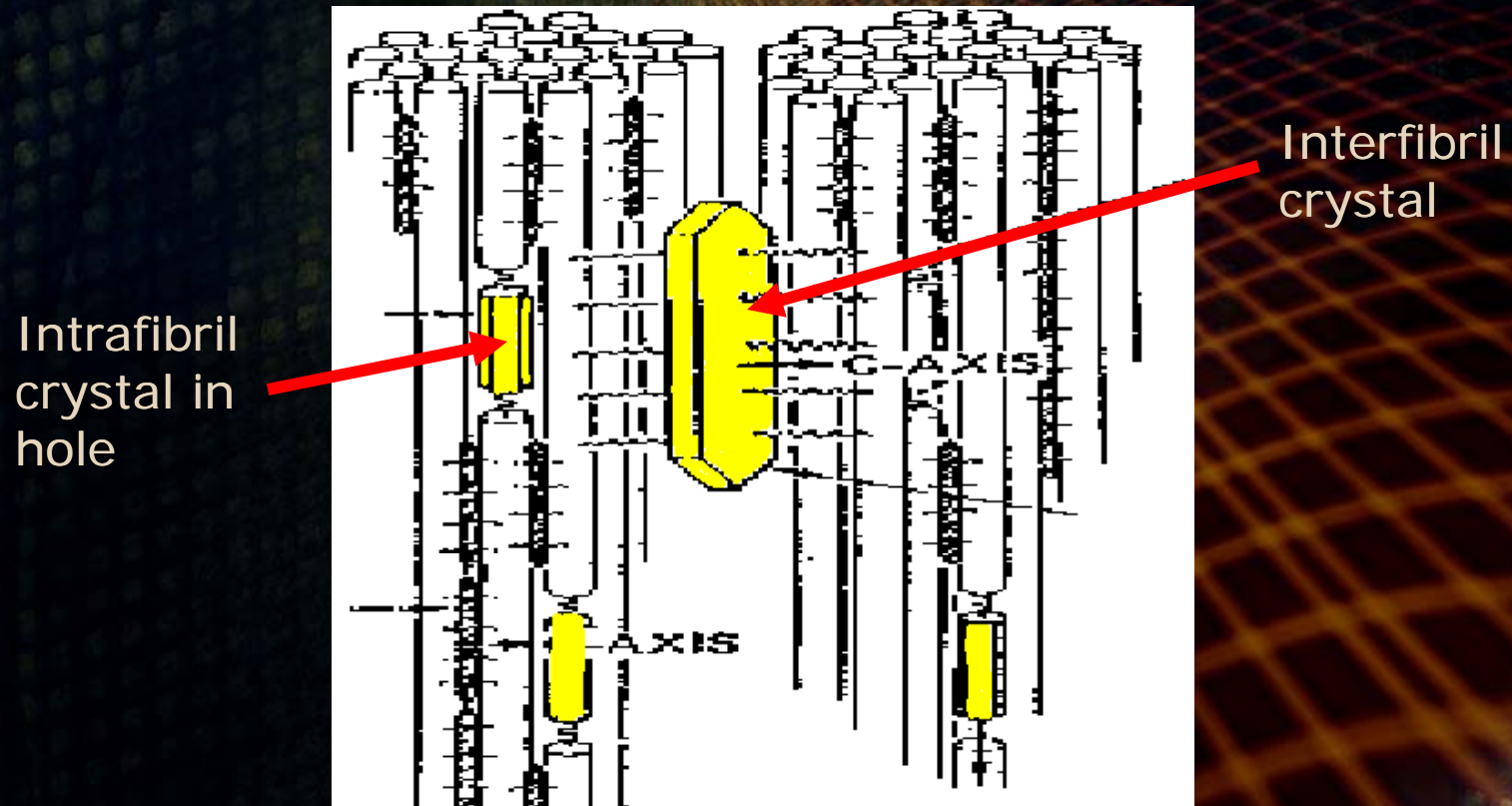
Known Effects

- Increase DNA and RNA synthesis
- Stimulate the production of collagen
- Stimulate the production of cellular energy
- Increase the formation of new blood vessels to replace damaged ones
- Increase lymph drainage
- Increase tissue repair by stimulating the activity of repair cells
- Modulate the activity of immune cells

(Baxter, 1997)

Fragile Structures

- Bone is a coherent array of hardened "Living Liquid Crystals"



Spectral Emissions

Helium



Neon



Argon



Krypton



Xeon



Contact Us

Pulsed Technologies



www.PulsedTechnologies.com www.PulsedTech.RO

Contact Info



For product information,
please call

Mr. Paul Dorneanu
paul@PulsedTech.RO

or **Mr. Jimmie Holman**
jimmie@PulsedTech.RO



Dallas, TX, USA

214-453-0095, 800-801-4798 (sales and product info)
214-453-0066, 800-857-8146 (technical info)

London, UK

44-208-002-9048

Bucharest, Romania

40-314-057-985

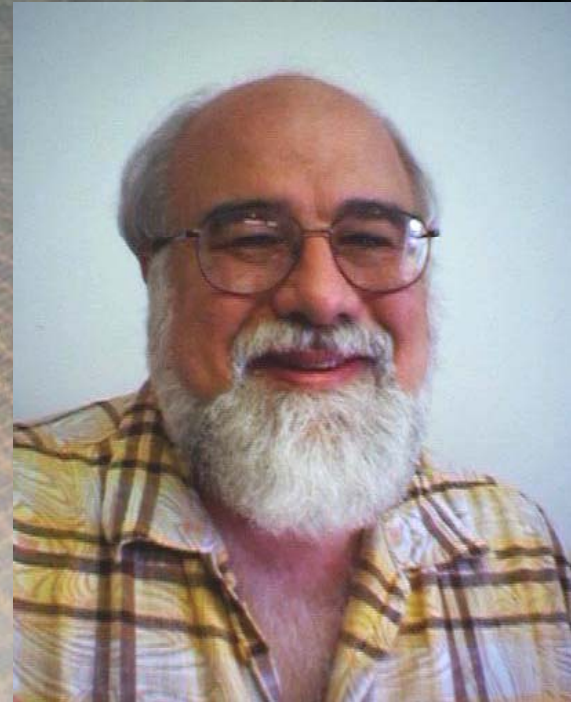


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Haltiwanger, M.D.,
C.C.N.**



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915-203-0719



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Thank You for Attending

We sincerely hope you enjoyed this presentation



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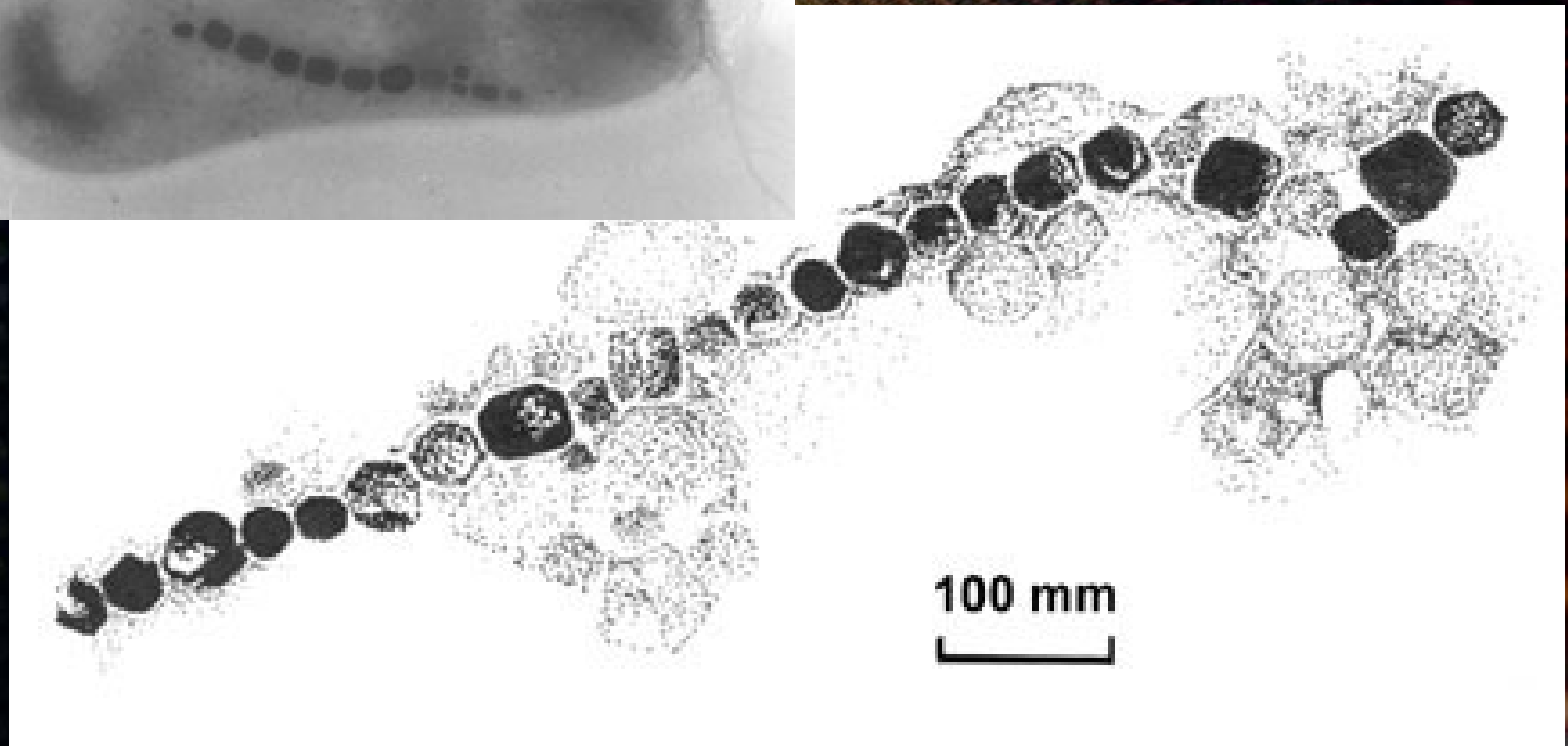
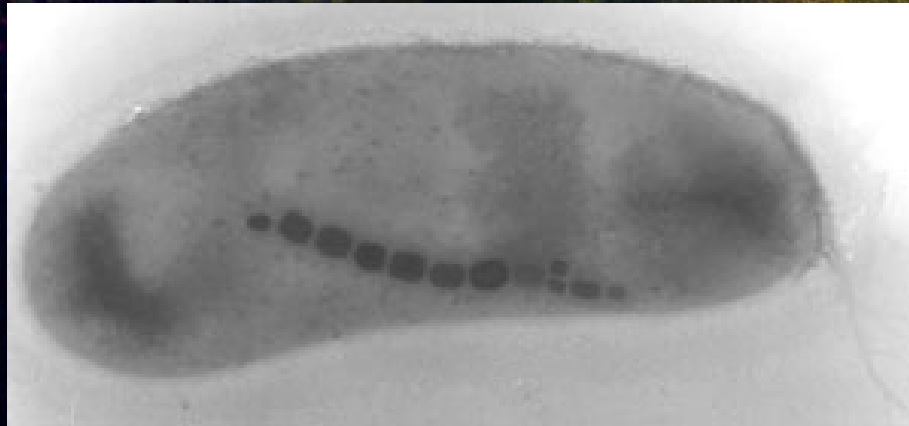


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Magnetic Structures



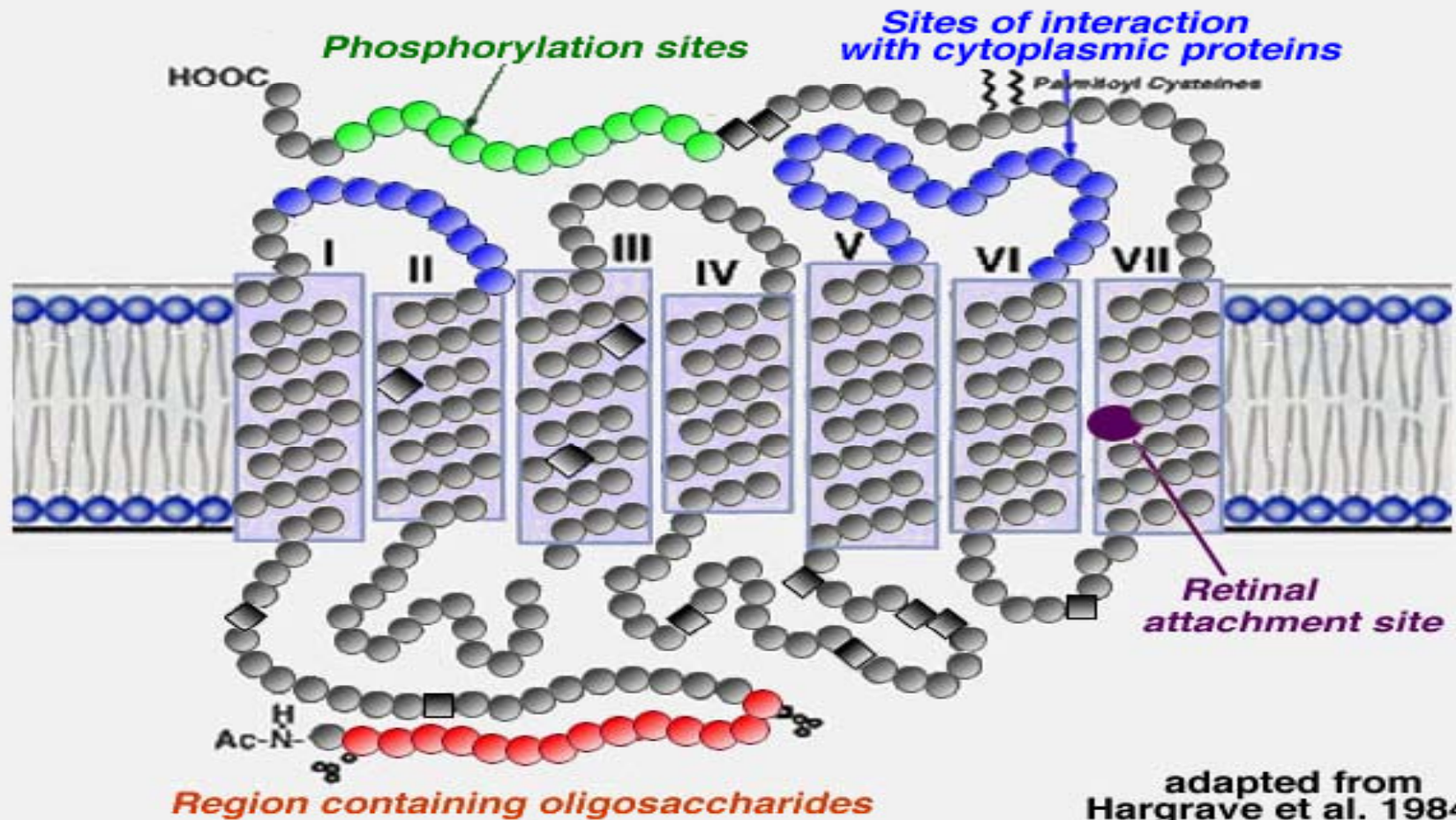
<http://www.affs.org> The Academy for Future Science Biomagnetism and Bio-Electromagnetism: The Foundation of Life

www.PulsedTechnologies.com www.PulsedTech.RO

Ideally, this area would much better be presented in detail by Steve H regarding the meticulously specific mechanisms ... possibly as a second hour presentation

In lieu of that, it should be hit very lightly as a sequence of possible modis operandi

Membrane Interaction Sites



adapted from
Hargrave et al. 1984
Piantanida, 1991

PPLED - Precision Pulsed Plasma LED Arrays

- Precision Pulsed LED Arrays may have many of the same characteristics & effects as do Pulsed Plasmas

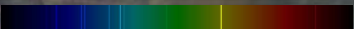






FDA Approved Devices

- Phototherapy being used to stimulate healing of mouth sores resulting from radiation treatment of cancer patient.



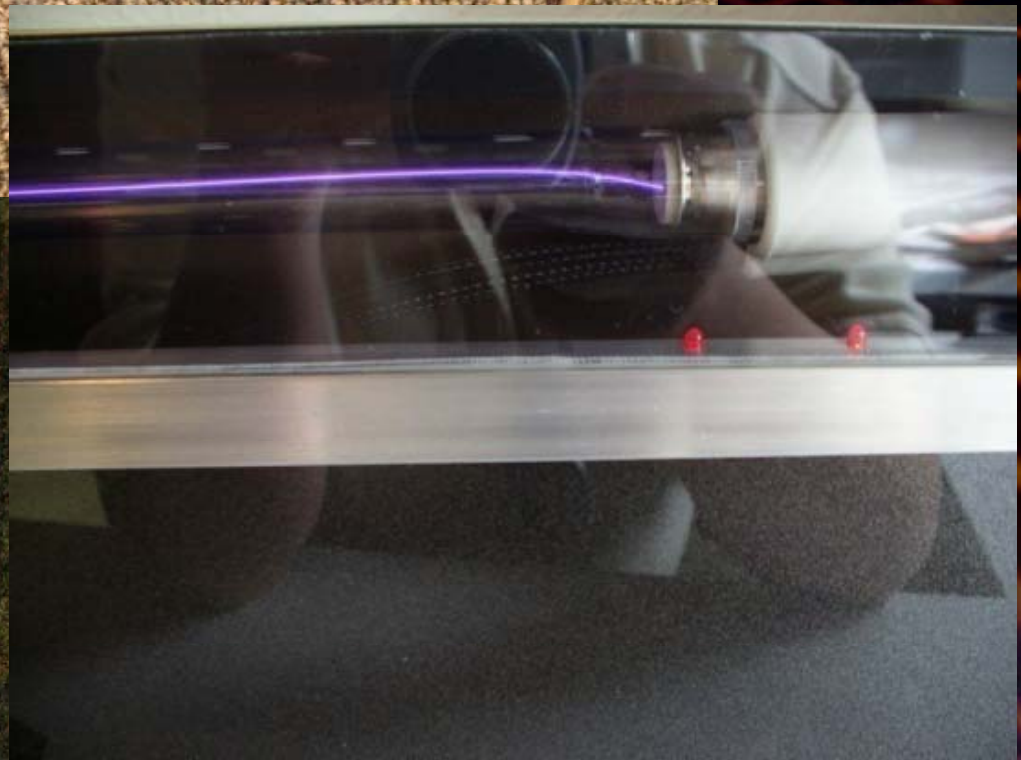
Spectral Data

•	Helium	
•	3964.73 204009.27 14026.19 504026.36 54120.82 124120.99 24143.76 34387.93 104437.55 34471.48 2004471.68 254685.40 64685.70 304713.15 304713.38 44921.93 205015.68 1005047.74 105411.52 55875.62 5005875.97 1006560.10 86678.15 1006867.48 37065.19 2007065.71 30	
•	Neon	
•	4219.74 1504233.85 1004250.65 1204369.86 1204379.40 704379.55 1504385.06 1004391.99 2004397.99 1504409.30 1504413.22 1004421.39 1004428.52 1004428.63 1004430.90 1504430.94 1504457.05 1204522.72 1004537.75 104540.38 104569.06 1004704.40 154708.86 124710.07 104712.07 104715.35 154752.73 104788.93 124790.22 104827.34 104884.92 105005.16 45037.75 105144.94 105330.78 255341.09 205343.28 85400.56 605562.77 55656.66 105719.23 55748.30 125764.42 805804.45 125820.16 405852.49 5005872.83 1005881.90 1005902.46 605906.43 605944.83 1005965.47 1005974.63 1005975.53 1205987.91 806030.00 1006074.34 1006096.16 806128.45 606143.06 1006163.59 1206182.15 2506217.28 1506266.50 1506304.79 606334.43 1006382.99 1206402.25 2006506.53 1506532.88 606598.95 1506652.09 706678.28 906717.04 206929.47 1007024.05 907032.41 1007051.29 507059.11 80	
•	Argon	
•	3925.72 353928.62 503932.55 253946.10 703947.51 73948.98 353979.36 203994.79 354013.86 504033.81 504035.46 204042.89 1504044.42 504052.92 1004072.01 2004072.39 704076.63 254079.57 354082.39 254103.91 1504131.72 3004156.09 354158.59 4004164.18 504179.30 354181.88 504190.71 1004191.03 504198.32 2004200.67 4004218.67 254222.64 254226.99 254228.16 1004237.22 1004251.19 254259.36 2004266.29 1004266.53 704272.17 1504277.53 5504282.90 204300.10 1004300.65 254309.24 704331.20 2004332.03 504333.56 1004335.34 504345.17 254348.06 8004352.21 504362.07 254367.83 504370.75 2004371.33 704375.95 504379.67 1504385.06 504400.10 704400.99 2004426.00 4004430.19 1504431.00 504433.84 504439.46 204448.88 354474.76 1004481.81 2004510.73 1004522.32 204530.55 204545.05 4004564.41 204579.35 4004589.90 4004596.10 154609.57 5504628.44 74637.23 354657.90 4004702.32 154721.59 204726.87 5504732.05 504735.91 3004764.87 8004806.02 5504847.81 1504865.91 504879.86 8004889.04 704904.75 204933.21 354965.08 2005009.33 505017.16 705062.04 705090.50 205141.78 1005145.31 705151.39 55162.29 155165.77 255187.75 205216.81 205221.27 75421.35 55451.65 105495.87 255506.11 55558.70 255572.54 105606.73 355650.70 205739.52 105834.26 55860.31 105882.62 155888.58 255912.09 505928.81 155942.67 55987.30 75999.00 56025.15 56032.13 706043.22 356052.72 106059.37 206098.80 76105.64 106114.92 1006145.44 106170.17 76172.28 1506173.10 106212.50 106215.94 56243.12 256296.87 76307.66 156369.58 76384.72 206416.31 706483.08 256538.11 156604.85 156638.22 256639.74 206643.70 506660.68 56664.05 56666.36 256677.28 1006684.29 356752.83 1506756.16 56766.61 156861.27 206871.29 1506879.58 56888.17 106937.66 506951.48 76960.25 76965.43 99997030.25 1507067.22 99997068.74 1007107.48 257125.82 257147.04 10007158.84 15	
•	Krypton	
•	3906.18 1503920.08 2003994.84 1003997.79 1004057.04 3004065.13 3004088.34 5004098.73 2504109.25 1004145.12 2504250.58 1504273.97 10004282.97 1004292.92 6004300.49 2004317.81 5004318.55 4004319.58 10004322.98 1504351.36 1004355.48 30004362.64 5004369.69 2004376.12 8004386.54 3004399.97 2004425.19 1004431.69 5004436.81 6004453.92 6004463.69 8004475.01 8004489.88 4004502.35 6004523.14 4004556.61 2004577.21 8004582.98 3004592.80 1504615.29 5004619.17 10004633.89 8004658.88 20004680.40 5004691.30 1004694.36 2004739.00 30004762.44 3004765.74 10004811.76 3004825.18 3004832.08 8004846.61 7004857.20 1504945.59 3005022.40 2005086.52 2505125.73 4005208.32 5005308.66 2005333.41 5005468.17 2005562.22 5005570.29 20005580.39 805649.56 1005681.89 4005690.35 2005832.86 1005870.91 30005992.22 2005993.85 606056.13 606420.18 3006421.03 1006456.29 2006570.07 1506699.23 606904.68 100	
•	Xeon	
•	3907.91 1004037.59 1004057.46 2004098.89 1004158.04 2004180.10 10004193.15 5004208.48 3004209.47 1004213.72 3004215.60 1004223.00 3004238.25 4004245.38 5004251.57 1004296.40 5004310.51 5004330.52 10004369.20 2004373.78 1004393.20 5004395.77 5004406.88 2004416.07 1504448.13 5004462.19 10004480.86 5004521.86 1004734.15 6004792.62 1504807.02 5004829.71 4004843.29 3004916.51 5004923.15 5004971.71 2004972.71 4004988.77 3004991.17 1005028.28 2005044.92 2005080.62 10005122.42 3005125.70 1005178.82 1005188.04 3005191.37 4005192.10 1005260.44 5005261.95 5005292.22 20005309.27 3005313.87 10005339.33 20005363.20 2005368.07 2005372.39 5005392.80 1005419.15 30005438.96 8005445.45 3005450.45 2005460.39 4005472.61 10005494.86 1005525.53 2005531.07 6005566.62 1005616.67 3005659.38 3005667.56 6005670.91 1505695.75 1005699.61 2005716.10 2005726.91 5005751.03 5005758.65 3005776.39 3005815.96 1005823.89 3005824.80 1505875.02 1005893.29 3005894.99 1005905.13 2005934.17 1005945.53 5005971.13 3005976.46 20006008.92 2006036.20 10006051.15 20006093.50 6006097.59 15006101.43 4006115.08 1006146.45 1006178.30 1506179.66 1206182.42 3006194.07 5006198.26 1006220.02 1006270.82 5006277.54 4006284.41 1006286.01 1006300.86 2506318.06 5006343.96 4006356.35 6006375.28 2006397.99 1006469.70 3006472.84 1506487.76 1206498.72 1006504.18 2006512.83 3006528.65 2006533.16 1006595.01 10006595.56 1006597.25 4006598.84 1006668.92 1506694.32 3006728.01 2006788.71 1506790.37 1006805.74 10006827.32 2006872.11 1006882.16 3006910.22 806925.53 1006942.11 8006976.18 1006990.88 20007082.15 150	

Plasma Tube Design

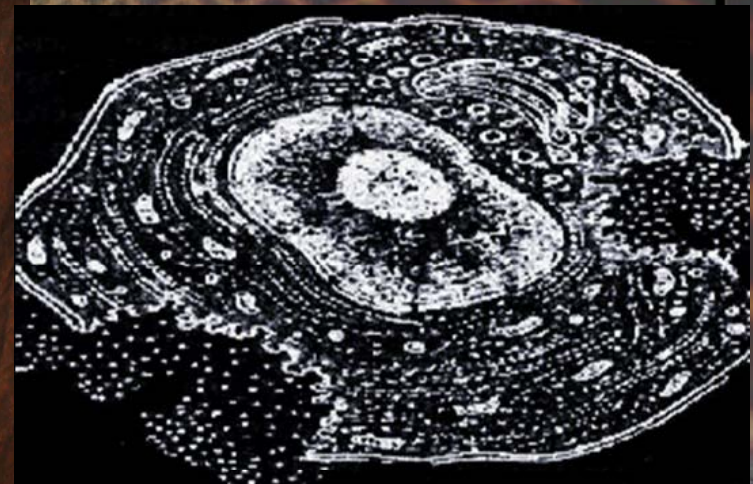


The spectral analysis content allowed us to design a tube that could be excited to a higher degree offering more control and we feel far better output/effect.



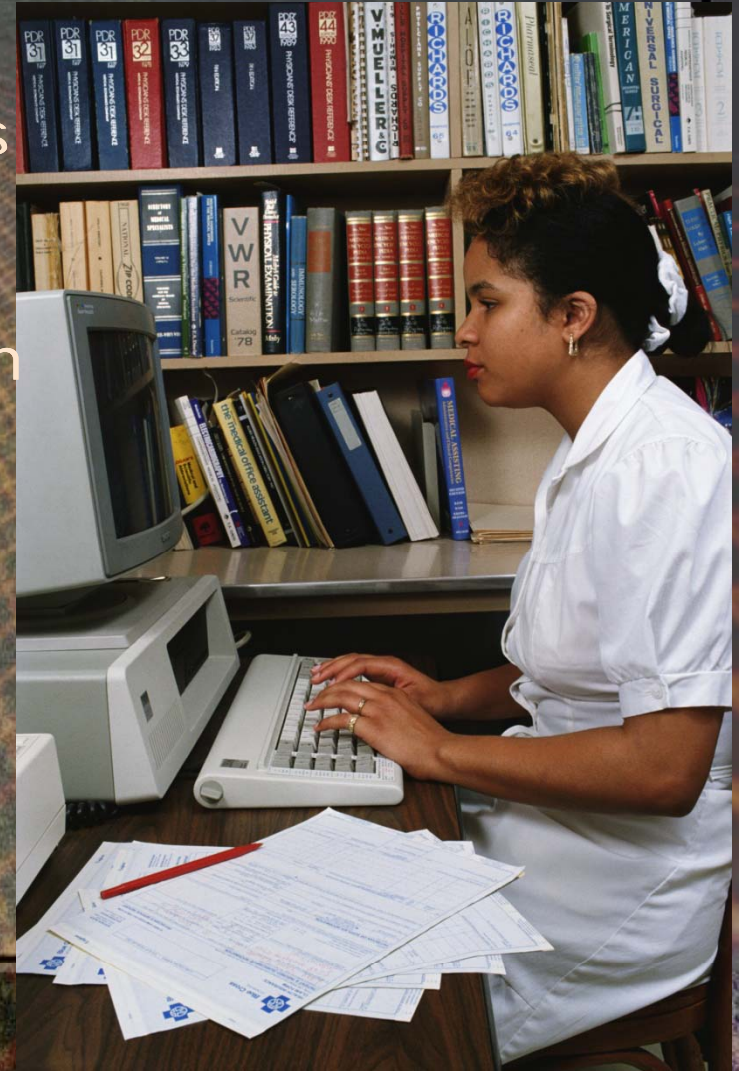
Emission & Coupling

- Coupling takes place *in vivo* or *in vitro* by conventional EM means
- Coupling ALSO likely exists by quantum means at atomic levels



Validation & Exchange of Info

- Admittedly at least some of the content may be construed of a medical nature, and for that reason we have allied ourselves with countries who have less restrictive laws and environments for the free disclosure of certain information



Frequency Validation

- Accurate Frequency Validations will help in the determination of more effective and workable protocols.



Resonance

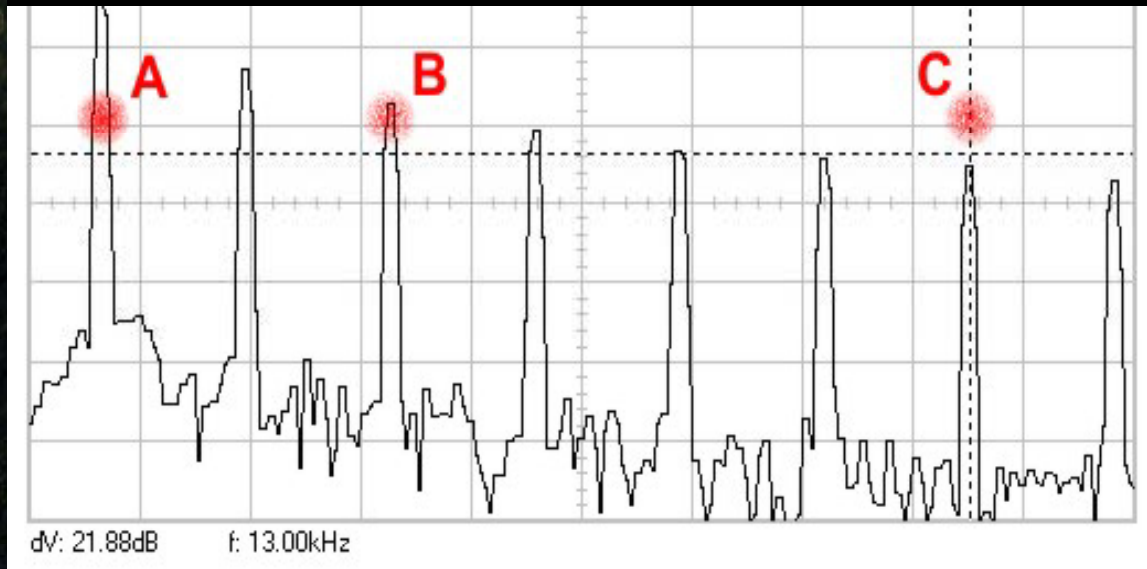
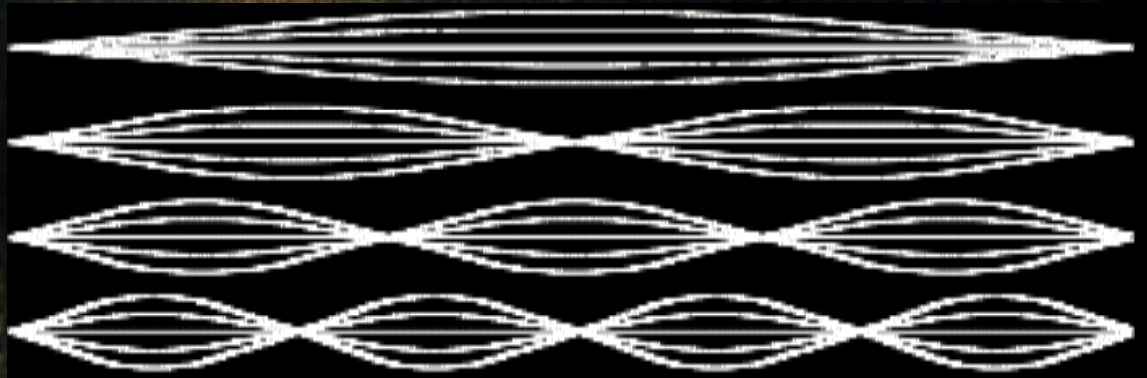
Harmonics & Energy Transfer

Resonant Frequencies

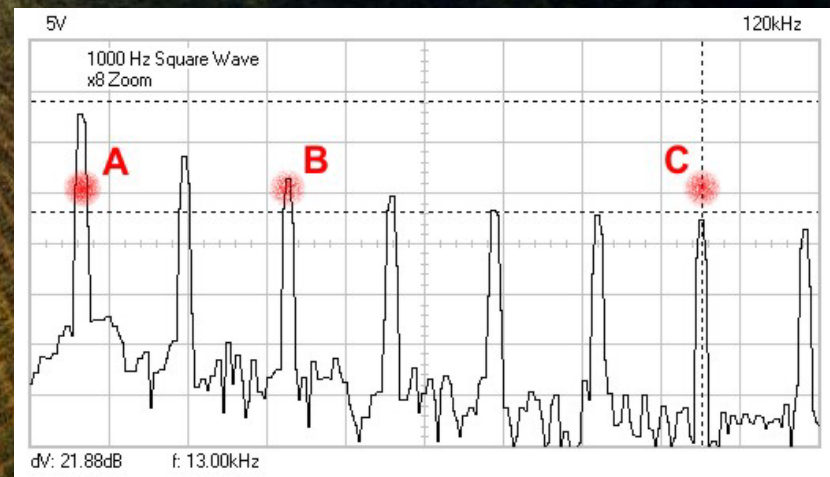
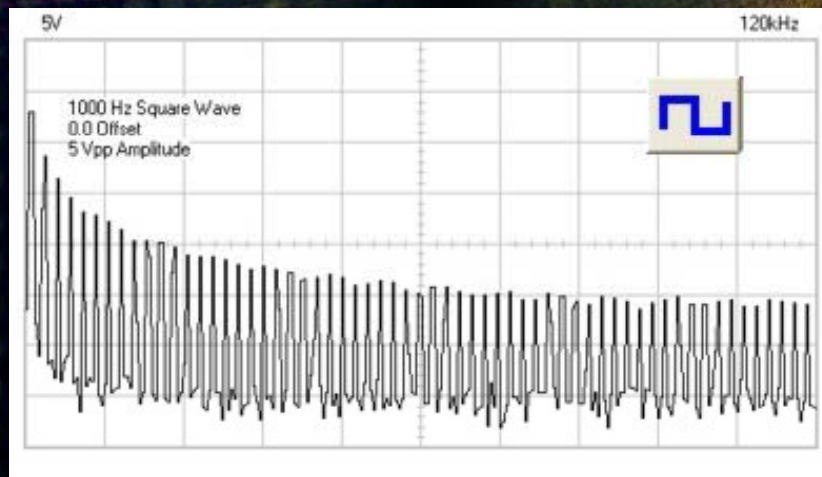
- Every type of matter, molecule and cell has its own unique wave signature.
- To resonate something you emit a wave signature which is "in sync" with the wave signature of the material you are working with.
- The application of a constant resonant frequency to a material intensifies and reinforces the standing frequency of that material.

Harmonics

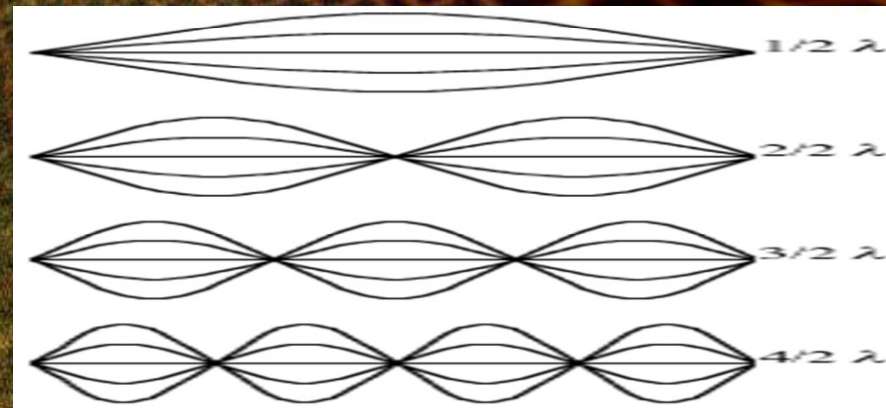
- A **harmonic** is a signal whose frequency is a whole-number multiple of the frequency of the reference or fundamental signal.



Emission Spectral Harmonics



- The use of Square and certain modified waveforms allow for harmonics which can be clearly seen across the spectrum.

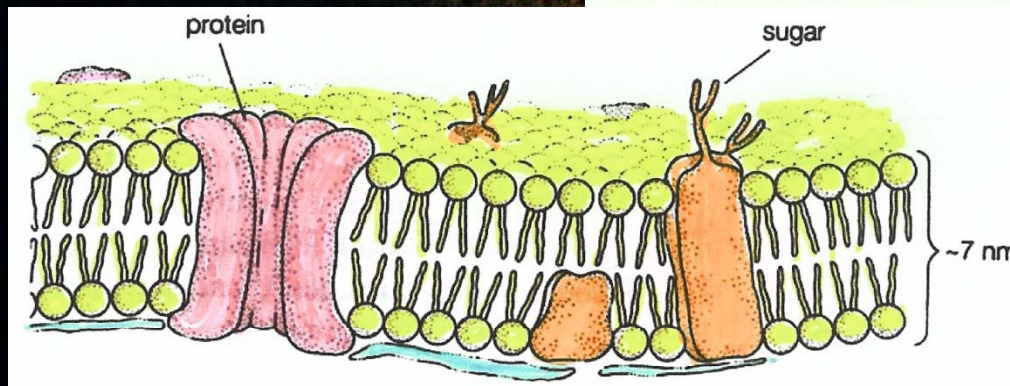
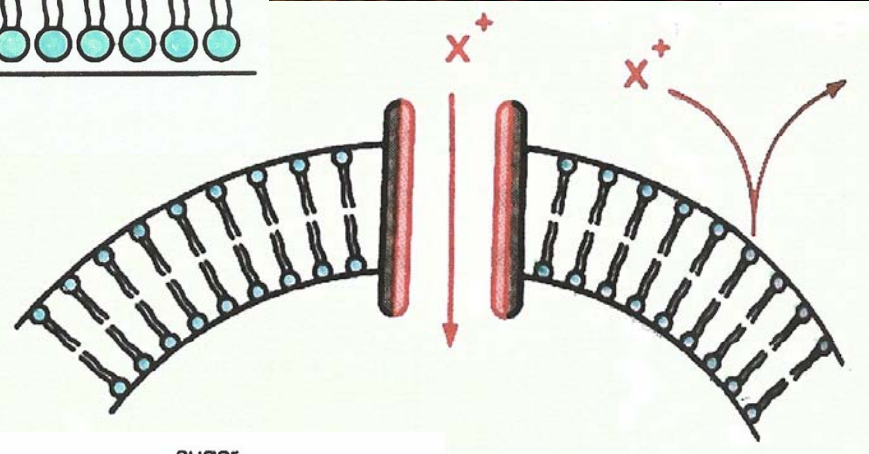
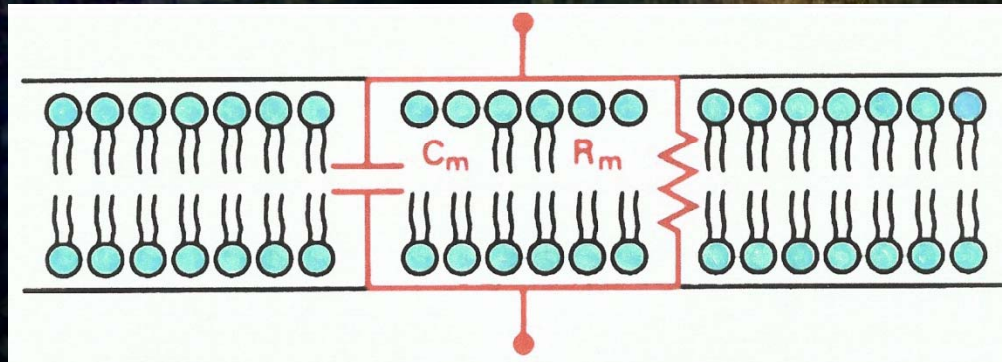


Membrane Electrical Charge

- Text1

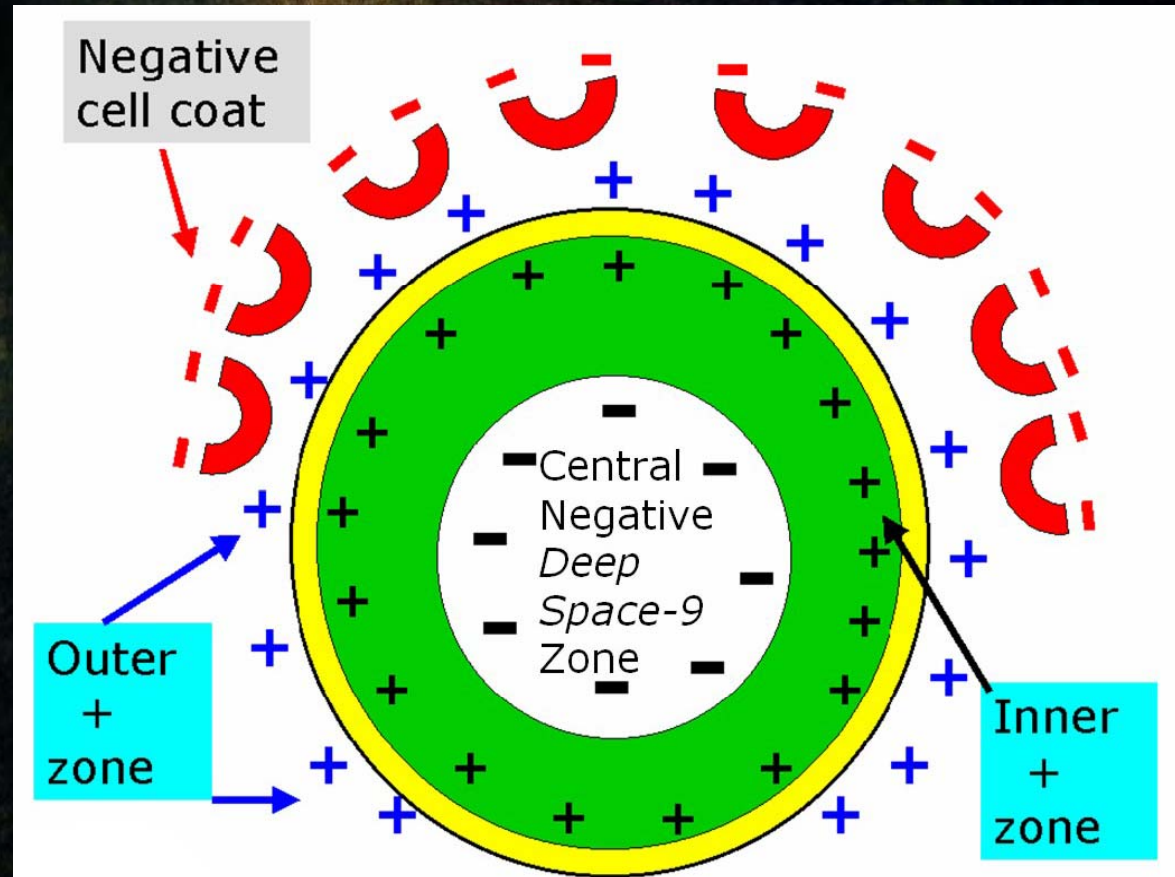


Membrane Capacitance



Cell Charge Zones

- Central – Zone
- Inner + Zone
- Outer + Zone
- - Cell Coat



Arthur Schopenhauer

All truth passes through three stages:

- First it is **ridiculed**;
- Second, it is violently **opposed**; and
- Third, it is **accepted** as self-evident



*Arthur Schopenhauer
(1788-1860)*

The background of the slide is an abstract composition. It features a central horizontal band of soft, out-of-focus light in shades of white and light grey. Above and below this band are darker, textured areas. In the top and bottom corners, there are faint, overlapping grid patterns in muted colors like blue, green, and brown, which appear to be part of a larger, slightly blurred image or pattern.

Energy Field

Coherent Forms and the Biological Templates



PULSED TECHNOLOGIES

The Science of Bioenergetic & Bioelectric Technologies

and other Resonant Frequency Concepts

PART 3 - APPLICATION & USE

Jimmie L. Holman & Paul V. Dorneanu





PULSED TECHNOLOGIES

The Science of Bioenergetic & Bioelectric Technologies

and other Resonant Frequency Concepts

PART 3 - APPLICATION & USE

Paul V. Dorneanu & Jimmie L. Holman



The background of the slide features a dark, textured grid pattern. A large, light-colored semi-circle is centered horizontally, spanning across the middle section. The top and bottom sections of the slide have a similar grid pattern but with a more pronounced, glowing effect, particularly on the right side where orange and yellow light streaks are visible.

The Possibilities

Pulsed Technologies

Longevity, Aging & Healing

- In both aging (Barker, 1983) and degenerative conditions cells lose their membrane charge. Photo and frequency therapy has the ability recharges cell membranes.
- The cells can then use this energy in many ways; but most especially in production of ATP, the “energy currency” of the living tissue.
- In restoring the charge of the cells that are functioning sub-optimally, the body can be moved naturally towards a state of health, which is manifested by faster tissue regeneration (Vodovnik, 1992).

P3 Development

- The P3 (Precision Pulsed Plasma) development continues, catering toward the end users' needs and special applications.



Research & Development in
Dallas, Texas

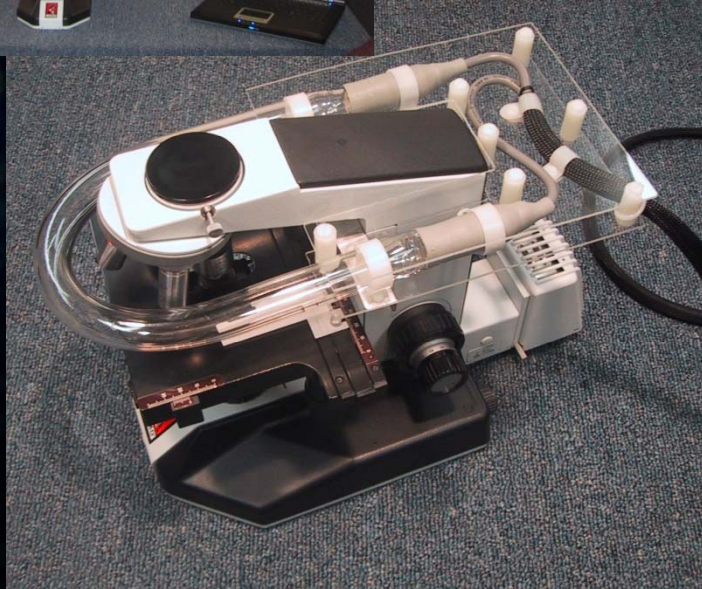
RifeStation



- Accurate, calibrated, and specialized systems, in the hands of cooperative and qualified clinical research personnel will be instrumental in accurate documentation of this technology

www.PulsedTechnologies.com www.PulsedTech.RO

Plasma Exposure to Test Subject



- Plasma Tube encompassing specimen to monitor and record effect in real time



Custom tube design Jimmie Holman
Fabrication by Barry Allred – Allred Neon

Proximity Exposure

- It was found, close proximity was not required when working with plasmas
- The inference being, that the modus operandi is NOT a strict EM phenomena
- This meant the microscopes and test instruments themselves did not require any special modifications



Electronic Imprinting

- Is it not already possible to imprint specific electronic signatures into substances such as water to assist the body in natural repair and regeneration ?



Custom tube design & fabrication
Barry Allred – Allred Neon

Other Uses of the Technology

- Chemical and Molecular Engineering
- Industry and Manufacturing
- Water Purification / Decontamination
- Home & Building Restoration
- Archeology / Bio-Safety
- Art & Historical Preservation
- Aerodynamics / Propulsion
- Agriculture
- Food Processing
- Environmental
- Health and Wellness
- Electronic Drug Delivery Enhancement
- Signal/Sensing Masking (Stealth)
- Phase Conjugation
- Energy Enhancement
- Nuclear Waste Remediation

What is the Difference?

- Documents, Fine Artwork, or even Building Restoration still follows the same laws of physics in the way biological subjects react.



Medical Examples

Private

Dr. HM

- Basalioma (thigh, age 50)
- Nine 5 minute treatments over 6 weeks



- Traditional surgical treatment scar



Supraclavicular Metastasis of a Malignant Teratoma on the Neck

- Before first of 5 treatments
- At 3rd treatment
- Patient is without symptoms after 5 treatments



Carcinoma, Breast

- Tumor Diameter – 3,6cm



Carcinoma, Breast

- Szirrhotic Carcinoma of the Breast

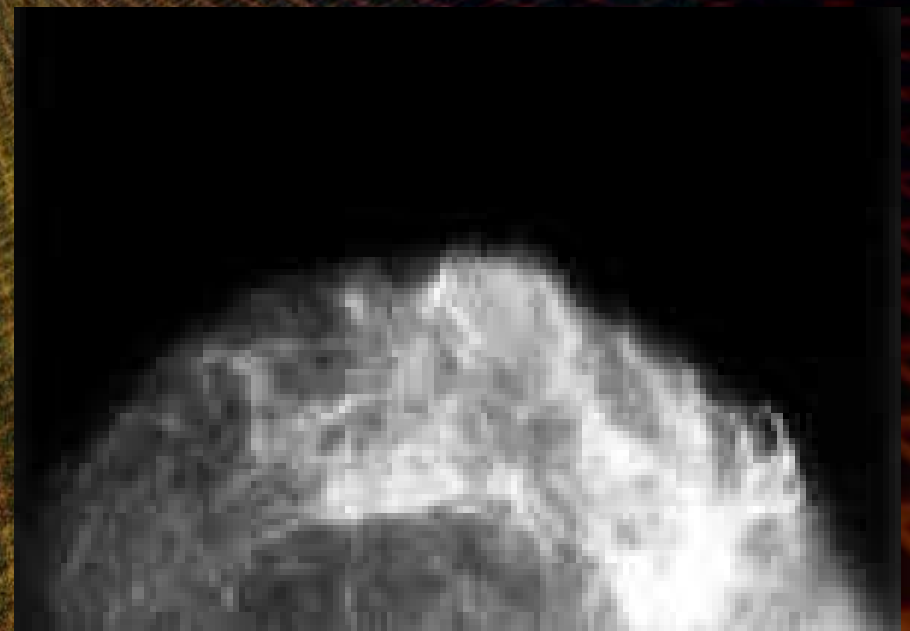


- Complete Healing after One Year

Szirrhotic Breast Cancer

- BEFORE

AFTER



- In addition to the size reduction, a normalization of all tumor parameters occurs.



Resources & References

Pulsed Technologies

www.PulsedTechnologies.com www.PulsedTech.RO



The RX (Research eXchange)

<http://PulsedTech.RO/rx>

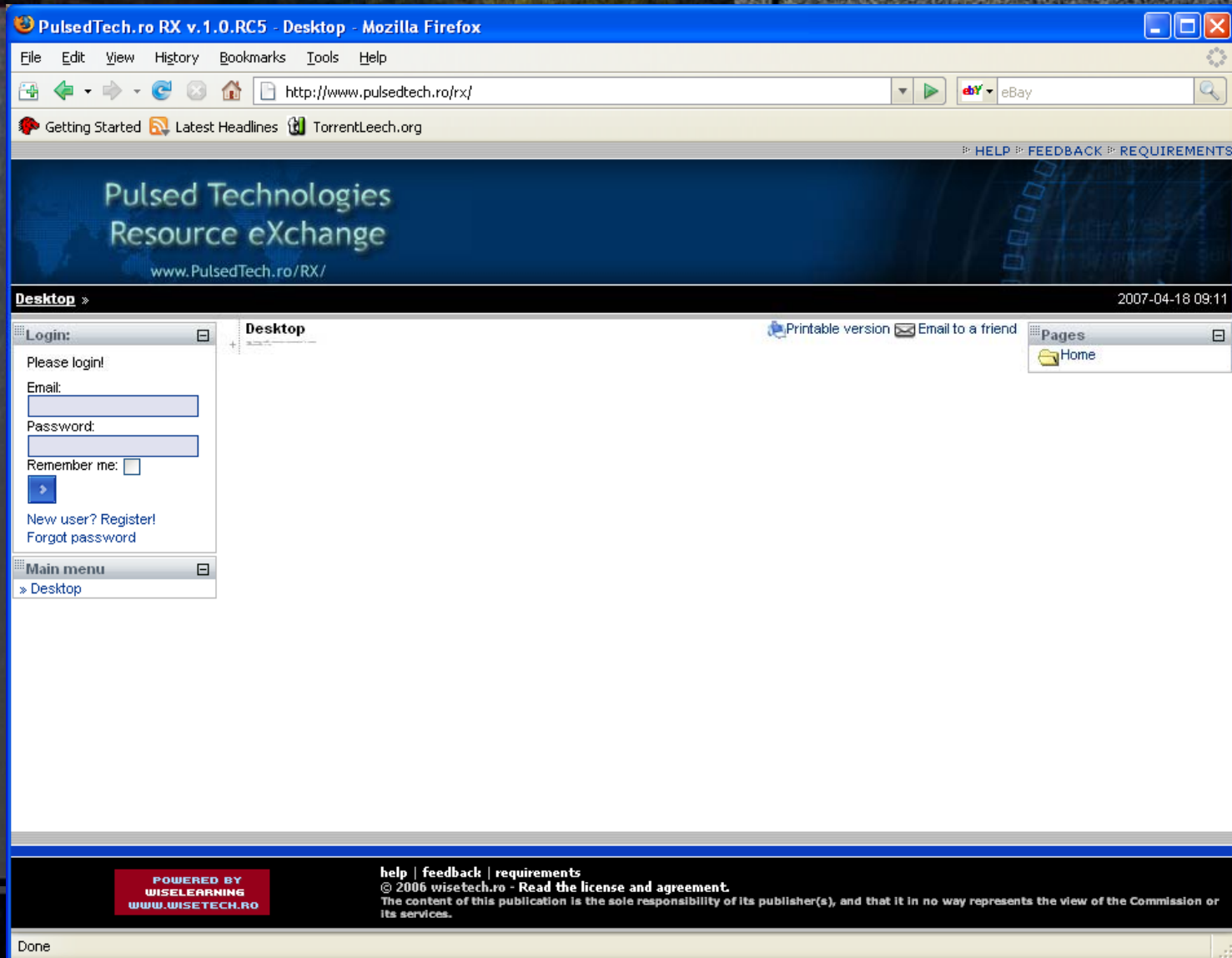
www.PulsedTechnologies.com www.PulsedTech.RO

The Research eXchange RX

- The RX website is a closed website but available to serious researchers and qualified researchers investigating various aspects of pulsed plasma and pulsed micro current technologies
- The RX website is located and administered in Bucharest, Romania and had a business fiber optic connection to the internet allowing instant access
- The RX website is home to an every growing private list of accessible and developing protocols of specialized information

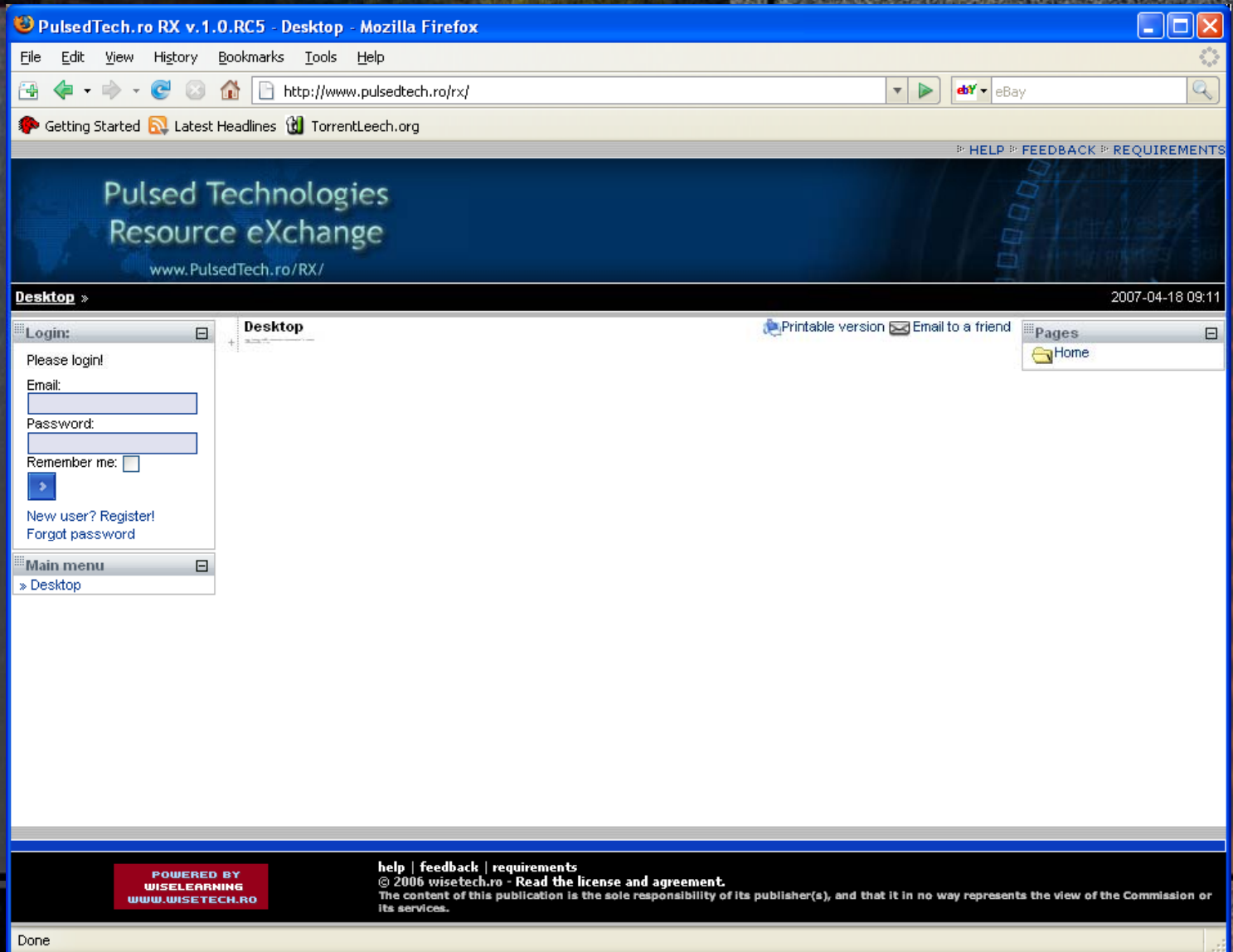
<http://www.PulsedTech.RO/rx>

Research/Resource eXchange



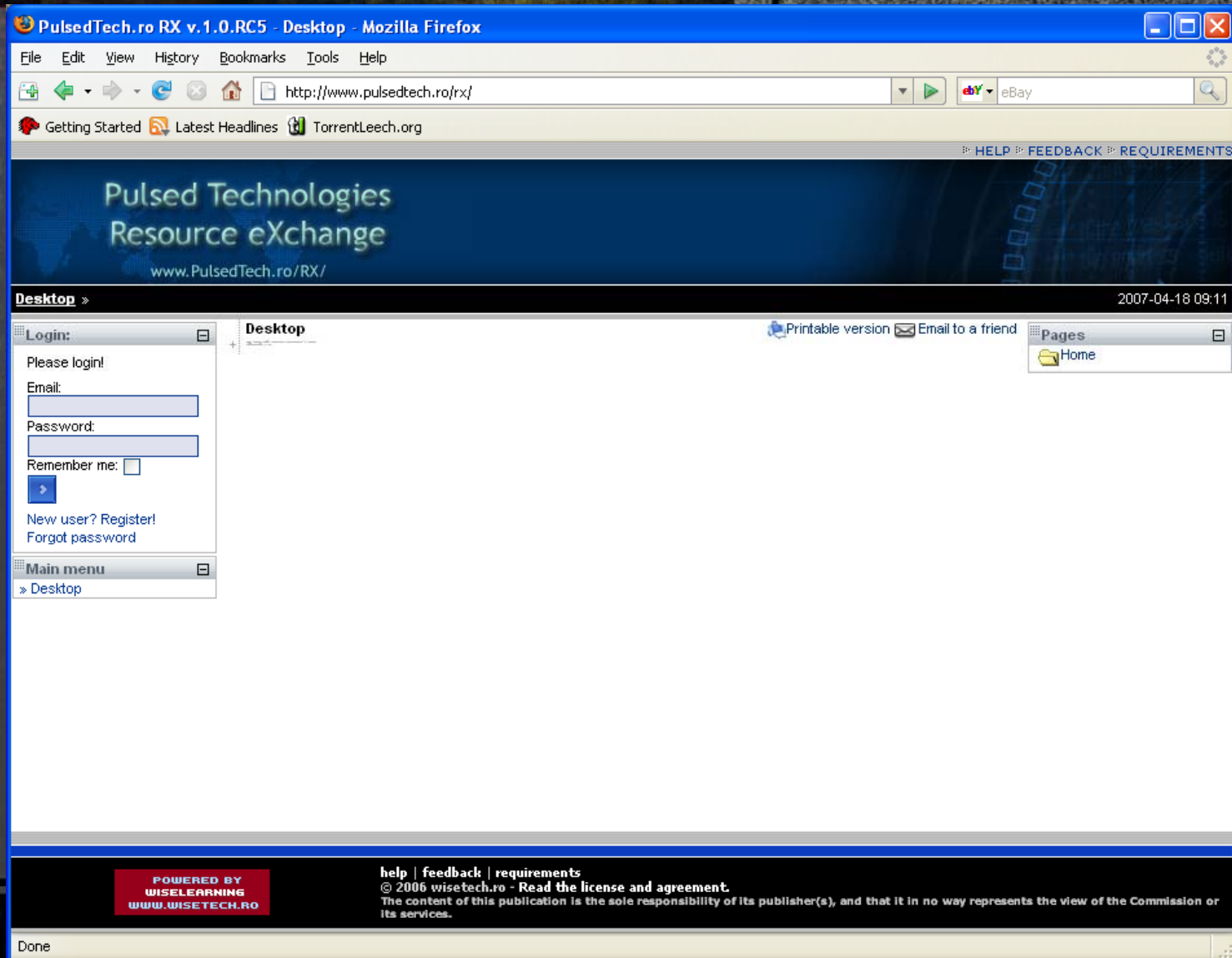
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Research/Resource eXchange



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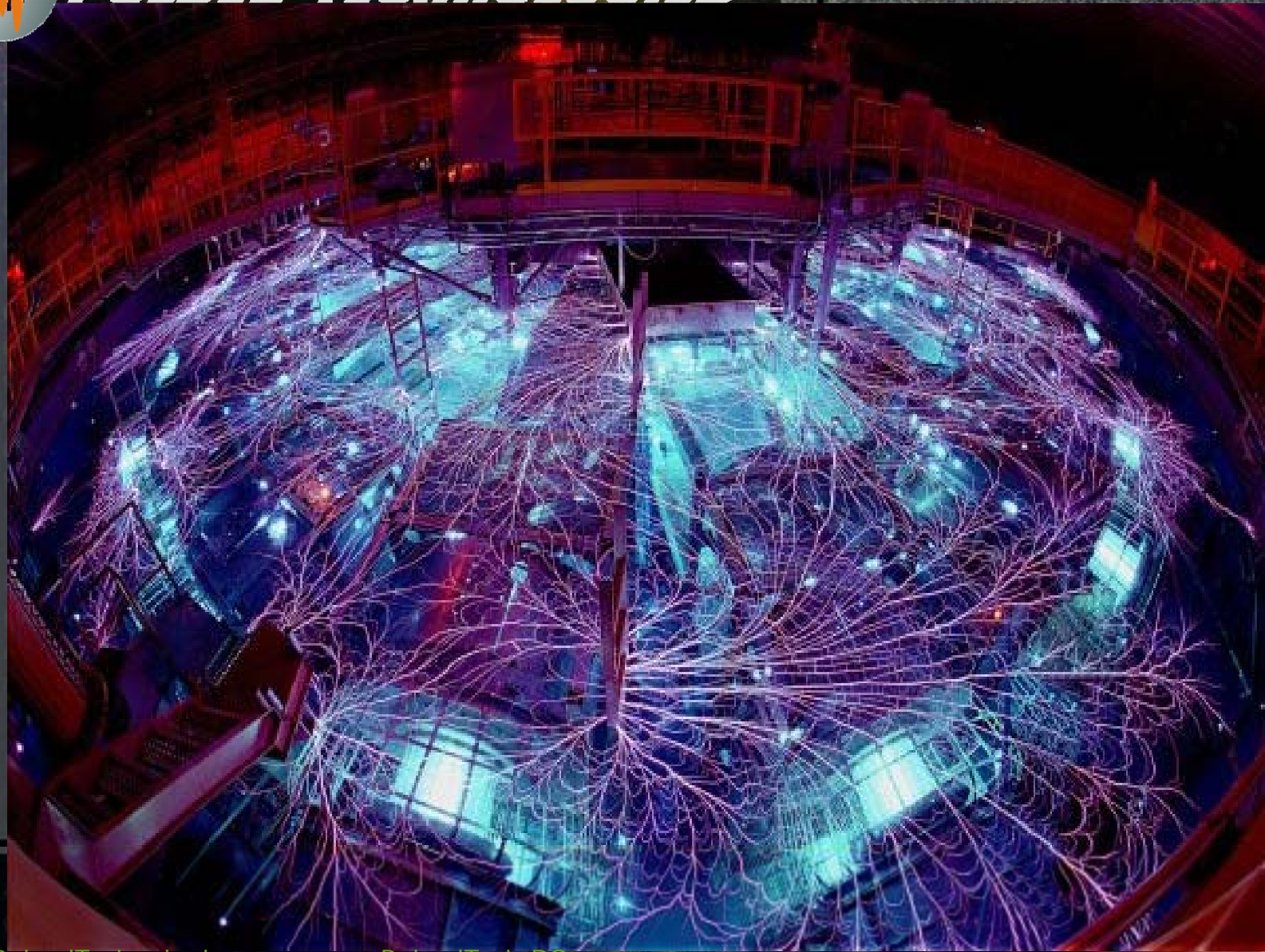
Research/Resource eXchange



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Definitions

& Terminology

Protoscience is a field of study that appears to conform to the initial phase of the scientific method, with information gathering and formulation of a hypothesis, but involves speculation that is either not yet experimentally **falsifiable** or not yet verified or accepted by a consensus of scientists. Protoscience is distinguished from other forms of speculation in that its formulation strives to remain coherent with all relevant fields of scientific research so as to achieve falsifiability and verification as soon and as accurately as possible.

<http://en.wikipedia.org/wiki/Protoscience>

Falsifiability

In science and the philosophy of science, ***falsifiability*** is the logical property of empirical statements, related to contingency and defeasibility, that they must admit of logical counterexamples. In essence, for an assertion to be falsifiable, it must be theoretically possible to make an observation or do a physical experiment that would show the assertion to be false. This is in contrast to tautologies, formal and mathematical statements that are universally true by dint of definitions, axioms, and proofs.

<http://en.wikipedia.org/wiki/Falsifiability>

Eloptic energy

Thomas G. Hieronymous supposedly discovered a new form of energy which he termed "eloptic energy". According to Hieronymous the energy had some electrical and optical properties, so he termed it "eloptic". He described the energy in US Patent # 2,482,773.

Eloptic energy follows optical laws and can be refracted, reflected, etc....Each element radiates a certain eloptic energy

http://en.wikipedia.org/wiki/Eloptic_energy

Ultra Short Duration Pulses

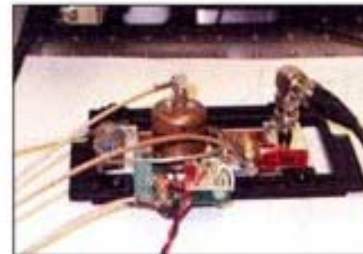
- “... aimed at killing leukemia cells, whereby their energy penetrates the cell membrane and enters the inner contents of the cell – without eroding the membrane.”

LIFE SCIENCE

Electroshock therapy for cells

Scientists at the Univ. of Southern California (USC), and the Biophotonics Laboratory at Cedars-Sinai Medical Center, both of Los Angeles, Calif., are investigating the use of ultra fast electric pulses as a means to possibly cure disease. Their work enlists the aid of a previously developed USC technique dubbed, UPSET or Ultra-short Pulsed Systems Electroperturbation Technology, created by Martin Gundersen. In the new research, a series of pulses (10 ns in duration) are aimed at leukemia cells, whereby their energy penetrates the membrane and enters the inner contents of the cell—without eroding the membrane. Ideally, this technique would be applied as a method to destroy any toxic or diseased portions, without eliminating the cell entirely. “These high-frequency pulses are so short that they pass right through the cytoplasmic membrane without altering its structure. The swift spike in voltage simply rearranges the cell’s contents, such as its nucleus and mitochondria, without altering its outer shell, says Thomas Vernier, project researcher.

After the cells are jostled by the pulses, their integrity is subsequently analyzed with the help of fluorescent dyes. The



Left: Created in 2001 by USC’s Dept. of Electrical Engineering, UPSET, or Ultra-short Pulsed Systems Electroperturbation Technology, has now been applied to the study of leukemia cells. Right: Tom Vernier, left, adjusts UPSET, which is connected to a powerful microscope, while Mya Mya Thu, graduate student, looks on. Photo credit: Diane Ainsworth/USC



preliminary results of this work, according to the group, show that the ns pulses generate bursts of calcium inside the cells within ms after the pulse is delivered. “This is important because calcium ions serve as regulatory messengers in a wide variety of processes across the physiological landscape of the cell. “We are very interested in understanding how we might be able to use calcium ion releases to alter specific intracellular structures,” concludes Vernier.

Univ. of Southern Calif.

- “These high frequency pulses are so short that they pass right through the cytoplasmic membrane without altering its structure”