

Radiation and Environmental Surveys

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<b>OPINION</b>
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**ASSESSMENT:**

**2019 Research Report:**

**Method for Protecting Biological Objects from the Negative Influence of  
Technogenic Electromagnetic Radiation**

I.Serov

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**Prepared for the submitters:**

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The purpose of this Report is to rationalize how a specifically-designed electromagnetic field emitted from a fractal and coherent matrix can result in protecting living systems from man-made broadband electromagnetic emissions, such as from current and emerging wireless technologies. The matrix is the **Aires resonator** which acts a beneficial restructuring interface between electromagnetic emissions and living systems.

### Superposition generation of coherence with the Aires resonator technology

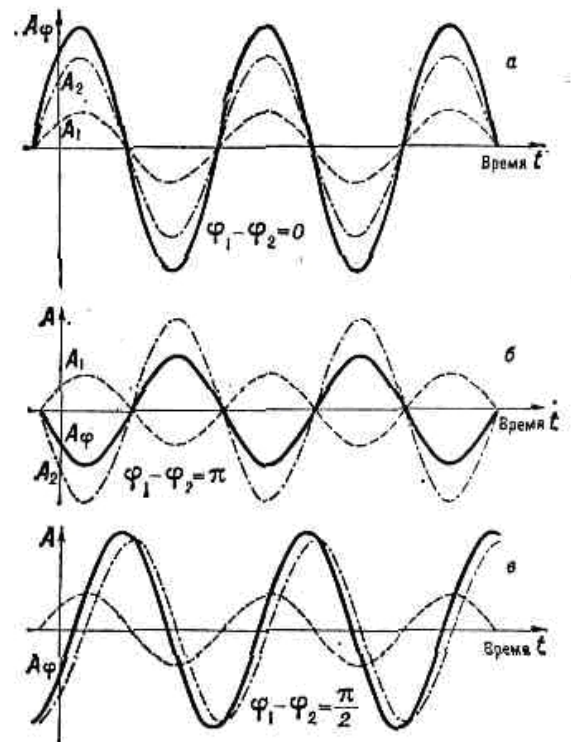
The discussion describes harmonization of external-emissions' *Fourier transformation* of amplitude, phase, frequency & polarization vectors with the electromagnetic properties of living systems being exposed. This is *coherence of electromagnetic wave superpositions* that results in resonant harmonization. Such harmonization is determined in Quantum Biology as being compatible and supportive with living systems.<sup>1 2</sup>

For superpositions to tend to the homogeneity of coherence, for any wave function  $F()$ , they can be defined by:  $\psi = A \cos(\omega t + \phi)$ , for a scalar. Now, it is possible to generate non-Hertzian fields, with contiguous quantum potentials (thereby, scalars). Most such devices do so by causing opposing interaction (and superposition) of 2 electromagnetic fields  $180^\circ$  apart in order to cancel their electromagnetic vectors.<sup>3</sup> Such synchronized cancellation occurs along **Aires resonator** fractal radials.

In **Aires resonator** technology, non-inductive toroid-like resistors are organized tri-geometrically through diffraction and interference of waves by proprietary self-affine lattice designs that can eliminate inductance,<sup>4</sup> and can act as antennae.

The unique property of such **Aires resonator** toroid-like geometry has been independently investigated. In 1978, **Robert Clifton Jennison, Jodrell Bank** radio astronomer, characterized radiation properties trapped in superposition, phase-locked cavities similar to toroid.<sup>5</sup> Application of an external electromagnetic field into such a system accelerates its velocity in a non-linear, "staircase" manner. Furthermore, such velocity continues to accrue even after the stimulus has been removed.<sup>6</sup>

This relativistic effect was explained by the presence of 2 orthogonal super-imposed standing waves – as described in Figure 2. The interactions depend on the toroid configuration which distributes trapped fields.



**Figure 1** .In superposition coherence, differences between phases in waves (& processes) remain constant (or suitably modified) in time. When fluctuations and are added, they increase amplitude as standing waves. So, if 2 opposite EM pulses are identical in phase, amplitude, frequency, and polarization vectors, then their amplitudes are multiplied. And, the effect is magnified.

<sup>1</sup> Rein, Glen. **Quantum biology: healing with subtle energy**. Quantum Biology Research Labs. Northport NY, 1992.

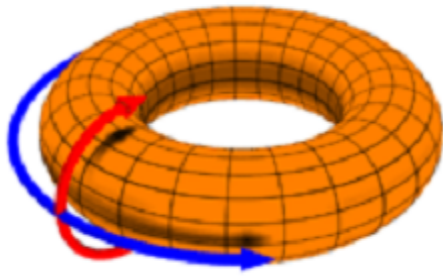
<sup>2</sup> Rein, Glen. **The subtle energetic aspects of DNA**. Quantum Biology Research Labs. Northport NY, 1997.

<sup>3</sup> McClain, J. W.. **Cancellation of internal forces**. *American Journal Physics* 47: p 1004-1012. 1979

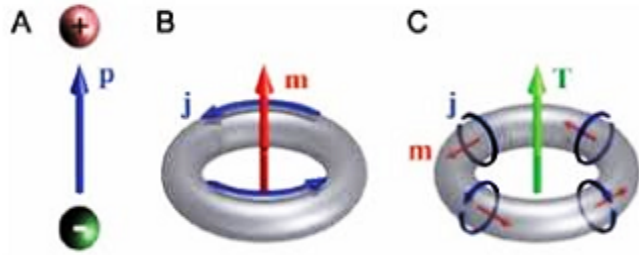
<sup>4</sup> **Electronics Illustrated**. *Resistors with a real twist*. pp 76-82. 1960. Discusses microwave circuit applications to eliminate inductance from resistor elements and to minimize magnetic field losses by containing B and H fields within the toroids used for high-speed computer circuitry in NASA spacecraft.

<sup>5</sup> Jennison, R. C.. **Relativistic phase-locked cavities as particle models**. *Journal Physics A*. Math. Gen 11. p 1525-32. 1978,

<sup>6</sup> This post-contact exposure persistence phenomenon has been observed in several clinical studies with the **Aires Resonator**.



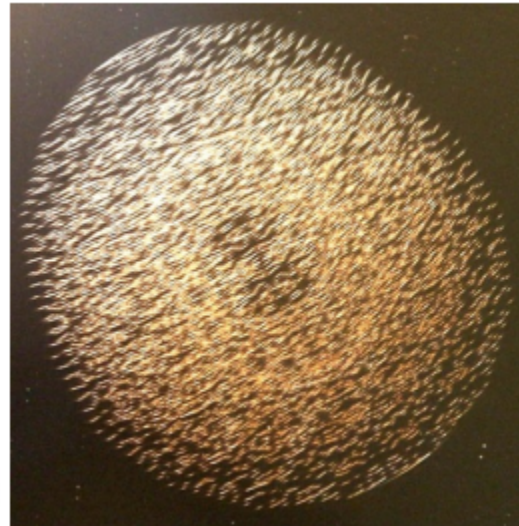
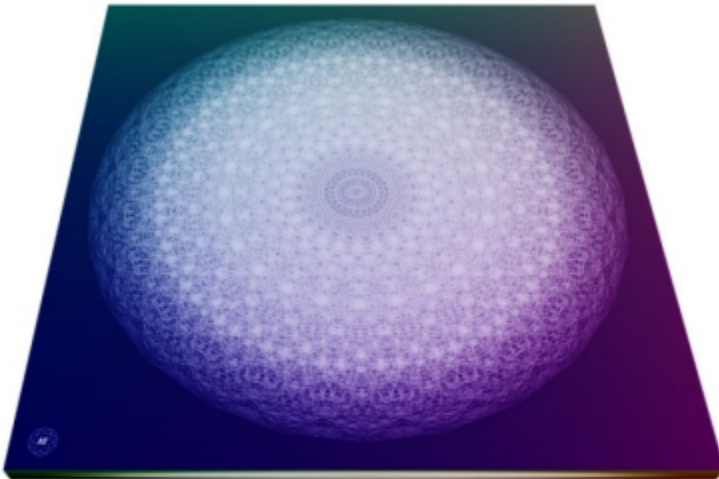
**Figure 2. Torroidal and Poloidal currents**



**Figure 3. Electric, Magnetic and Toroidal dipole moments**

The illustrations above serve to indicate the nature of flow within toroid structure (from the quantum through macroscopic scales) and this are exchangeable for the periodic coherent response (self-affined / self-similarity) lattice in the **Aires resonator**.

Note that the for the **Aires resonator** (below left image), the interaction of 2 coherent waves shows as a fractal standing wave pattern, as per **Figure 1**, bottom example, which remains stable in phase (time), amplitude (power), direction and frequency. The resulting pattern also obeys those of a torus, shown in **Figures 2 and 3**.



**Figure 4. Comparison between the Aires Resonator interaction of 2 coherent electromagnetic waves (left) and photo of a holographic response to incoherent electromagnetic wave interaction with the slit topological lattice surface (right) while illuminating the resonator's wafer.**

Note that the hologram demonstrates the **Aires Resonator's** unique capacity to periodically transform external electromagnetic emissions into corresponding frequency at a harmonized, coherent state (at multiple states). This is quality due to the fractal design pattern of the resonator itself.

Research reports with the **Aires Resonator** that we have already reviewed suggest that such coherence stewards biological processes towards self-organizing harmony.

Another characteristic of toroids is the absence of magnetic fields outside of the torus.

In such absence, there is a presence of quantum potential fields predicted originally by **Yakir Aharonov** in 1959<sup>7</sup> and demonstrated in 1960 by **Robert G. Chambers**<sup>8</sup>.

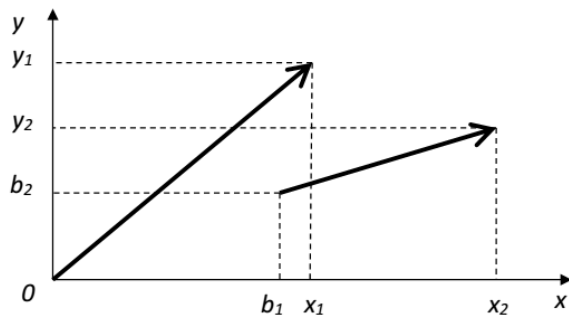
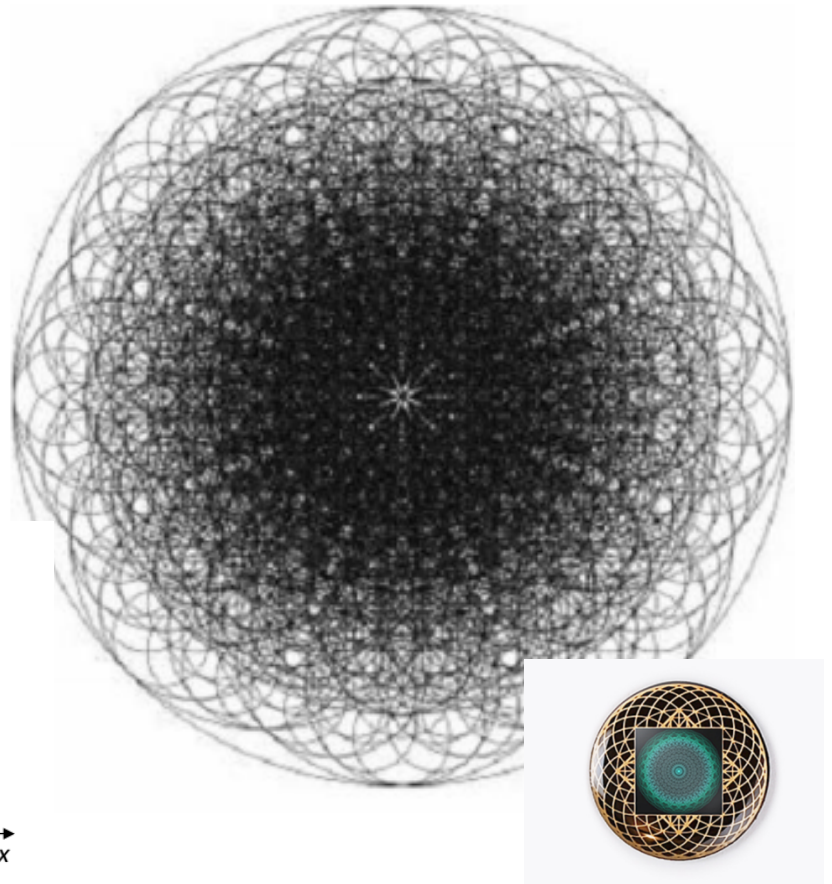
It is known that neurons may emit quantum (scalar) fields, they are, for example in the interaction between pre- and post-synaptic neurons; they are sensitive of quantum fields (such as resulting from **Aires resonator**).<sup>9</sup>

## 2-dimensional and 3-dimensional modeling of interaction between moving Aires resonators and electromagnetic field emissions

An important achievement in this Report is the computer modeling for fixed-position **Aires resonator**. See Figure 5.

**Figure 5. Research modeling's resulting design** in itself is a result of performing affine transformation departing from a vector from origin (Right), with **inset of Aires resonator**, as described by the Graph in Figure 6, below.

This form has annular slits which transforms random signaling into coherent properties, including information about the external emissions.



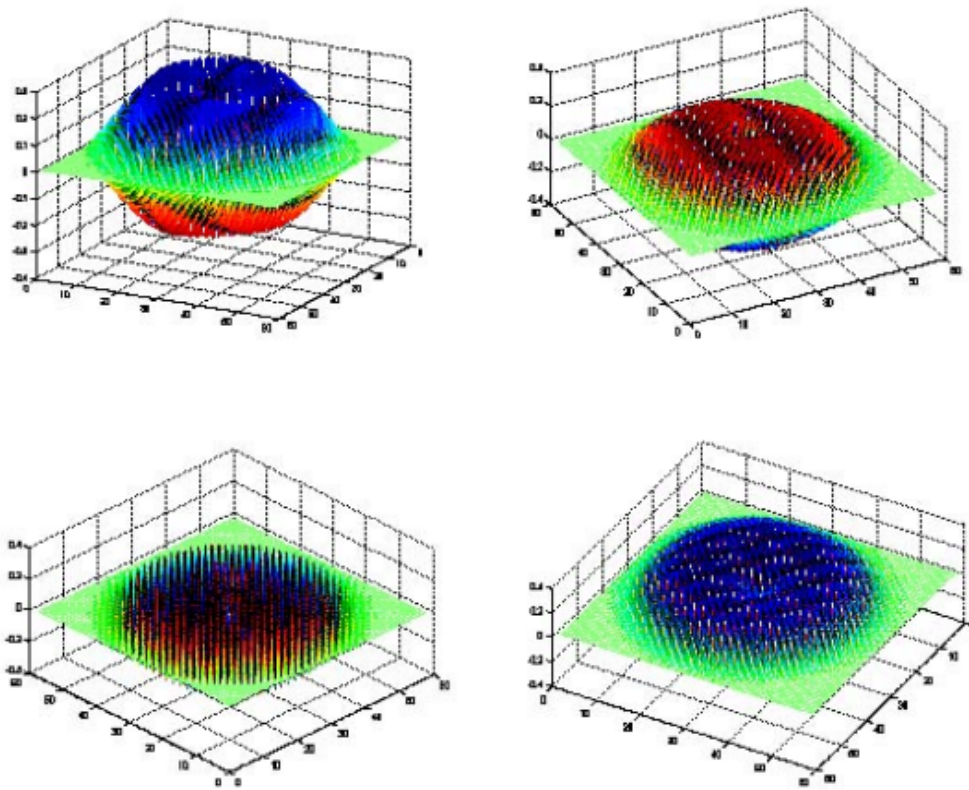
**Figure 6. Surface topology resulting from performing rotated of a vector by angle about point of origin affine fractal transformations. The vector is fractally transformed to further point, with a corresponding angle. (Above)**

<sup>7</sup> Aharonov, A, D. Bohm. **Significance of electromagnetic potentials in Quantum Theory**. Physics Review (2) 115, p. 485-80. 1959.

<sup>8</sup> Chambers, R. **Shift of an electron interference pattern by enclosed magnetic flux**. Phys, Review Lett. Vol. 5, p 3. 1960. Other confirmations have been reported by Olariu and Popèscu (1984). An early experiment in which an unambiguous Aharonov–Bohm effect was observed by completely excluding the magnetic field from the electron path (with the help of a superconducting film) was performed by Tonomura, et al. in 1986. The effect's application continues to expand. Webb, *et al.* (1985) demonstrated such oscillations in ordinary, non-superconducting metallic rings; See Schwarzschild (1986) and Imry & Webb (1989). Bachtold et al. (1999) detected the effect in carbon nanotubes; See Kong *et al.* (2004). [26]

<sup>9</sup> Rein, Glen. **Modulation of neurotransmitter function by quantum fields**. In: K H. Pribram (editor). **Rethinking neural networks: quantum fields and biological data**. Appalachian Conference on Behavioral Neurodynamics. p. 379-388. 1993.





**Figure 7. Results of 2-dimensional modeling of a moving Aires resonator interaction of external electromagnetic emissions with red corresponding to maxima and violet the minima.**

Note the 3-dimensional spherical interaction. It projects beyond the surface activity of the **Aires Resonator**, above as below the surface slit lattice design. In our own measurement tests, <sup>10</sup> we have been able to reconcile such modeling notably:

- Aspects of electric charge, vectors and conduction interfaces with the body can be observed (ranging from 0.5 – 10,000 times intensity).
- A processing interface in ambient air at near-surface level is indicated.
- Electric fields are absorbed for several electromagnetic spectrums, bandwidths along the slit lattices of the **Aires Defender Pro** and the **Aires Guardian** unit.
- “Noise” is reduced from ambient electromagnetic emissions, dependent on angles of observation, indicating vortical and soliton wave processing from the **Aires resonator** technology.
- An anti-static effect is indicated from the **Aires resonator** technology.

Notably, the Report predicts that effects do not change despite variations of changing boundary-layer conditions, confirming the non-dissipative, self-reinforcing, highly-localized, self-assembling soliton-like result due to superposition.

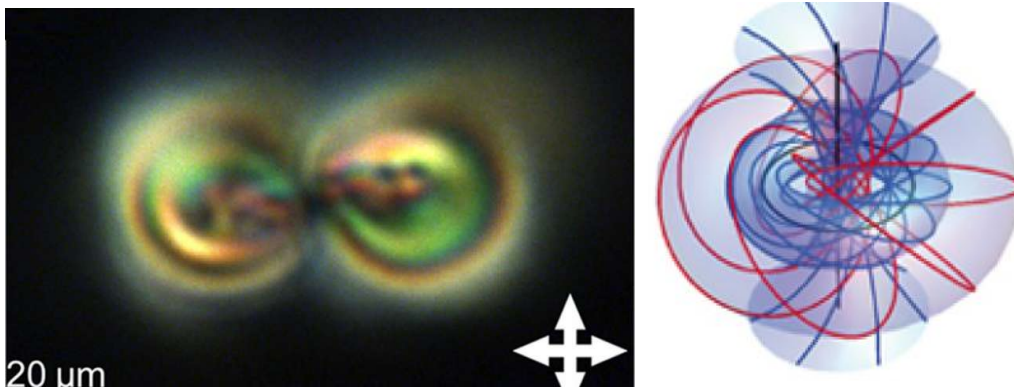
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<sup>10</sup> **Electromagnetic Magnetic Field measurements on AIRES Shield Pro, AIRES Defender Pro, Aires Guardian.** PACE. Ottawa. June 17, 2019. 3 p.

Visual objectification of the Reports computer modeling has been achieved by a research team at **University of Colorado, Boulder**, of such self-assembly interaction has been obtained in liquid crystal “soft matter” research, as shown in the image below. <sup>11</sup>

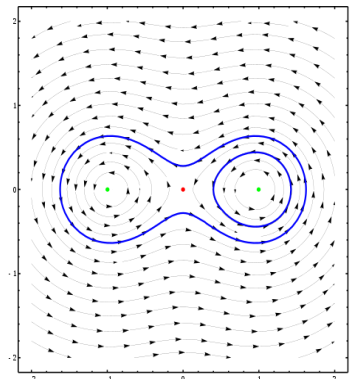
**Figure 8.** A polarizing optical 2017 micrograph of the twistion, a type of topological soliton that is observed in chiral nematic liquid crystals. <sup>12</sup> (Left) One of dozens of 3-dimensional structures called “topological soliton” that remained experimentally elusive for hundreds of years. It can be created and frozen for long periods of time in liquid crystals like those used in electronic displays. Until now, topological solitons have been realized only in a few experiments, and for such a short time that it has been impossible to study them in any detail.

The graph developed from the analysis of the above evidence (Right) shows the similar long-term parameters involved in this wave function as found in the Aires resonator technology. Some are vortical, toroidal, fractal superposition.



The specific case of a knot soliton “hopfions” effect has been indicated in our measurements of the double-chip **Aires Guardian**. It is explained by the **Poincaré-Hopf theorem** by which vector trajectory can circle 2 centres and one saddle (for a Hamiltonian system, which includes description of scalars and quantum fields such as observed for **Aires resonator** technology).

**Figure 9.** Interaction vectors encircling (spatially expanding) effects) with the Hamiltonian being the sum of 2 “Gaussians” (or, typical continuous probability distributions, such as indicated in Figure 7).



The Colorado researchers are convinced that such superposition:

*“phenomena may enable technological breakthroughs in the development of flexible information displays, efficient conversion of solar energy to electricity, novel optically controlled materials capable, in turn, of controlling light, etc. The emergent scientific frontiers in these fields show an exceptional*

<sup>11</sup> **University of Colorado, Boulder** [Soft Matter Physics Smalyukh Research Group](#). Interestingly, development of research into such structures in “soft materials” such as liquid crystals show promise for future technology. In their June 3, 2019: **Self-organized nonlinear gratings for ultrafast nanophotonics**. *Nature Photonics* Volume 13, pp 494–499 [doi.org/10.1038/s41566-019-0449-8](https://doi.org/10.1038/s41566-019-0449-8) they foresee devices utilizing femtosecond-duration laser [electromagnetic] pulses becoming commonplace, “Here, we show that femtosecond laser pulses can generate self-organized nonlinear gratings in nanophotonic waveguides, thereby providing a nonlinear optical device with both quasi-phase-matching and group-velocity matching for second-harmonic generation. We use nonlinear microscopy to uniquely characterize the self-organized nonlinear gratings [slits are in Aires resonator] and demonstrate that these waveguides enable simultaneous  $\chi^{(2)}$  and  $\chi^{(3)}$  nonlinear processes for laser-frequency-comb stabilization. Finally, we derive the equations that govern self-organized grating formation for femtosecond pulses and uncover the crucial role of group-velocity matching [as inherent in the *Aires resonator*]. In the future, nanophotonics [quantum electromagnetics] with self-organized gratings could enable scalable, reconfigurable nonlinear photonics.”

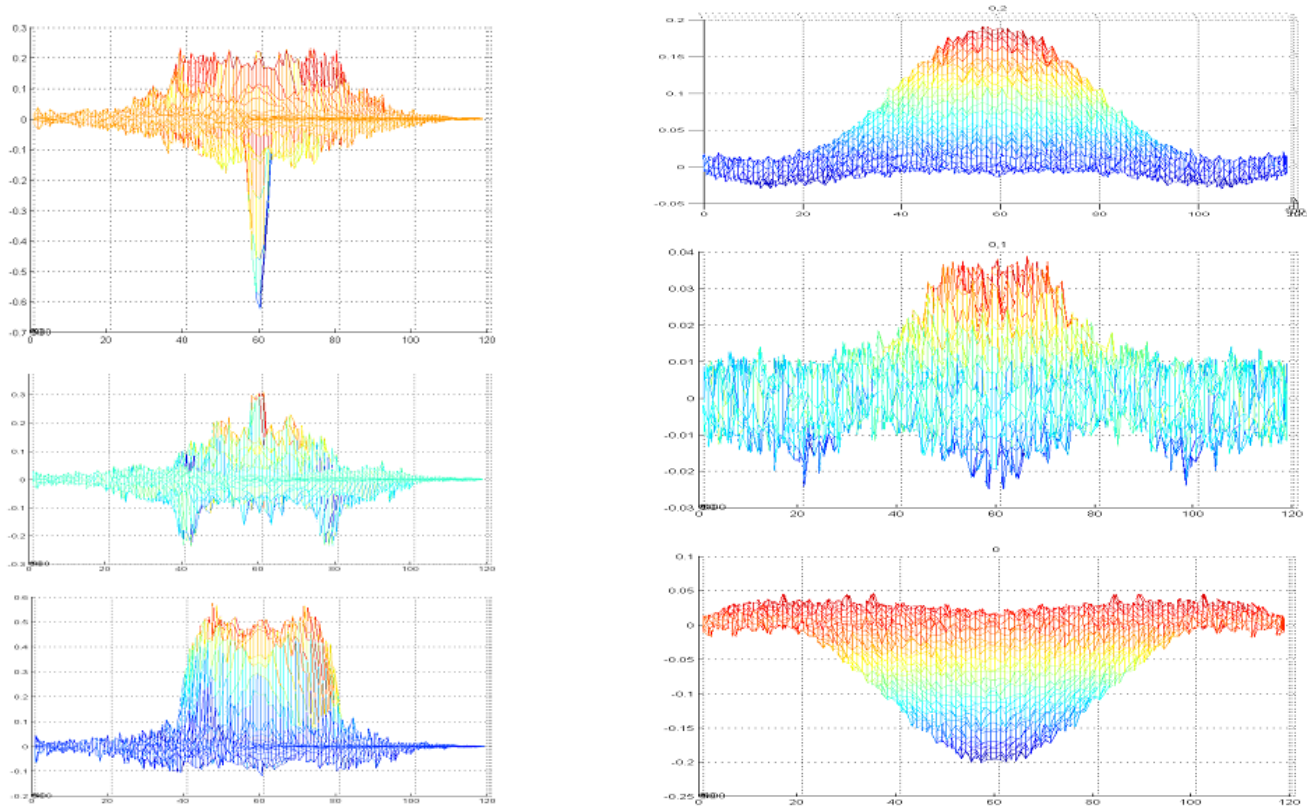
<sup>12</sup> Paul J. Ackerman and Ivan I. Smalyukh published this image in: **Diversity of knot solitons in liquid crystals manifested by linking of preimages in torons and hopfions**. *Physical Review X*. DOI: 10.1103/PhysRevX.7.011006.

promise of significant new discovery becoming possible only now, after recent breakthroughs in different branches of science and technology. They require dealing with a hierarchy of length and time scales as well as inspiration and creation of entirely new concepts, laws, and generalizations. We pursue this study in a broad range of nano-structured soft matter systems, with the focus on fundamental aspects, such as the role that topology and geometry play in pre-determining self-assembly. The common theme that unites our research interests is the emergence of various degrees of order as a result of the self-assembly. ‘

[Emphasis added]

The three-dimensional modeling of a moving **Aires resonator** interface with external electric field is shown below. Note how the Research; modeling conforms to the variables shown empirically in *Figure 8* (right).

This spatial Hamiltonian response would have the ability to induce up to 20 possible variables, in contingent space, some of which we have been able to measure at heights above 0.03 mm. These provide mechanisms for eliciting living system responses, including body voltage, as well as reported clinic observations. We have independently observed field strength amplification near-surface full spectrum (10 Hz – 100 GHz) measurements of ranging from 2,500 to 10,000 times from the processing by the double-chip **Aires Guardian**, compared to about 1.5 times for the single wafer version, in general conformity with Report/s modeling.



**Figure 10. Modeling of the electric field strength above the Aires resonator.** It is observed that a coherent spatial waveform arises from the wafer’s surface, up to 0.03 mm. The right image indicates a coherent resonating response to impulse effects from 2 opposite points, resulting in amplification of the electric field strengths at 1.7 mm above the wafer. Frequency range (3.5 to 28 GHz) included in the emerging 5G telecommunications were tested, resulting in same spatially-stationary, multi-frequency soliton-like waveform.

It is pertinent to point out that the characteristic qualities exhibited by the **Aires resonator** technology, and as empirically induced by the **University of Colorado, Boulder** researchers are apparently only feasible if generated at micro-levels, requiring advanced quantum physics mechanisms and techniques.

In summary the Report states that the self-affine<sup>13</sup> surface topography transforms the radiation incident on it into a wavelength-amplitude-phase coherent form, even for a wide range of (broad-spectrum) frequencies. Such transformation is valuable for conducive optimization for living systems to harmoniously organize themselves, even at the quantum level.

This is a technologically-interesting stability, permitting, in the view of the researcher new devices for coherent transformers and broadband energy distribution resonators.

**Noether's theorem**<sup>14</sup>, describes mathematically the consistency of the stable resonance associated with the Aires resonator. The maximum spatial symmetry results in a self-affine hyperspace. This continuous symmetry corresponds to a certain law of conservation. In the **Aires resonator** it is the creation of a coherent electromagnetic field (shown in the hologram generated with an **Aires resonator**, Figure 4, above, right).

By this consideration, any resultant wave superposition flowing from the Aires resonator carries informational properties of harmony akin to the coherent structure so generated.

The actual shape of activity above the surface of the **Aires resonator** (like a crystal – but very small, quantum-like) notes that there are pockets in space that exhibit “zero oscillations”. These zones, 25, are non-Hertzian field zones, whereby all if not most electromagnetic vectors have been cancelled by opposing interaction (and superposition) of 2 electromagnetic fields 180° apart.<sup>15</sup> They effect particles located in such zones.

In a “quantum crystal” such “crystal lattice nodes” a large amplitude of non-Hertzian (scalar / zero-point fluctuation)<sup>16</sup> may lead to a variety of possible novel, quantum-mechanical changes in particles as well as how they interact and flow without dissipation.

Research could be conducted to observe such delocalization patterns.

We conclude that the Research results are consistent with our own measurements and research.



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Dr. A. Michrowski

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<sup>13</sup> Terms also used in the scientific literature include: self-similarity, self-organizing, self-reinforcing, and, self-assembly.

<sup>14</sup> **Noether's theorem** states that every differentiable symmetry of action of a physical system has a corresponding conservation law.

<sup>15</sup> McClain, J. W.. **Cancellation of internal forces**. *American Journal Physics* 47: p 1004-1012. 1979

<sup>16</sup> The zero-point energy for the quantum mechanical harmonic oscillator can be related to the Heisenberg uncertainty principle. If the energy is zero, then the position, momentum must also both be zero, yet they both "fluctuate/are fuzzy" in the ground state, thereby producing the zero-point energy. Zero-point energy is important to theoretically explain the **Casimir effect** that has been experimentally observed. In cosmology, zero-point energy is related to the **cosmological constant** (energy density of space, or vacuum energy), that arises in **Albert Einstein's** field equations of general relativity and is associated with the concepts of dark energy and quintessence, (more precisely a scalar field postulated to explain an accelerating rate of expansion of the universe.