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Acoustic Priority: A Novel Approach to Quantum Mechanics Based on Tessellation, Sound Wave Analogy, and Cellular Automata Representation

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In correspondence to Biblical (NT) Studies, where scholars every so often confer Markan Priority and Matthean Priority, in this paper we submit a opinion that 'Acoustic Priority' is a sound starting and good point to discuss quantum physics , specifically from phenomenology and evidence-based approach. On this note, we agreed and supported wholeheartedly the research findings as reported by Sungchul Ji, on several connections supporting Cymatics Physics, as we also found similar things independently.

Elze wrote about possible re-interpretation of quantum mechanics (QM) starting from classical automata principles. This is definitely a fresh approach to QM, begun by few authors including Professor Gerard Hooft. Meanwhile, in several papers, Shpenkov insisted that the spherical solution of Schrödinger's equation has nothing to do with the structure of molecules.

According to Shpenkov, the classical equation is during an edge to derive a table of elements which is on the brink of Mendeleyev's table and also other phenomena related to the structure of molecules. However, the Schrödinger equation is a quantum equation that describes the motion of the appropriate particle-wave since all quantum objects manifest characteristics of both particles and waves. Considering Shpenkov's results, one can ask: why do the particle's characteristics disappear and what exactly is that the subject of purely wave behaviour during a quantum system?

We also mention here related works by one among us (Krasnoholovets) who theorized that the microworld is constituted as a tessellation of primary topological balls. The tessel lattice happens to be the origin of a submicroscopic mechanics during which a quantum system is subdivided to 2 subsystems: the particle and its inerton cloud, which arises during interaction of the oncoming cells of the tessel lattice with the moving particle. The particle and its inerton cloud periodically change the momentum and hence move sort of a wave. The new approach allows us to correlate the Klein-Gordon equation with the deformation coat that's formed within the tessellatice round the particle. The submicroscopic approach depicts that the primary source of wave movements including the Schrödinger, Klein-Gordon and classical acoustic wave equations are hidden under the tessel lattice and its fundamental uprising – inert properties of matter, carriers of mass and inertons.

A detailed theory of real physical space was developed by Bounias and Krasnoholovets ranging from pure mathematical principles. A microscopic theory of physical phenomena occurring in the actual physical space was explained by Krasnoholovets during a series of works (see e.g., monograph. Those studies show that our ordinary space is made as a mathematical lattice of primary topological balls, which was named a tessel lattice.

In the tessel lattice, primary topological balls play the role of cells. This is a physical vacuum, or aether. Matter coming out at local deformations of the tessel lattice when a cell alters its volume following the principle of fractal law of transformations. Such a deformation in the tessellattice can be associated with the physical notion of mass.

The motion of a fractal-deformed cell, i.e. a mass particle, occurs with the fractal decomposition of its mass due to its interaction with ongoing cells of the tessellattice. This is an extra development of Zuse's idea about calculating space because cells can exchange by fractals, which locally change properties of space.

The interaction of matter with space generates a cloud of new kinds of spatial excitations named 'inertons'. This means that "hidden variables" introduced within the past by Louis Broglie , David Bohm and Jean-Pierre Vigier have acquired a way of real quasiparticles of space.

Thus in monograph it has been shown that inertons are carriers of a new physical field (the inerton field), which appears as a basic field of the universe. Inertons as quasi-particles of the inerton field are liable for quantum mechanical, nuclear and gravitational interactions of matter. Inertons carry mass and also fractal properties of space, i.e. they are real carriers of information.

A particle moving in the tessel lattice is surrounded with its inerton cloud. The particle realizes the significant motion between the ongoing cells, though it's inertons coming out when the particle rubs against the tessellattice's cells, migrate as excitations hopping from cell to cell. Such a sophisticated motion in which the particle is surrounded with its inerton cloud can easily be compared with the formalism of quantum mechanics because the particle wrapped with its inertons can be thrown out to the particle wave function obtained through an abstract phase space. In such a pattern, the overlapping of wave -functions of nearest particles means that the particles' inerton clouds overlap and thus we obtain real carriers of the quantum mechanical interaction, which give a short-range action between the particles studied.

The particle's de Broglie wavelength plays the role of a section in which the moving particle emits its inerton cloud (an odd section) and in the next even section these inertons come back to the particle passing the momentum on to it. Inertons emitted by the freely moving particle come back to the particle owing to the elasticity of the tessel lattice as such.

How will the interaction of a moving particle with its inerton cloud be understood? The interactions are often written between the particle and an ensemble of inertons, which accompany the particle. The ensemble is presented together as an integral object, an inerton cloud.