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From Schrödinger Equation to Quantum Conspiracy

Francis T.S. Yu

Abstract

Schrödinger's quantum mechanics is a legacy of Hamiltonian's classical mechanics. But Hamiltonian mechanics was developed from an empty space paradigm, for which Schrödinger's equation is a timeless (t = 0) or time-independent deterministic equation, which includes his fundamental principle of superposition. When one is dealing Schrödinger equation, it is unavoidable not to mention about Schrödinger 's cat. Which is one of the most elusive cats in modern science since disclosed the half-life cat hypothesis in 1935. The cat is alive or not had been debated by score of world renounced scientists it is still debating. Yet I will show Schrödinger 's hypothesis is not a physically realizable hypothesis, for which it has nothing for us to debate about. But quantum communication and computing rely on qubit information algorithm, I will show that qubit information logic is as elusive as Schrödinger's cat. It exists only within an empty space, but not exists within our temporal (t > 0) universe. Since there is always a price to pay within our universe, I will show that every physical subspace needs a section of time Δt and an amount of energy ΔE to create and it is not free. Although, double slit hypothesis had been fictitiously confirmed that superposition principle exists, but I will show that double-slit postulation is another non-physically realizable hypothesis that had let us to believing superposition principle is actually existed within our time–space. Yet one of the worst coverup must be particles behaved differently within a micro space to justify the spooky superposition principle, which is one of greatest quantum conspiracy in modern science. Nevertheless, the art of quantum mechanics is all about a physically realizable equation, we see that everything existed within our universe, no matter how small it is, it has to be temporal (t > 0) which includes all the laws, principles, and equations. Otherwise, it is virtual as mathematics is since Schrodinger equation is mathematics, but mathematics is not equaled to science. Finally, when science turns to virtual reality for solution it is not a reliable answer. But when science turns to physical reality for an answer it is a reliable solution.

Keywords: Schrödinger equation, quantum mechanics, Schrödinger's cat, qubit information, physical realizable, timeless space, temporal space, quantum theory, double-slit hypothesis, superposition principle

1. Introduction

In modern physics there are two most important pillars of disciplines: It seems to me one is dealing with macro scale objects of Einstein [1] and the others is dealing with micro scale particle of Schrödinger [2]. Instead of speculating that micro and macro-object behaves differently, but they share a common denominator; temporal

(t > 0) subspace. In other words, regardless how small the particle is it has to be temporal (t > 0), otherwise it cannot exist within our temporal (t > 0) universe. Nevertheless, as science changes from Newtonian [3] mechanics to statistical [4], to relativistic [1], and to quantum mechanics [2], time had always been regarded as an independent variable with respect to substance or subspace. And this is precisely what modern physics had been used the same empty space platform, which they had have treated time as an independent variable for centuries. Since Heisenberg was one of the earlier starters in quantum theory [5], I have found his principle was derived on the same empty space platform as depicted in **Figure 1** which is in fact the "same" platform used for developing Hamiltonian classical mechanics [6]. For which this is the same reason why Schrödinger's quantum mechanics is timeless (t = 0) or time independent because quantum mechanics is the legacy of Hamiltonian. And this is the same reason that Heisenberg uncertainty principle is time independent, instead of changes with time [7].

Nevertheless, **Figure 1** is not a physically realizable paradigm by virtue of temporal exclusive principle. In other words, emptiness and temporal (t > 0) are mutually exclusive. Strictly every substance or subspace has to be temporal (t > 0) within our temporal (t > 0) universe. For simplicity we assumed momentarily that mass m is a constant and I shall come for this temporal issue in a subsequent discussion.

Yet, total energy of a Hamiltonian particle in motion is equal to its kinetic energy plus the particle's potential energy as given by [6],

$$\mathcal{H} = p^2/(2\,m) + V \tag{1}$$

which is the well-known Hamiltonian equation, where p and m represent the particle's momentum and mass respectively, V is the particle's potential energy. Equivalently Hamiltonian equation can be written in the following form as applied for a subatomic particle.

$$\mathcal{H} = -\left[h^2/(8\pi^2 m)\right]\nabla^2 + V \tag{2}$$

which is the well-known "Hamiltonian Operator" in classical mechanics. Where h is the Planck's constant, m and V are the mass and potential energy of the particle and ∇^2 is a Laplacian operator;

particle $\bullet \longrightarrow$ v

A piece of paper
Timeless (t=0) Subspace

Figure 1.
Shows a particle in motion within a timeless (t = 0) subspace. v is the velocity of the particle.

$$\nabla^2 = \frac{\partial^2}{\partial \mathrm{xi} \partial \mathrm{xj}}$$

By virtue of "energy conservation", Hamiltonian equation can be written as,

$$\nabla\psi = \left\{-\left[\mathrm{h}^2/(8\pi^2\mathrm{m})\right]\nabla^2 + \mathrm{V}\right\}\psi = \mathrm{E}\,\psi \qquad (3)$$

where ψ is the wave function that remains to be determined, E and V are the energy factor and potential energy that need to be incorporated within the equation. And this is precisely where Schrödinger's equation was derived from, by using the energy factor E = hν (i.e., a quanta of light energy) adopted from Bohr's atomic model [8], Schrödinger equation can be written as [6];

$$\frac{\partial^2\psi}{\partial x^2} + \frac{8\pi^2 m}{h^2}(E - V)\psi = 0 \qquad (4)$$

In view of this Schrödinger's equation, but it is essentially identical to the Hamiltonian equation. Where ψ is the wave function has to be determined, m is the mass of a photonic-particle (i.e., photon), E and V are the dynamic quantum state energy and potential energy of the particle, x is the spatial variable and h is the Planck's constant.

Since Schrödinger's equation is the core of quantum mechanics, but without Hamiltonian's mechanics it seems to me; we would not have the quantum mechanics. The fact is that quantum mechanics is essentially identical to Hamiltonian mechanics. The major difference between them is that; Schrödinger used a dynamic quantum energy E = hν as obtained from a quantum leap energy of Bohr's hypothesis which changes from classical mechanics to quantum leap mechanics or quantum mechanics. In other words, Schrödinger used a package of wavelet quantum leap energy hν to equivalent a particle (or photon) as from wave-particle dynamics of de Broglie's hypothesis [9], although photon is not actually a real particle [10]. Nevertheless, where the mass m for a photonic particle in the Schrödinger's equation remains to be "physically reconciled", after all science is a law of approximation. Furthermore, without the adoption of Bohr's quantum leap hν, quantum physics would not have started. It seems to me that; quantum leap energy E = hν has played a viable role as transforming from Hamiltonian classical mechanics to quantum mechanics which Schrödinger had done to his quantum theory.
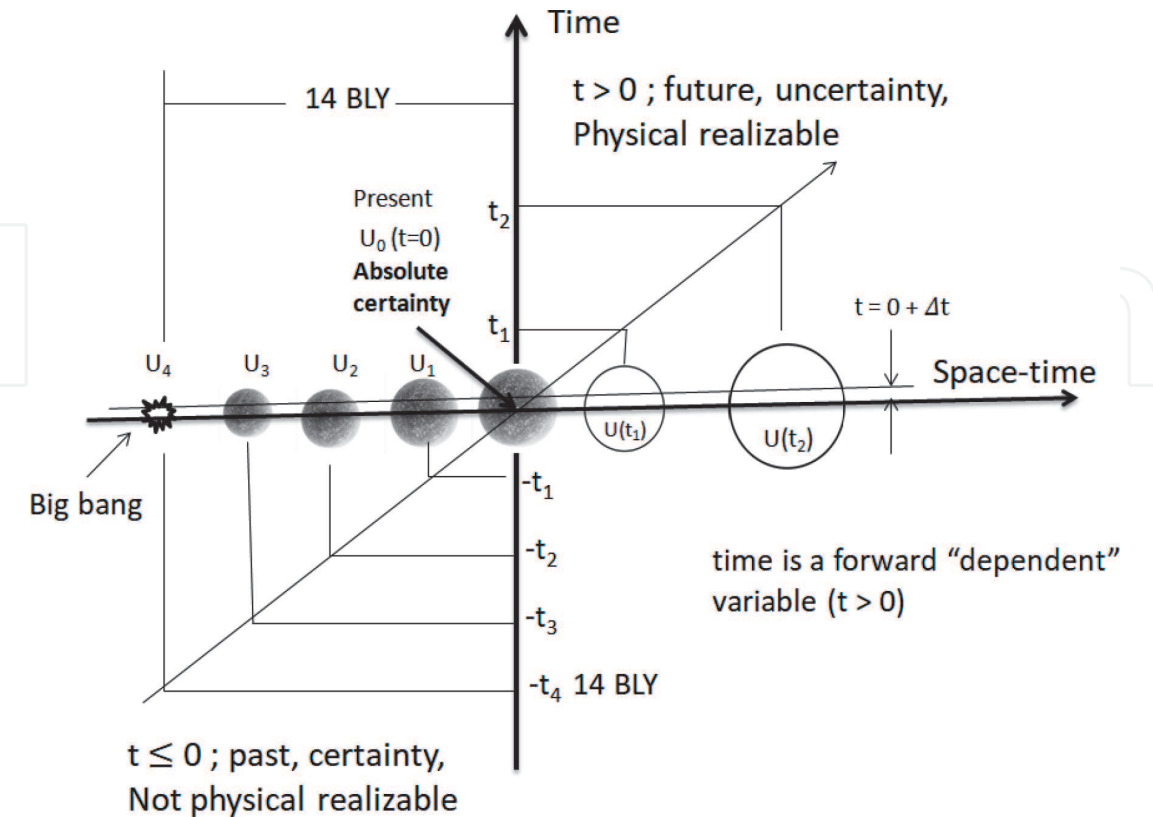
2. Timeless (t = 0) Schrödinger equation

Nevertheless, Schrödinger equation is a point singularity approximated deterministic time-independent equation, for which we see that any solution and principle come out from Schrödinger equation will be deterministic time-independent. But science is supposed to change naturally with time or approximated. And this is precisely the reason that quantum scientists had have committed for decades without knowing that solution or principle as obtained from Schrödinger equation is not physically realizable. For which his fundamental principle of superposition is one of them. The reason why Schrödinger equation is not a physically realizable equation is trivial; firstly, since Schrödinger equation is the legacy of Hamiltonian, which is a timeless (t = 0) or time independent classical machine. Secondly, the quantum leap E = hν is not a time limited physically realizable assumption, since Bohr's atomic was developed from an empty subspace platform, which has no time and no space. And

this empty virtual subspace had been using it for centuries. Although Schrödinger equation has given scores of viable solutions for practical applications but at the same time it had also produced a number of fictitious and irrational principles and theories that are not actually existed within our temporal (t > 0) universe, such as the paradox of Schrödinger's Cat [11], string theory [12], superposition principle, and others.

In order to understand why Schrödinger equation is a timeless (t = 0) or time-independent equation, we have to understand what is a temporal (t > 0) space paradigm since physically realizable solution comes from a physically realizable subspace. For which every physically realizable subspace must be a subspace within our temporal (t > 0) universe, which changes naturally with time. This includes all the laws, principles, and theories must changes naturally with time, as from strictly physical realizability standpoint. Particularly we are in the era of asking our science to response as instantaneously, for instance as the fundamental principle of Schrödinger equation.

For which let me epitomize the nature of our temporal (t > 0) universe as depicted in **Figure 2**. It shows that our universe was started from a big bang creation theory about 14 billion light years ago. Since past certainty's consequences (i.e., memory subspaces) were happened at specified time within the negative time domain (i.e., t < 0), we see that every specific past time event has been determined with respect to a precise past certainty subspace. For which time can be treated as an independent variable with respect to the past certainty consequences within the pass-time domain (t < 0) as from mathematical standpoint. Which is precisely where Schrödinger equation is, as well all the laws and theories were developed.

However, it is reasonable to predict any hypothesis and principle based on our past certainty knowledges, but it is the nature of our time–space tells us that prediction cannot be absolute deterministic, since every physical aspect changes

Figure 2.
Shows a composited temporal (t > 0) time–space diagram to epitomize the nature of our temporal universe. BLY is billion of light years.

with time. In other words, a deterministic Schrödinger equation should not be used to predict future reality without the constrain of temporal (t > 0) condition, since future physical reality changes naturally with time. And this is the timeless (t = 0) or time-independent past-time certainty subspace that many scientists had used to predict the future out-come with absolute certainty, even though consciously they knew it is incorrect. Although this was the issue that Einstein and his colleagues were strongly opposed Schrödinger's fundamental principle of superposition [13], but Einstein had also committed the same error as Schrödinger did, his general and special theory of relativity are also deterministic theories. Nevertheless, the major difference between Schrödinger's fundamental principle and Einstein's theories is that, Schrödinger's principle is essentially to stop the time, such as applied to quantum computing and communication [14, 15]. While Einstein's theory is basically to move ahead or behind the pace of time, for instance as applied to wormhole time traveling [16]. Nevertheless, Schrödinger equation is a non-physically realizable equation which is not encouraged to be used without the constrain of temporal (t > 0) condition, particularly as applied on instantaneously and simultaneously supersession position. Since the fundamental principle exists only within an empty space, but not within our temporal (t > 0) space where empty space is not an inaccessible subspace within our temporal universe. From which we see that those application of Schrödinger equation to quantum space–time would have problem to prove that they exist within our temporal (t > 0) universe, since Schrödinger equation is a time-independent equation.

Although using past certainties to predict future outcome is a reasonable method that had have been used for centuries, but it is physically wrong if we treated time as an independent variable within our temporal (t > 0) universe. And this is the reason scores of irrational and fictitious solutions emerged, that has already been dominated the world-wide scientific community. This includes Schrödinger 's fundamental principle of superposition, Einstein's special and general relativity theories, and many others, since they were all based on past certainties to predict a deterministic future, which is not a temporal (t > 0) solution that changes with time (i.e., non-deterministic).

Nevertheless, the section of time Δt shown in **Figure 2** represents an incremental moment after instant t = 0 moved to a new t = 0 + Δt. In which Δt can be squeeze as small as we wish (i.e., $\Delta t \longrightarrow 0$), but it cannot be squeezed to zero (i.e., $\Delta t = 0$) even we have all the energy ΔE to pay for it. In fact, this is the section of time that cannot be delay or moved ahead the pace of time (i.e., t < 0 + Δt or t > 0 + Δt). From which the possibility for time traveling either ahead or behind the pace of time is not conceivable, since we are coexisted with time.

Since our temporal (t > 0) universe shows that science is supposed to be approximated but not exact or deterministic, any deterministic solution is not physically real as from absolute certainty of the present. In other words, further away from the absolute certainty the more ambiguous the prediction or uncertainty is. And this exactly why uncertainty principle should have developed based on temporal (t > 0) standpoint, instead Heisenberg principle was derived by observation which is independent from time [7].

3. Temporal (t > 0) Schrodinger equation

As any physical substance or subspace requires to be temporal (t > 0), otherwise it cannot be existed within our temporal universe, this includes all the laws, principles, and theories, otherwise those principles and theories would be as virtual as mathematics. For example, as we had shown in the preceding section. Schrödinger

equation is essentially the legacy of Hamiltonian, where Hamiltonian is a timeless ($t = 0$) or time-independent equation. To avoid the ambiguity of timeless and time-independent equation, that means that timeless and time independent are equivalent, since within a virtual empty space it has no time and no physical space. Which is precisely why we had hijacked by an empty space inadvertently for centuries, for not knowingly that empty space paradigm is not a physically realizable paradigm.

Since the application of all those timeless ($t = 0$) principles and theories were never encountered with serious irrationality, it was because we had never thought that temporal ($t > 0$) issue of those timeless ($t = 0$) principles, although we knew science is approximated. Which was in part due to our own analytical incline that paradoxes can be alleviated by rigorous mathematics that all theoretical scientists adored. For which we felt that without complicated mathematics it has no theoretical physics. But mathematics is not equaled to science, although science needs mathematics. It turns out to be wrong with theoretical physicists, physically realizable science depends on a physically realizable platform but not on the severity of mathematics. Nevertheless, as we have seen it is mathematics currently leads the theoretical physics, but not science directs mathematics. In other words, if it not how rigorous mathematics is, but it is the physically realizable science that we are searching for.

Nevertheless, it must be the demand for instantaneous information-transmission and simultaneous computing, that had motivated me found that the fundamental principle of Schrodinger had violated the nature of temporal ($t > 0$) condition of our universe. Since every subspace within our universe changes with time, but not the subspace stops the time. In other words, it is time changes us yet we are coexisted with time. Since time changes subspace, then the respond from subspace cannot be instantaneously ($t = 0$), but it takes a section of time Δt no matter as small it is (i.e., $\Delta t \rightarrow 0$), but never able to make it to zero (i.e., $\Delta t = 0$), to response. Which is a well-known causality constraint [17], that we may have forgotten.

Since Schrödinger equation is one of my typical examples to shown that flaw and limitation as it is implemented within our temporal ($t > 0$) time–space. Firstly, Schrödinger equation is a time-independent deterministic equation, which is precisely why superposition is a timeless ($t = 0$) principle. Nevertheless, if we imposed a temporal ($t > 0$) constraint on the equation as given by,

$$\frac{\partial^2 \psi}{\partial x^2} + \frac{8\pi^2 m}{h^2}(E - V)\psi = 0, t > 0 \tag{5}$$

From which we see that any solution comes out from this equation will be temporal ($t > 0$), since temporal equation produces temporal solution. Nevertheless, as from strict temporal ($t > 0$) standpoint, mass m, quantum leap energy $E = h\nu$, and potential energy V should be temporal. Nevertheless, ($t > 0$) imposition is showing that solution or principle as derived from this equation should be temporal. For example, fundamental principle of superposition is one of the evidences, since the principle was not constrained by temporal condition. In other words, the adopted quantum leap energy $E = h\nu$ is not a physically realizable assumption to be used, since it is not a time limited quantum leap. This means the wave function ψ as obtained from Schrödinger equation without the temporal constraint is given by [6];

$$\psi(t) = \psi_0 \exp[-i\,2\pi\,\nu\,(t–t_0)/h] \tag{6}$$

Which is the well-known Schrödinger wave equation, where ψ_0 is an arbitrary constant, ν is the frequency of the quantum leap $h\nu$ and h is the Planck's constant.

As anticipated, Schrödinger wave equation is also a time unlimited solution with no bandwidth, which is not a physical realizable solution. Yet many quantum scientists had used this wave solution to pursuing their dream for quantum supremacy computing and communication [14, 15]. But not knowing the dream they are pursuing is not a physical realizable dream.

It is trivial where the source of the unlimited quantum leap came from, it is from Bohr atomic model as depicted in **Figure 3**. Where an atomic model is embedded within a non-physically realizable empty space paper paradigm, it has no time and no space. Yet quantum physicists can implant virtual time and coordinates within the paradigm but not knowing that piece of paper does not actually represents a physically real subspace. From which we see that Bohr's model strictly speaking it is not a physically realizable paradigm should be used. Firstly it is an empty subspace paradigm, secondly E = hν is not a physically realizable quantum leap energy.

On the other hand, if we put a temporal (t > 0) constraint on the time unlimited wave equation as given by,

$$\psi\left(t\right) = \psi_0 \, \exp.[-i\,2\pi\,\nu\,(t{-}t_0)/h], t > 0 \tag{7}$$

From which we have,

$$\psi\left(t\right) = \psi_o \, \exp.[-\alpha_o\,(t - t_o)^2] \, \cos\,(2\pi\nu t), t > 0, \tag{8}$$

where t > 0 denotes equation is subjected to temporal (t > 0) condition (i.e., exists only within positive time domain). From which we see that a narrow package of wavelet as shown in **Figure 4** is temporal (t > 0) and time limited. Thus, we see that it is unlikely simultaneous wavelets will instantaneously occur at same time. From which we have shown that Schrödinger's fundamental principle of superposition fails to exist within our temporal (t > 0) universe.

Nevertheless, major problem of Schrödinger equation is its time-independent or timeless issue, since the equation was derived from an empty space platform as
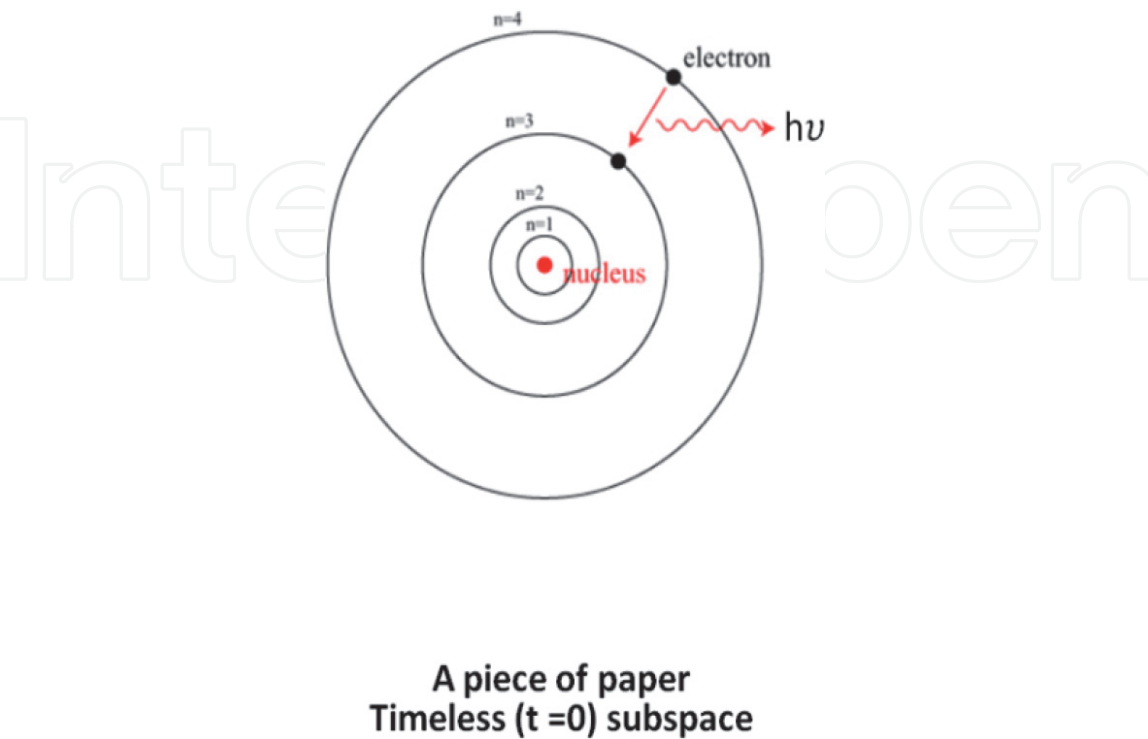
Figure 3.
Shows a Bohr atomic model embedded in a timeless (t = 0) platform (i.e., a piece of paper).
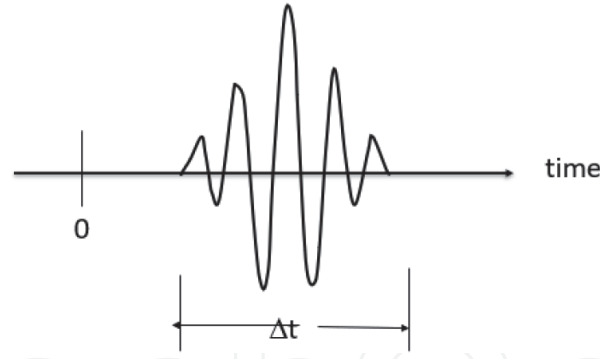
Figure 4.
Shows a time-limited temporal (t > 0) equation exists in positive time domain. Which can be implemented within our temporal (t > 0) universe.

Hamiltonian. From which we see that, Schrodinger equation is not a physically realizable equation, which is precisely why quantum world behaves weirdly as within a timeless wonderland. Since string theory [12] in part was developed from Schrödinger equation, it is trivial to see that string theory is deterministic which is not a physically realizable theory. From which we see that it is not how sophisticated a theory is, but it is the temporal (t > 0) subspace platform that produces physically realizable theories.

There is however another essential physical limit cannot be ignored. Within our temporal (t > 0) universe every aspect has a price to pay; a section of time Δt and an amount of energy ΔE [i.e., Δt, ΔE], where $\Delta E(t)$ is temporal. In other words, every physically realizable theory or principle needs a section of time Δt to spare and an amount of energy ΔE to realize or to transmit. For instance, every bit of information needs a section of time Δt to create. But without an amount of energy ΔE it is impossible to physically realize a bit of information. For which we have the following by uncertainty relationship as given by [18],

$$\Delta t\ \Delta E \geq h \tag{9}$$

where h is the Planck's constant. From which we see that we need to pay a higher amount of energy ΔE for a narrower section of Δt for every bit of information-transmission.

On the other hand, if we want to curve a particle into a string-like shape within our quantum world [12], which is not a physically realizable theory since string theory is a deterministic principle while our universe is temporal (t > 0). Yet, my question is that how long it will take to change a particle to string like equivalent, even though assume we have all the energy (i.e., ΔE) we need. And this is a trivial question that we have to answer, since every physical aspect within our universe has a price (i.e., Δt, ΔE) to pay. In other words, particle-string dynamic is a mathematical equivalent, but physically they are not equaled since every particle is a temporal (t > 0) particle, which has a mass with time.

4. What timeless space does to wavelets?

On the other hand, if we take a set physically realizable wave functions as given by,

$$\psi_{o1}\ (t) = \psi_{o1}\ \exp\left[-\alpha_{o1}\ (t - t_{o1})^2\right]\ \cos\ (2\pi\nu_{o1}t), t > 0, \tag{10}$$

$$\psi_{o2}\ (t) = \psi_{o2}\ \exp\left[-\alpha_{o2}\ (t - t_{o2})^2\right]\ \cos\ (2\pi\nu_{o2}t), t > 0, \tag{11}$$

Which are depicted respectively in **Figure 5(a)**, where we see that wavelets are physically separated. However, if this set of wavelets are submerged within an empty subspace, although physically not realizable as illustrated in **Figure 5(b)**, we see that the wavelets superimposed at t = 0 within an empty space, since within an empty space it has no time and no distance. And this is precisely what a virtual empty space can do for all substances as from mathematical standpoint.

Before we move on, let me stress that wave-particle duality is a non-physical realizable dynamic, since it is from statistical mechanics standpoint that a package wavelet energy is equivalent to a particle in motion where momentum of a particle p = h/λ is conserved [6]. However, one should not treat wave or a package of wavelet energy hΔν as a particle or particle as wave. But it is a package of wavelet energy equivalent to a particle dynamic (i.e., photon), but they are not equaled. Similar to mass to energy equation, mass is equivalent to energy and energy is equivalent to mass, but mass is not equaled to energy and energy is not mass. For which a quantum of hν or a photon is a virtual particle. From which we see that a photon has a momentum p = h/λ but no mass, although many quantum scientists regard a photon as a physical real particle.

Similarly, we can show that a set of separated particles in motion is situated within a temporal (t > 0) subspace as depicted in **Figure 6(a)**. Since they are embedded within a time–space platform, their locations can be precisely determined. However, if this set moving particles are situated within an empty space as illustrated in **Figure 6(b)**, then particles lost their temporal (t > 0) identities (e.g., such as size, location, and motion), since within an empty space it has no time and
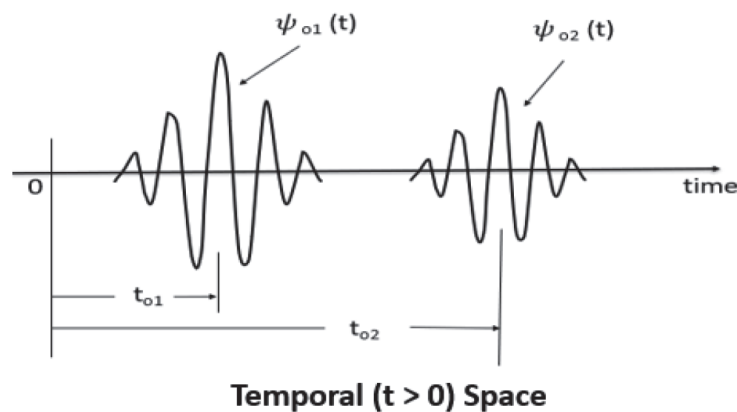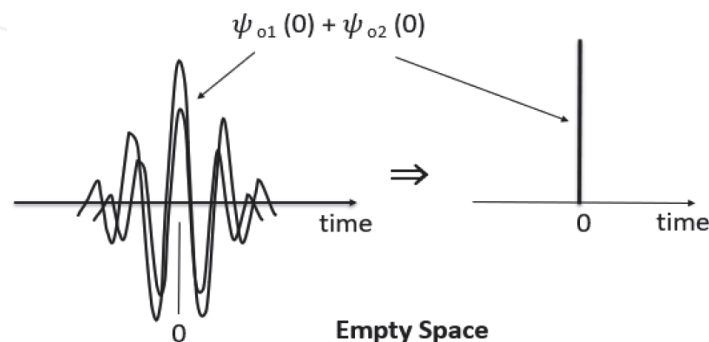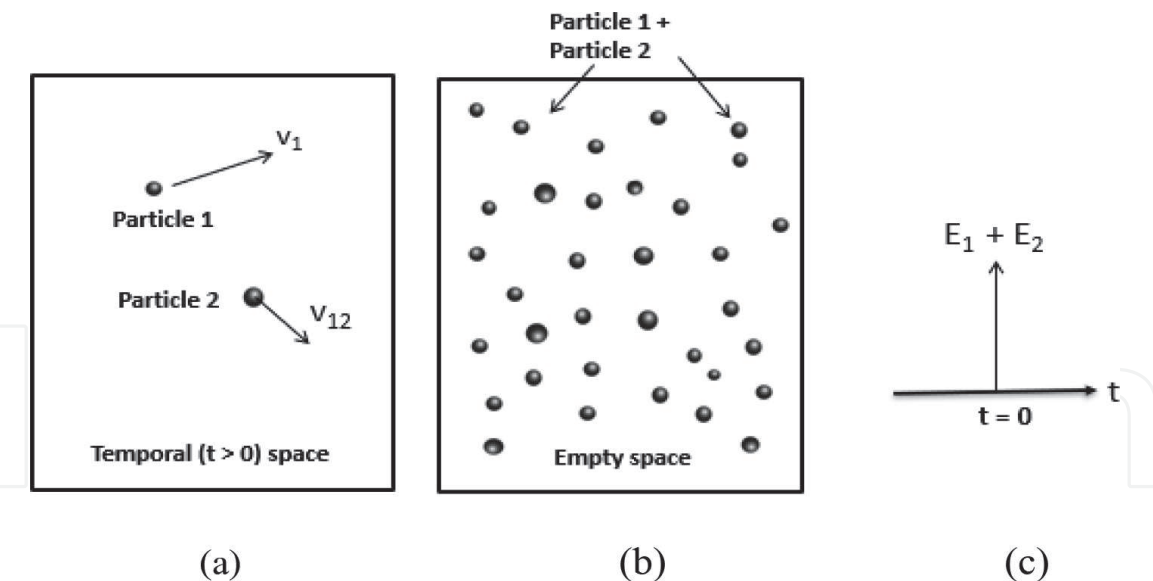

Figure 5.
(a) Shows a set of time-limited temporal wavelets. (b) Shows the set of time-limited wavelets is embedded within an empty space. We see superposition principle holds within an empty space since it has no time and no space.

Figure 6.
(a) Shows particles within a timeless (t = 0) subspace can do to particles. (b) Shows particle 1 and 2 are superimposing at everywhere within an empty space. (c) Shows energy of particle 1 and 2 converged at t = 0, in view of energy conservation. But empty space is a virtual mathematical space which does not exist within our universe.

no space. For which all the particles' dynamic energy converged at t = 0. From which we see that empty space is a virtual space which does not exist within our temporal (t > 0) universe. But we had used this virtual space for ages since the dawn of our science. And this reason that why we need to change to temporal (t > 0) science otherwise we will forever be trapping within the empty wonderland of timeless (t = 0) science, which does not need to pay a price (i.e., Δt, ΔE).

Nevertheless, Schrödinger equation is a non-physical realizable equation, which can be traced back to the development of Hamiltonian mechanics. From which we see that it is the background subspace (i.e., a piece of paper) that we had inadvertently treated as an empty space paradigm. And it is also the same empty space paradigm that Bohr's atomic model was embedded, from which we see that quantum state energy h*ν* is not a physically physical assumption. From which I had shown any application of Schrödinger equation has to be constrained within the temporal (t > 0) condition. Otherwise, the solution would be virtual and fictious, which cannot be implemented within our time–space. From which I had shown that it is not how rigorous mathematics is, it is the physical realizable paradigm determines her solution is physical realizable.

5. Schrödinger's cat

When we are dealing with quantum mechanics, it is inevitable not to mention Schrödinger's cat since it is one of the most elusive cats in the modern science since Schrödinger's disclosed it in 1935 at a Copenhagen forum. Since then, his half-life cat has intrigued by a score of scientists and has been debated by Einstein, Bohr, Schrödinger, and many others as soon Schrödinger disclosed his hypothesis. And the debates have been persisted for over eight decades, and still debating. For example, I may quote one of the late Richard Feynman quotations as: "After you have leaned quantum mechanics, you really "do not" understand quantum mechanics … ".

It is however not the fate of the Schrödinger's half-life cat, but it is the paradox that quantum scientists had have treated the fate of the cat as a physically realizable

paradox. In other words, many scientists believed the paradox of Schrödinger's cat is actually existed within our universe, without any hesitation. Or literally accepted superposition is a physically realizable principle, although fictitious and irrational solutions had emerged, it seems like looking into the Alice wonderland. In order to justify some of their believing some quantum scientists even come-up with their own logic; particle behaves weirdly within a microenvironment as in contrast within a macro space. Yet some of their potential applications, such as quantum computing and quantum entanglement communication are in fact in macro sub-space environment. Nevertheless, I have found many of those micro behaviors are not existed within our universe, from which paradox of Schrödinger's cat is one of them, as I shall discuss.

Let us start with the Schrödinger's box as shown in **Figure 7**. Inside the box we have equipped a bottle of poison gas and a device (i.e., a hammer) to break the bottle, triggered by the decaying of a radio-active particle, to kill the cat. Since the box is assumed totally opaque of which no one knows that the cat will be killed or not, as imposed by the Schrödinger's superposition principle until we open his box. From which we see that the fate of Schrödinger 's cat is dependent upon the beholder, or consciousness.

Nevertheless, as we investigate Schrödinger 's hypothesis, immediately we see that his hypothesis is not a physical realizable postulation, since within the box it has a timeless ($t = 0$) or time independent radioactive particle in it. As we know that; any particle within our universe subspace has to be a temporal ($t > 0$) particle or has time with it, otherwise the proposed radioactive particle cannot be existed within Schrödinger's temporal ($t > 0$) box. It is therefore, the paradox of Schrödinger's cat is not a physical realizable hypothesis and we should not have treated Schrödinger's cat as a physically real paradox.

Since every problem has multi solutions, I can change the scenarios of Schrödinger's box a little bit, such as allow a small group of individuals take turn to open the box. After each observation close the box before passing on to the next observer. My question is that; how many times the superposition has to collapse? With all those apparent contradicted logics, we see that Schrödinger 's cat is not a paradox after all. And the root of timeless ($t = 0$) superposition principle as based on Bohr's quantum leap $h\nu$, represents a time unlimited radiator, which is a singularity approximated wave solution. But time-unlimited quantum leap is a non-physically realizable radiator that cannot exist within our universe.
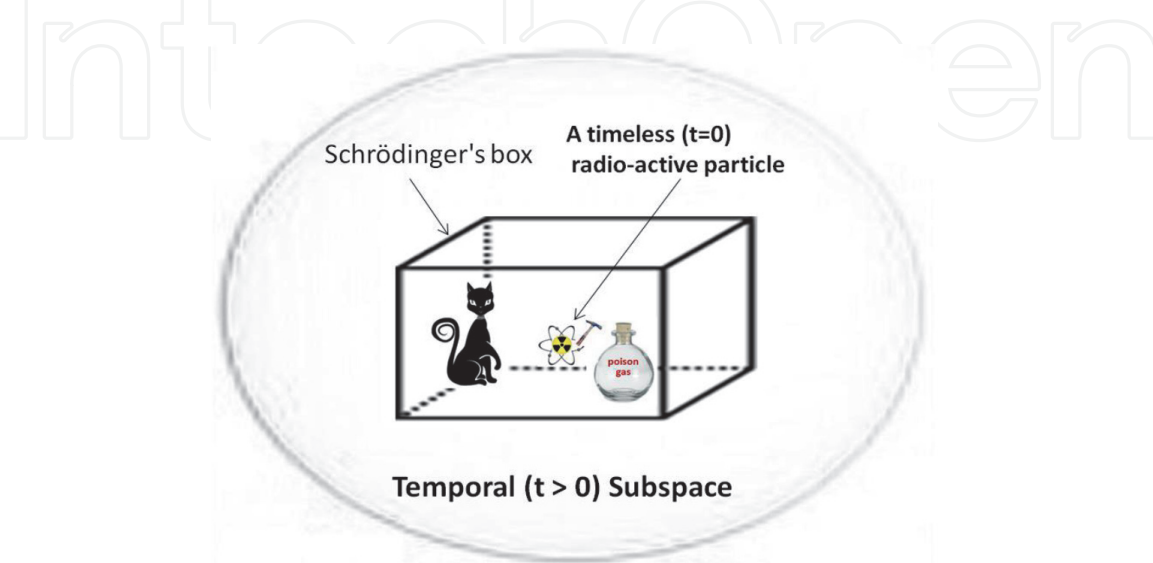
Figure 7.
Shows Paradox of Schrodinger's Cat: Inside the box we equipped a bottle of poison gas and a device (i.e., hammer) to break the bottle, triggered by the decaying of a radio-active particle, to kill the cat.

6. Micro space coverup

Two of the important pillars in modern physics must be Einstein's relativity and Schrödinger's Quantum theory; one is dealing with very large object, and the other is dealing with small particles. Since both of Einstein's theories and Schrödinger's mechanics were developed from an empty subspace, they are not physically realizable principles. But it was those theories that had given us the fantasy promises that had led us to believe that physical behaves within a macro and a micro are different, otherwise relativistic theory and quantum mechanics cannot be reconciled. Nevertheless, either was inadvertently or not, it remains to be found. Nevertheless, this is the objective that I will show that particles behave within a macro and a micro space are basically the same regardless of their sizes. From which I wonder that particle behaves differently within a micro space must be a major cover up but not inadvertently in modern scientific history.

Although Einstein was strongly opposing Schrödinger's quantum theory [13], but his relativity theory had also committed the same error for using the same empty space paradigm. For which I will show that particle behaves basically the same within a macro and a micro space, regardless of their size. Nevertheless, the major difference between Einstein's theory and Schrödinger 's principle is that, one is to move ahead or behind the pace of time and the other is to stop the time. Yet neither move ahead nor stop time is possible, since our universe changes with time, but not change the time.

As commonly agreed, that a picture is worth more than a thousand words, then a viable diagram is worth more hundreds of equations. Once again let me epitomize the creation of our temporal (t > 0) universe as summarized in **Figure 8**.
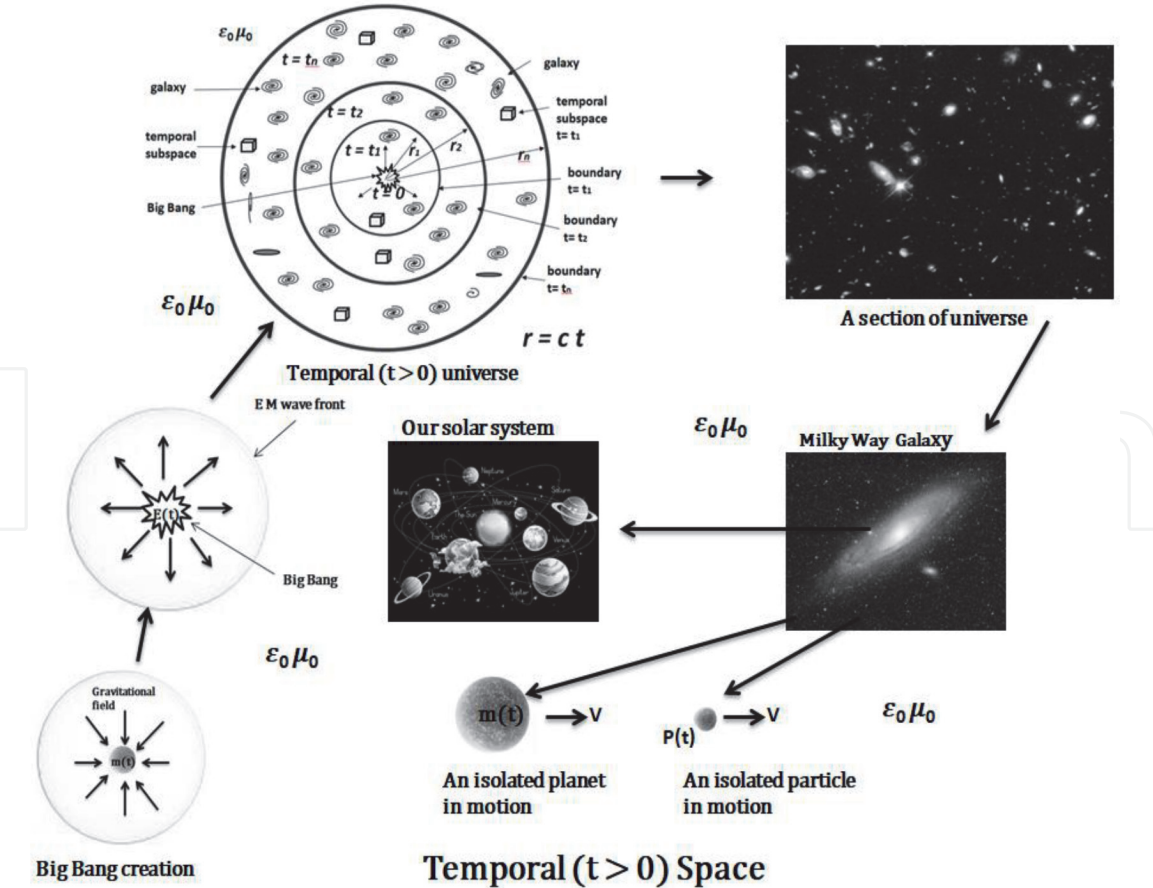
Figure 8.
Shows our universe was originated by a big bang explosion from a singularity temporal mass m(t) triggered by her own intensive gravitational force within a preexisted temporal (t > 0) space. In which we see that our universe, subspace, galaxy, planet, particle regardless the size changes naturally with time. From which we see that the behaviors within micro and macro are basically the same.

In which it shows that the origin of our temporal (t > 0) universe was started by a big bang explosion within a preexisted temporal (t > 0) space that allows a singularity mass M(t) to exist and to grow over time. Such that her induced gravitational pressure will eventually trigger the thermo-nuclei explosion of mass M that enables creation of our universe. From which we see that every substance regardless the size changes with time. Where time is the only invisible real variable runs at a constant pace, for which nothing can move ahead or even stop time. And this a physically realizable time–space we live in. Which is different from the Einstein's space–time continuum where he had treated time as an independent variable [1]. The fact is that temporal (t > 0) universe is a newly discovered realizable time–space that closer to truth. From which I would anticipate temporal (t > 0) space will eventually take over the time-independent universe of Einstein. For which we would have a viable physically realizable paradigm for years to come, because principle and theory developed from a temporal (t > 0) space platform will be physically realizable.

In view of our temporal (t > 0) universe, it is not possible for particle behavior differently within a micro space, since every particle is temporal that changes naturally with time. Since it is time changes the particle, but not particle changes time, time is neither can be stop momentarily as superposition principle stated or changed momentarily as relativistic theory promised. In other words, every substance regardless of the size needs a section of time Δt and an amount of energy ΔE to create. And it cannot allow micro-space behaves like a timeless space since every subspace within our universe has to be temporal, by virtue of temporal exclusive principle.

7. Qubit information conspiracy

Qubit information-transmission is basically exploiting Wiener's communication strategy for the purpose of qubit transmission [19]. For which the receiver would anticipate a more ambiguous digital signal (e.g., either 0 or 1) from an anticipated sender. In other words, qubit communication has treated at receiving end entropy H(B) as a source entropy H(A) to determine the intended signal was sent. Since signal was originated by the sender, by maximizing entropy H(B) under noiseless condition the receiver can interpret the received signal (e.g., 0 or1) as equals to a qubit information. And this is precisely the qubit information principle that currently is using for quantum communication and computing.

For example, a receiver is not certained about an enclosed message is either yes or no, until the receiver opens the envelope to find out is yes or no message but not both. Which is a similar the scenario to the paradox of Schrödinger 's cat before opening his box. But the fate of Schrödinger's cat or the information within the envelope had been determined before we look into the Schrödinger's box or the receiver opens the envelope. From which we see that it is not our consciousness changing the outcome of the enclosed message or the fate of the cat, as superposition principle had implied. For which to guarantee that the envelope will not be contaminated during transmission, if and only if the transmission time is instantaneously (i.e., $\Delta t = 0$) which is equivalently that message is sent within timeless (t = 0) channel, that has no time.

Therefore, it is the physically realizable qubit information whether it exists within our temporal (t > O) universe. Since everything within our universe has a price to pay, namely a section of time Δt and an amount of energy ΔE, for which qubit information transmission cannot be the exception. Firstly, quantum communication relies on fundamental principle of superposition, but we had shown that

superposition principle cannot exist within our temporal (t > 0) universe. Then it has no sense to talk about all the possible capability of qubit information can offer.

Nevertheless, let us assume a quantum communication channel which is situated within an empty space paradigm shown in the **Figure 9**, where a binary source ensemble of A = {0, 1} is capable of transmitting 0 and 1 instantaneously and simultaneously within an empty space. Notice that this is precisely the same sub-space platform that Schrödinger's fundamental principle of superposition derived from. From which we see that qubit information can only exist within an empty space platform which is not a physically realizable information hypothesis, since platform has no time to represent a transmitting signal. The fact is that every temporal information (i.e., 0 or 1) needs a section of time (i.e., Δt) to presents a time-signal. In other words, if a time-signal has no section of time, it has no carrier to represent and to transmit within our temporal (t > 0) universe since qubit information is timeless (t = 0) space transmission algorithm.

Aside it is not a physically realizable paradigm, let me show how a qubit information channel works as depicted by a block box diagram shown in **Figure 10**, which is a timeless (t = 0) noise free channel. Where A = {0, 1} represents an input binary source, H(A) = 1 bit is the input entropy, B{qubit} is output quantum bit, H(B) = qubit is the output entropy. Since quantum qubit information transmission has treated the input binary source A = {0, 1} and the output ensemble as qubit B = {qubit}, such that at the receiving ending information can be presented in quantum bit (i.e., qubit). But qubit channel is embedded within a timeless (t = 0) subspace, it has no noise and no time, we see that it has no channel noise entropy [i.e., H(A/B) = 0]. From which mutual information of the qubit channel can be written as,

$$I(A;B) = H(B) = H(A) \tag{12}$$
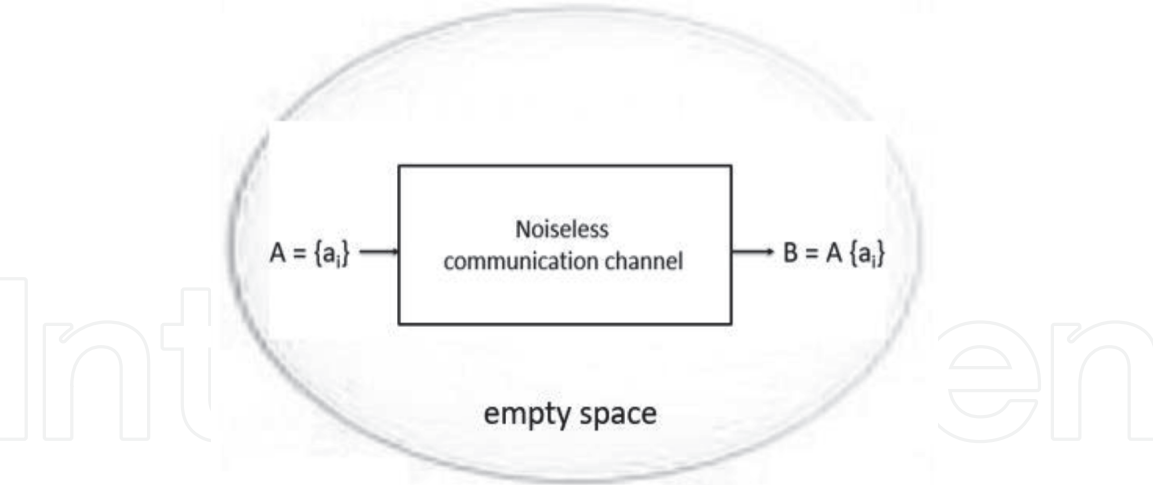
Figure 9.
Shows a conventional noiseless communication channel is embedded within an empty space. But it is not a physically realizable paradigm since substance (i.e., signal) and emptiness cannot coexist.
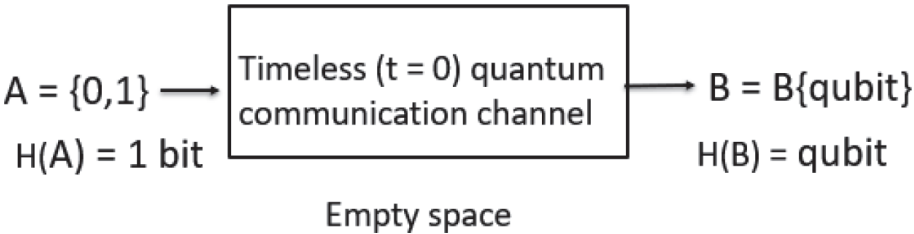
Figure 10.
*Shows a binary timeless (t = 0) quantum qubit-information channel.*

where the output end entropy H(B) is equaled to the input entropy H(A) [i.e., H (B) = H(A)]. Thus, the intended sent signal either 1 or 0, but not by both, is receiving at the receiving end. This is equivalently to recovering the intended input signal that was corrupted within a noisy channel of Wiener's information-transmission, but in this case is a noiseless channel. In fact, a noiseless channel is a virtual channel only exists within an empty virtual space, which cannot be existed within our temporal (t > 0) universe.

Since quantum information is dependent on Schrodinger's superposition principle such that binary transmission of 0 and 1 can be transmitted instantaneously and simultaneously. This presents a quantum bit or a qubit to determine the input source ensemble of either 1 or 0. But quantum information channel is assumed within an empty space paradigm, we see that the operation is instantaneous and simultaneous but only exists within timeless (t = 0) space. Since qubit information is the anchor principle for quantum computing and communication, but unfortunately qubit information cannot exist within our temporal (t > 0) universe, by virtue of temporal exclusive principle.

A similar scenario to qubit information transmission is the paradox of Schrodinger's cat, where a received signal is dependent upon on observation. For example, the observer (i.e., the receiver) did not know the cat within the Schrödinger's box is either alive or dead until the observer opens up the box. In which we see that it is the observer confirms the outcome after the observation. But the physical fact is that the cat is alive, or dead had been determined before the observer opens up Schrödinger's box. Similarly, we never know a boiled egg is either hard or soft-boiled until we crack open it. But hard- or soft-boiled egg had been determined before we crack the egg.

Although paradox of Schrödinger's cat had been debated since the disclosure of the hypothesis in 1935, it seems to me that no one had have found the real reason where the paradox comes from until recent discovery of the temporal (t > 0) universe [20, 21]. From which I had shown that paradox came from an empty subspace (i.e., a piece commonly used paper) where Schrödinger's equation was derived from. From which I had shown that his fundamental principle of superposition is timeless (t = 0), fails to exist within our universe.

On the other hand, if qubit information channel is situated within a temporal (t > 0) subspace as shown in **Figure 11**, then the responds of a supposed qubit channel is subjected to the boundary condition within temporal (t > 0) space.
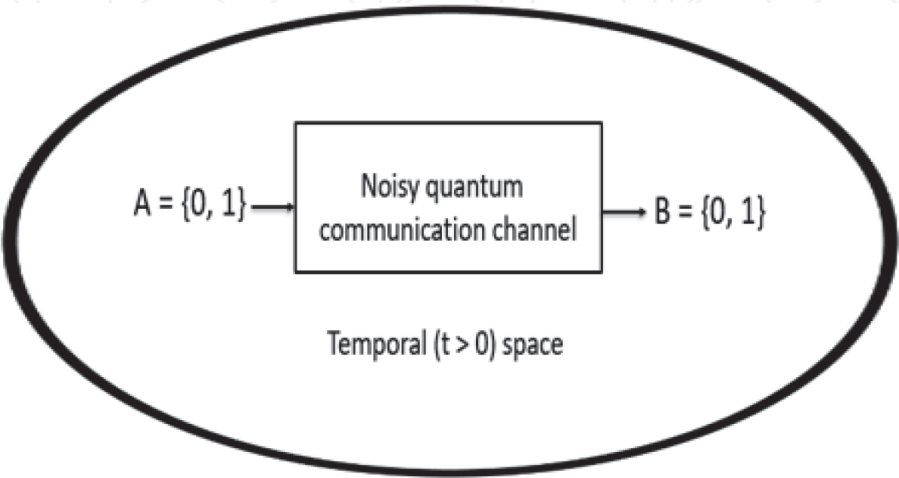
Figure 11.
Shows a binary noisy quantum communication channel embedded within a temporal (t > 0) space. For which output entropy is always larger than the input entropy, that is H(B) > H(A). Note: For a noise-free channel we have H(B) = H(A). But noiseless channel is equivalent to a timeless channel, which is not a physically realizable communication channel.

For which simultaneous and instantaneous superposition of binary digital transmission (i.e., 0, 1) fails to exist. Thus, output entropy H(B) at the transmitted end cannot be treated as a qubit information since superposition principle does not hold within our temporal (t > 0) space. Of which output ensemble is B = {0, 1} that is identical to a conventional noisy binary channel, instead of B = {qubit}.

Before departing this section, I would stress that within our universe everything needs a price to pay, a section of time Δt and an amount of energy ΔE and it is not free. However, quantum qubit information pays no price since it does not have a section of time Δt. Yet, qubit information had created a worldwide qubit conspiracy, from which it is hard to tell when this conspiracy would be ended. But I am confidence to say that this fictious qubit information supremacy would be ended soon since information-transmission is supposed to be physically realizable.
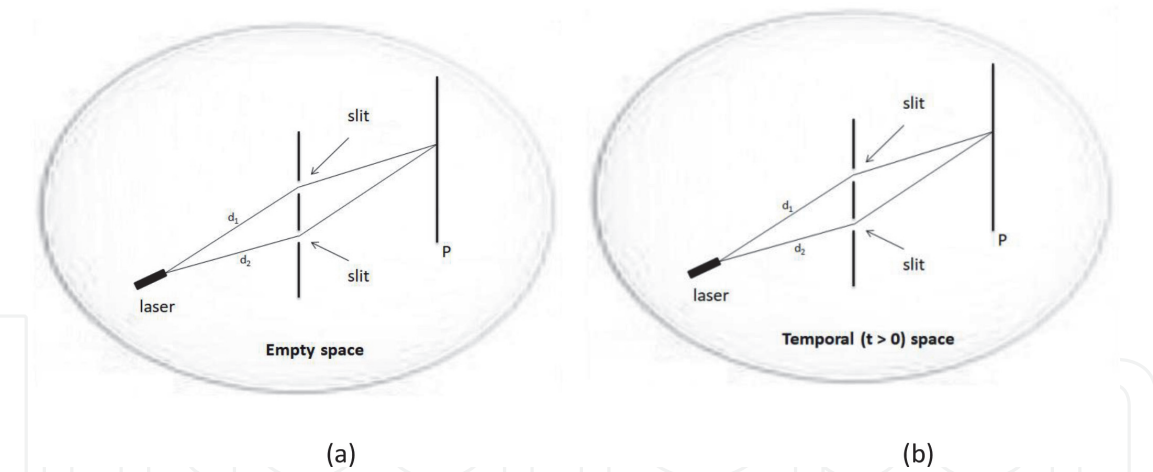
8. Double slit paradox

Instead of getting into the argument of simultaneous existence particles at double-slit using Young's experiment, which is a non-physical realizable paradigm as from temporal exclusive principle standpoint. Particle-wave dynamics is a mathematical equivalent duality principle as described; particle in motion is equivalent to wave dynamics or wave propagation is equivalent to particle dynamics. However, particle is not equaled to wave and wave is not equal to particle. Particularly as from De Broglie-Bohm theory as I quote: particles have "precise locations" at all times ... [9]. But, in contrast within a temporal (t > 0) subspace, particle changes with time but not at precise location since future prediction is not deterministic. As we have shown earlier particle existed within a temporal (t > 0) space is quite difference as assumed within a virtual non-physically realizable subspace. For example, particle existed within our temporal (t > 0) universe, no matter how small it is, it has to be temporal (t > 0). Since temporal subspace is not empty, from which we see that particle cannot be totally isolated. For example, mass particle induces gravitational field, charged particle induces electric field, and others which cannot be ignored. Without the preexistent substances such as permittivity and permeability, wave dynamics has no way to exist. From which we see that particle-wave dynamics is a mathematical postulation existed only within an empty timeless (t = 0) or time independent virtual mathematical subspace, since the assumption of wave dynamics is not a time and band limited physically realizable wavelet.

Nevertheless, let me show a double slit set-up as depicted in **Figure 12(a)**, which is a commonly accepted paradigm that has been used in decades, but it is not a physically realizable paradigm. Yet a photonic particle can be shown simultaneously and instantaneously existed at the double slits, since within an empty space it has no time and no distance. And this is precisely the same subspace that Schrödinger's superposition principle derived from, but we had shown that superposition principle can only exist within an empty timeless (t = 0) virtual subspace.

However, if the double-slit hypothesis is situated within a temporal (t > 0) subspace as depicted in **Figure 12(b)**, then it is very unlikely two particles will be instantaneously and simultaneously existing at both slits because time is distance and distance is time. Since wave is equivalent to particle as from particle-wave dynamics standpoint, but within our temporal (t > 0) universe any physical wave dynamic has to be time and band limited otherwise it is a virtual wave-dynamic. From which we see that it is very unlikely two wavelets (or particles) will be simultaneously arrived at both slits at the same time.

Yet, a question remains to be asked, why it works for a continuous emitting laser. It is apparently that a continuous light emitter has a longer time-limited

Figure 12.
Shows a hypothetical double-slit experiment. (a) Shows a non-physically realizable empty space paradigm,
*(b) shows a physically realizable paradigm.*

duration. For example, if we assume that human has a 300-year life expectance, then it has a good chance that we may coexist with Einstein, Schrödinger, and may be coexisted with Newton at some time, but may not at the same place. On the other hand, if our universe is a time-independent (i.e., timeless) space, then in principle we can time-traveling back to visit them. What I have just given is that within our temporal (t > 0) universe everything has a price; an amount of energy ΔE and a section of time Δt (i.e., ΔE, Δt) to pay. But this is the necessary cost, and it is not sufficient. From which we see that superposition principle is limited by a section of time Δt, although ΔE and Δt are coexisted.

Nevertheless, we can hypothetically show that instantaneously and simultaneously superposition phenomenon does not hold by a postulated set-up shown in **Figure 13**, which is a physically realizable paradigm since substance and temporal (t > 0) space are mutually inclusive.

However, if the difference path length between d_1 and d_2 is beyond the coherence length D of the coherent illuminator (i.e., laser) as given by.

$$D = d_2 - d_1 = c\,(\Delta t_2 - \Delta t_1) = c\,\Delta t' < D \qquad (13)$$

where d_s are the distances, Δt_s are the incremental times and c is the velocity of light. Then interference pattern cannot be observed at the diffraction screen of P.
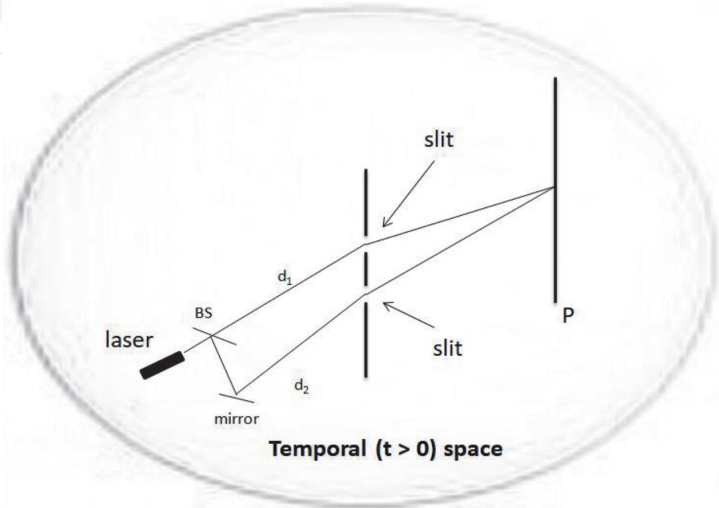
Figure 13.
Shows a double-slit experimental setup using a band limited coherent light source.

This means that photonic-particles (i.e., photons) emitted from the laser are not simultaneously and instantaneously arriving at the double-slit as from the coherence theory standpoint.

Let me further note that if one submerges any scientific model within a temporal (t > 0) subspace, then it is rather easy to find out any paradox as observed within an empty subspace is not existed. Notice that whenever a scientific model is sub-merged within a temporal (t > 0) subspace, the model becomes a part of the temporal (t > 0) space for analysis, from which many of the timeless (t = 0) paradoxes can be resolved rather easily, for instance such as Schrödinger's Cat and Einstein's theories. Nonetheless this is an inadvertently error that all scientists had have committed for centuries. For instance, all the laws, principles, theories, and paradoxes were developed from the same empty timeless subspace. For which most of the scientists believe that we can travel ahead and behind the pace of time, as Einstein's special theory has suggested. Similarly, we can simultaneously and instantaneously exploit photonic particles for computing and communication as Schrödinger's fundamental principle of superposition has indicated.

For example, if one plunge two moving spaceships within an empty space, we cannot tell which one is moving with respect to the other. However, if we submerge the same scenario within a temporal (t > 0) subspace, inevitably we can figure out the relative position between them, since time is space, and space is time within a temporal (t > 0) subspace while within an empty space there has no time and no distance to distinguish. And this is precisely why Einstein's special theory is relativistic-directional independent and as well his general theory of relativity is a deterministic principle. From which it is trivial for us to submerge a pair of entangled particles within a temporal (t > 0) subspace, then we would find out the instantaneous (i.e., $\Delta t = 0$) entanglement is not existed, since within our universe there is always a section of time Δt to pay aside an amount of energy ΔE, and there are not free.

Let me further stress that time speed is one of the most esoteric variables existed with our universe that cannot be changed, but it is the section of time Δt we have to spend that can somewhat manipulate. From which we see that the section of Δt that we will spend can be squeezed as small as we wish yet we can never be able to squeeze it to zero (i.e., t = 0), even we have all the energy ΔE (i.e., $\Delta E \longrightarrow \infty$) willing to pay for. And this is the well-known causality constraint within our temporal (t > 0) universe that cannot be violated.

Furthermore, a question remains to be asked; if the width of Young's experiment is smaller than the wavelength of the illuminator, would you able to observe the diffraction pattern. If the answer is no, then we see that wave dynamics is equiv-alent to particle in motion but not equaled to particle since photonic particle has no size. From which we see that particle in motion is equivalent to wave-dynamic, but wave-dynamic is not particle and particle is not wave. Finally, I would say that when science turns to virtual reality for solution it is not a reliable answer. But when science turns to physical reality for an answer it is a reliable solution.

9. Conclusion

I would conclude that quantum scientists used amazing mathematical analyses added with their fantastic computer simulations provide very convincing virtual evidences. But mathematical analyses and computer animations are virtual and fictitious, and many of their animations are not physically realizable for example such as superimposing principle for quantum computing is not actually existed within our universe. One of the important aspects within our universe is that one

cannot get something from nothing there is always a price to pay; an amount of energy ΔE and a section of time Δt and they are not free! Since science within our universe is temporal ($t > 0$), in which we see that any scientific law, principle, theory, and paradox has to comply with temporal ($t > 0$) condition within our universe, otherwise it is unlikely be physically realizable. Since science is mathematics but mathematics is not equaled to science. Yet, Schrödinger equation is a legacy of Hamiltonian classical mechanics, I had shown that Schrödinger equation is a timeless ($t = 0$) or time-independent formula which includes his superposition is not a physical realizable principle. Since Schrödinger's cat is one of the most controversial paradoxes in modern science, I had shown that the paradox of Schrödinger's cat is not a physical realizable paradox, which should not have been postulated.

Nevertheless, the most esoteric nature of our universe must be time, for which every fundamental law, principle, and theory is associated with a section of time Δt. I had shown that it is the section of Δt we had expended that cannot bring it back. For which I had shown that we can squeeze a section of time Δt closes to zero (i.e., $\Delta t \to 0$) but it is not possible reach zero (i.e., $\Delta t = 0$) even though that we have all the energy ΔE to pay for it. In which we see that we can change a section of Δt, but we cannot change the pace of time. Since quantum computing and communication rely on qubit information logic, but qubit information can only exist within a timeless ($t = 0$) subspace. I had shown that qubit information is virtual and illusive as Schrödinger's cat. Which is not a physically realizable qubit information that can be used for quantum supremacy communication and computing.

Although double-slit hypothesis is a well-accepted postulation for showing the superposition principle holds, but unfortunately the postulation only holds within empty space paradigm, and it is not existed within our temporal ($t > 0$) universe. What I meant is that double-slit postulation is another false hypothesis aside the Schrödinger's cat that had led us to believing superposition is actually existed within our universe. Since quantum supremacy relies on qubit information-transmission, which has caused a worldwide quantum conspiracy. I hope this conspiracy will be ended soon, otherwise we will forever trap within a timeless wonderland of quantum supremacy. From which we see that it is not how rigorous the mathematics is, it is the temporal ($t > 0$) subspace paradigm that produces viable realizable solution.

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