Quantum Phase Relativity

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Quantum Phase Relativity :D :D :D

The description of any entity inside the real universe can only be with reference to other things in the universe. Space is then relational, and the universe, self referential. For example, if an object/event has a momentum, that momentum can only be explained with respect to another object/event within the universe. Space then becomes an aspect of the relationships between things in reality.

If the universe is a causally closed system, the "information" or entangled quantum states cannot leak out of the closed system. So the "event" density of entangled quantum states, continually increases, as the entropy must always increase. While to us, it is interpreted as entropy or lost information, it is actually recombined information, to the universe.

The present moment is created and recreated constantly − analogous to continually opposing/juxtaposing reflective mirror images… originating deep in quantum phase space. The Heisenberg uncertainty relation provides both a resolution boundary and the invariant relational fabric for a translation between quantum[Planck scale] space and experiential reality. It is the quantum T−dual compactification that provides the Heisenberg resolution boudaries for experiential[perceptual] reality. Unstable or chaotic states at a given level are always "compactified" (stabilized and bounded by eigenstates) into 6 higher dimensions condensing to the next level of "event density".

Since relativity explains that there is no preferred frame of reference, the ether becomes superfluous; consequently, the metric of space−time must be defined by related events, such, that there is no space−time if there are no events. Time is thus a sequence of events, with each "event", having its own measure of location, and its own measure of time, with reference to other events. Space becomes an event density−probability distribution.

The organic analogues of quantum attractors are translated via quantized fractal modes onto the classical domain via

compactification, while events on the classicaly canonical domain, of three spatial dimensions plus time, influence the collapse/condensation of these attractors on the quantum−level via feedback exitation modes.

T−Duality is a symmetry that obscures the ability to differentiate between large and small distance scales; resulting from the compactification of the extra space dimensions in a ten dimensional superstring/brane theory. For example, in ten spacetime dimensions, with nine space and one time, take one of those nine space dimensions and make it a circle of radius R, so that traveling in that direction for a distance L=2*pi*R goes around the circle and returns back to the starting point. A particle traveling around this circle will have a quantized momentum around the circle, which will contribute to the total energy of the particle. But a string is very different, because in addition to traveling around the circle, the string can wrap around the circle. The number of times the string winds around the circle is called the winding number, and it is also quantized.

The momentum modes and the winding modes can be interchanged when the radius, R, of a circle is also exchanged with the quantity L_st2/R, where L_st is the string length. If R is very much smaller than the string length, then the quantity L_st2/R is going to be very large. Consequently, exchanging momentum and winding modes of the string, exchanges a large distance scale of radius R with a small distance scale of radius 1/R.

Theoretical physicist Richard Feynman derived the "sum over histories" interpretation of quantum mechanics, where a system does not have a single history, but it has every possible history, and each history has its own probability amplitude. A probability distribution of histories. For example, an electron travels from point A to point B by every possible route at once. Each possible route or "path" corresponds to a history.

The amplitude for each history defines the probability of that particular path being followed. The number involves the "action" associated with the history−path, which seems to determine that the path taken, will be the history closest to the "classical" trajectory, in accordance with the natural law: conservation of energy.

Stephen Hawking explains that when we apply the Feynman sum over histories to particles moving in a background of spacetime, we must also include histories[waveforms] in which the particle travels backwards in time. This generates the space−time/event−density fractal resonance.

The increase in mass of a body moving at relativistic speeds can also be interpreted as a type of rotational perspective effect, and when time is explained as a dimension, "ct", by combining one of the c's

with time to convert it to a length, E = m_0 c^2 becomes m_0 c , a momentum, specifically, a momentum of an object's motion down its time axis.

A being's conscious awareness is what is really moving along its world− line, which is the fourth dimensional extension of its 3 dimensional self.

m_0 c is a momentum along its time axis.

If we stopped moving through time the "rest energy" of objects would be zero.

Interesting...

(mc^2)^2 = (m_0 c^2) + m^2 v^2 c^2

becomes

(mc^2)^2 − m^2 v^2 c^2 = (m_0 c^2)^2

An equation of the form:

c^2 t^2 − dx^2 = K

A quantum field unites gravity and electromagnetism.

Gravity becomes a refractive/compression effect, as light cones are rotated near a massive object:

Topological metric spaces are defined as being diffeomorphism invariant. Intersecting cotangent bundles[manifolds] are the set of all possible configurations of a system, i.e. they describe the phase space of the system. Waves are ripples in a basic medium. Einstein explains that the ether is unecessary as a medium, so the ripples are vibrations of space itself which are actually the overlapping of event densities/conic sections. As the ripples overlap/intersect with each other, it becomes a domino effect with the ripples continually increasing in density. Very similar to taking a penny and doubling it as a sequence.

2, 4, 8, 16, 32, 64, 128, 256, ... 2^n

Since the ripples are increasing in density they are defined by density gradients. A compression force corresponding to the Shannon entropy of the system.

Resonating standing waves/waveforms. The past collapses/condenses/ compactifies in 6 dimensions to the present moment, while the future is an expanding uncertainty, in four space−time dimensions.

Question:

Let T be a metric space with distance function r(x,y) expressing the definitive predication that involves T with the real numbers, R. Therefore the juxtaposition of left and right hemispheres resonates in perfect accordance with the proposition that T and R are embedded simultaneously in the full structure of manifold M. Ergo we pass on to an enlargement *M of M, whereby the non−standard metric space is diffeomorphism invariant.

So if f(x) is a homeomorphism from T onto S, then for every point p in T, does f(u(p) = u(f(p)) ?

The metric space has distance function r(x,y), definitively characterized by involvement with the real numbers, R, such that the metric space and R are embedded simultaneously in the full structure of manifold M. A topological space consists of sets of points which are defined to be the intersections of cotangent bundles.

A point without another "reference" does not exist; the complement of a thing distinguishes it from the thing itself. What is the dynamic of space−time? Is it a ratio? S/T = c ?

When space is taken as a measure of length, space/time is the speed of light in vacuum for a photon of light:

space/time = c

Where, length = perception of separation between two reference points.

E = mc^2

E/momentum = E/p = c

energy/momentum = space/time

What is the EPR "superluminal?" connection? A shortcut through configuration space? Phase space?

A point can be defined as an "infinitesimal". The Topological spaces are defined as being diffeomorphism invariant. Intersecting cotangent bundles[manifolds] are the set of all possible configurations of a system, i.e. they describe the phase space of the system.

Potential infinity is defined as a limit via Newton's calculus, while actual infinity is a Cantorian Cardinal number, which is a Platonic form, which is also a type of potential.

[abstract model]−>[semantic mapping]−>[represented system]

[axiomatic]−−−>[Isomorphism]<−−−[Induction]

An abstract representation is exactly that, "abstract". It is not a space, or time, but is instead a product of consciousness, or a mental construct; topologically it is equivalent to a "point". The abstract description contains the concrete topology. Likewise, the concrete contains the abstract.

A duality?

A point/intersection/overlap contains an infinite expanse of space and time?

Universe, U(T) = 0 .

[<−[−>[U]<−]−>]

On one level of stratification, two photons are separate. On another level, of stratification, the photons have zero separation. Instantaneous communication between two objects, separated by a distance interval, is equivalent to zero separation[zero boundary] between the two objects.

A quote from the book "The Expanding Universe" by Sir Arthur Eddington.

quote:
−−
All change is relative. The universe is expanding relatively to our common standards; our common standards are shrinking relatively to the size of the universe. The theory of the "expanding universe" might also be called the theory of the "shrinking atom" .
−−

Gravity exists because the information[event] density of space−time is increasing. This creates a "pressure force" where processed space, compresses mass−energy, and mass−energy reacts by compressing space. The process is "time", which becomes dilated due to the increased information density of massive objects.

It is, in essence, a complementary duality.

−−−−>|U|<−−−−

is the same as:

<−−−−|U|−−−−>

T−duality proposes that the winding particles for a circle of radius R are the same as the "vibration" particles for a circle of radius 1/R, and vice versa. The two two sets of particles are in a sense,

indistinguishable: theoretically speaking, a large compact dimension appears to give the same particles as a thin one.

T−duality, if true, has interesting consequences. There has been a long conceptual struggle, by theorists, to understand reality at the extremely small scales near the Planck length at 10^35 meters. The supposition has always been that the laws of nature break down at the

extreme micro scales. T−duality basically suggests that that at the Planck scales, the universe looks just the same as it does at large scales. One may even imagine that if the universe were to shrink to less than the Planck length, it would simultaneously transform as an expanding space−time of macroscopic dimensions.

When four of the 10 dimensions compactify, or "curl up" and the five−brane wraps around them, the latter ends up as a one−dimensional

object described as a solotonic string in six−dimensional space−time.

In addition, a fundamental string in 10 dimensions remains fundamental even in six dimensions. So the concept of duality between strings and five−branes gives another interesting conjecture, which is a duality between a solitonic string and a fundamental string.

When the six−dimensional space−time is reduced to four dimensions, via the compactification of two dimensions: the fundamental string and the solitonic string each inherit a T−duality. Consequently, the T−duality of the solitonic string is just the S−duality of the fundamental string, and vice versa; an S−duality transformation maps states with coupling constant g, in one theory, to states with coupling constant 1/g, in the dual theory. It exchanges the electric and magnetic fields, and the electrically charged particles with magnetic monopoles.

Where the interchange of charges in one picture is just the inversion

of length in the dual picture, is named the Duality of Dualities by string theory. It is puts the previously shaky S−duality on as firm a

footing as the well−established T−duality. In addition, it predicts that the strength at which objects interact, i.e. their charges, corresponds to the size of the invisible dimensions. What is charge in one universe of radius 1/R may be size in its dual universe of radius R.