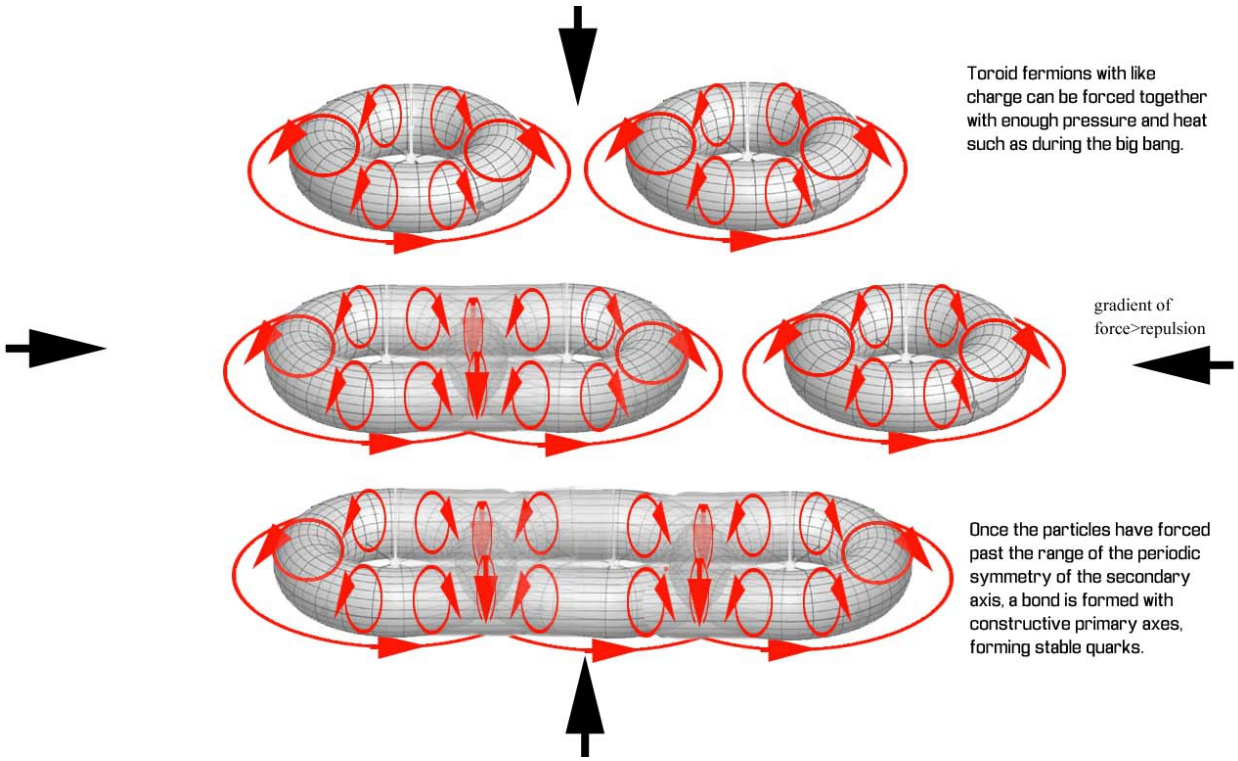
Quarks

So what happens when the equation describing repulsion of two like-particles is nested in a surrounding kinetic energy or gravitational force driving them together or otherwise countering their repulsion? The arithmetic to calculate the phase relationships would seem to be straightforward. We would simply add up the negative and positive charges according to their distance away and get the appropriate argument for the exponential growth. But what happens when the two electrons get so driven together by outside gradient effects that their core toroid geometries, (that so essentially govern their gradient interaction and therefore propagation), are forced to overlap fully in a manner similar to annihilation symmetry-overlap. What happens when the third gradient from an outside force pushing two electrons together is larger than their spinor interaction repelling them?

Although the thought of merging two toroids mathematically would seem cumbersome, it is actually fairly straightforward conceptually. A rest toroid has a gradient that is symmetrical around its entire primary axis, so the overlap with another gradient, (one which also has a spinor handed-configuration) causes an imbalance on one side, (perpendicular to the primary axis). So when like charges that would have a third gradient of repulsion between them are in the presence of a stronger external field, (i.e. a field with greater gradient' density), the imbalance of diffusion across their symmetries is tipped in the direction the stronger third gradient dictates and they are forced together, resulting in the spinor structures still potentially structured in a way that has a gradient" between them if there were not outside field. Their natural gradients" would increases in the potential repulsion as they near, with a greater and greater magnitude, (dDel/dx). But this relationship only holds up to a point. What happens is the opposite of what we saw when opposite charges annihilate, (at that point when both sides of their spinor symmetry overlaps, completely negating the spinor handed interaction). A boundary is crossed when the secondary axis symmetry is overcome and the remnants of the spinor primary symmetries form a bond.



If the external gradient (gravity, momentum etc) has defeated the repulsion gradient that they cause to each other, (so much so that it causes the near-side Q secondary axes of three of these like-charge toroids to overlap in a forced superposition), the interaction dynamic changes entirely.

Their opposite primary axis rotation is a destructive interference, but once they are forced together to the point where their secondary axes Q are superposed, and there is a third toroid forced to flank the other side, a new stable symmetry configuration can be established.

We must remember that a stable diffusion structure is purely a matter of a Q circle having superposition-redundancy via being flanked by neighboring Q that have diffusion loops on second plane, in complimentary phase, (i.e. even a 180' phase superposition won't interrupt the flow if it must superpose past 2 individual Q to get there). If both planes of symmetry have their flanks mutually "covered", they are both sustainable. This ensures that two perpendicular planes of rotation are able to maintain maximum diffusion, (rotate through 360 without head-on vector conflict), in a configuration that allows this neighbor-redundancy. The single toroid accomplishes this with it's primary and secondary axis, and in the case of 3 fermions forced together beyond their spinor repulsion, this is also accomplished, and we call it an up quark.

An up quark represents a forced merging of 2 spin down orientation toroids and 1 spin-up toroid. With two spin down and one spin-up arrangement, the secondary axis symmetry is constructive to diffusion, but the primary axis is destructive. Since the secondary axis direction is constructive, and its rotation direction is unaffected, we can determine the new charge simply by comparing the primary axis directions we see.

We must remember that we are always talking about probability amplitude when we say "what direction is the symmetry rotating at point x,y,z", (percentage of contribution to total phase shift). If there are two nearby particles like this, we must determine the contribution to the PA of each particle at the point in question, as described by our vector formula. We will break down the details of this in the next section when we calculate the mass contributions but as a first look, when an axis of symmetry is not completely overlapped, (just nearby) the rotation directions, (and mass as we will see), must be calculated as an average.

This is where we can try to be a little confused. When we average the rotation direction of 2 spin down and 1 spin-up fermions, we are dealing with 3 particles that all have the same charge of 1 (or -1), but we are in a quark-formation situation where the orientation of the primary axis direction, (with respect to its secondary axis) has been switched, in the center fermion, by the environment that has forced them into this relationship.

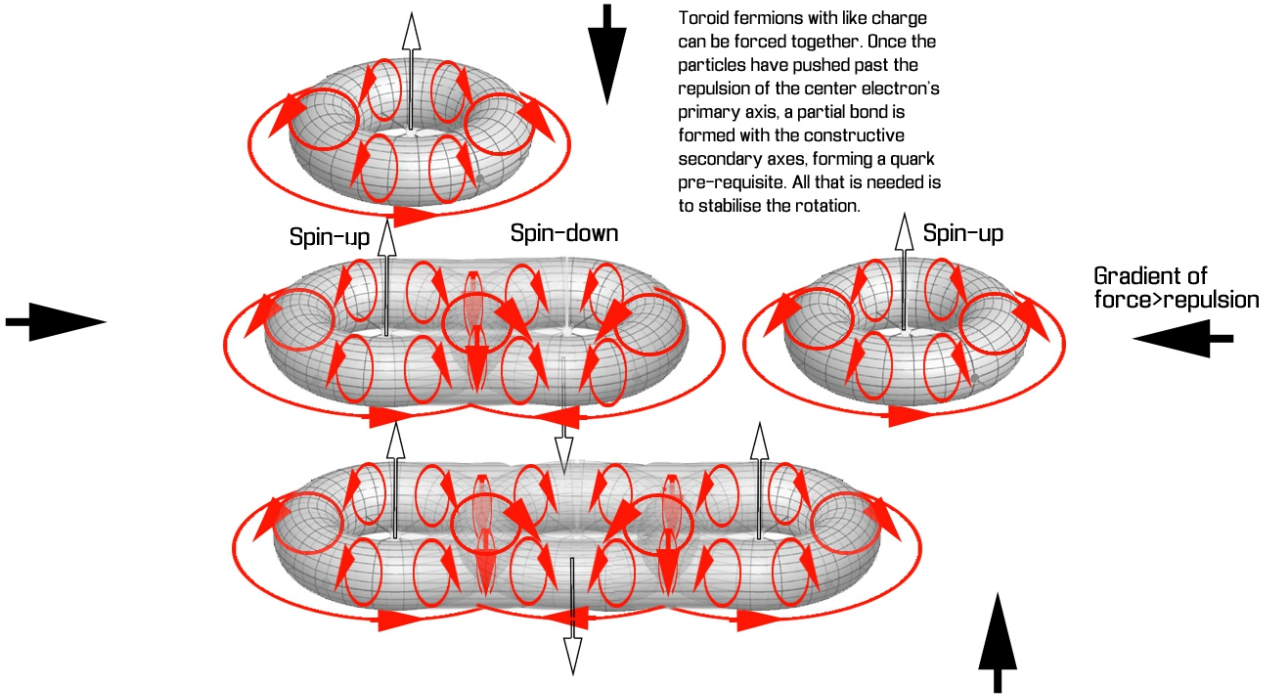
When we witness combined-geometries, we must recognize that those quantities of mass or charge are combined based on fractions of the whole, (even though those fractions can't exist stably on their own). If particles fractionally cancel one another, that arithmetic must be fractional, then we sum the parts again to assess the overall resultant system by adding those resultant parts.

As we will see with the mass calculation, the charge direction, (i.e. primary axis component of angular diffusion symmetry) overlaps with that of the other particles being affected by them, according to how much the surface area exposure to random acceleration is affected. Since "particleness" acceleration-state is always dictated by proximity-redundancy of state propagation between Q, a particle's effect on another depends on how much of the sphere around a particle is affected by that factor of proximity-redundancy. To again use the metaphore of "huddling together for warmth", the shared/reiterated temperature is what causes their particleness, the person in the middle of a huddle of three people will have more particle-ness redundancy in their state

than those on the outside. Since the particleness is now being dissected into the primary and secondary axes of symmetry, (in order to find the sum total), it matters which symmetry overlaps in what way.

To crudely extend the analogy, of rotation direction of diffusion to people huddling for warmth, if their were a fire next to one of the people on the outside, the person in the middle will have the greatest heat density from the surface area of the other two people but one of the people on the outside will have more surface area from the fire. The direction of rotation and plane of rotation must be considered, along with surface area exposure, when we find new charges or masses in the cobbled together structures of quarks.

The volume of the particle will therefore be affected differently in its different regions, based on if a particle is on one side, or if a particle is on both sides and if its rotation direction is constructive or destructive. As we will do when calculating mass, the volume of the particle will therefore be treated as if broken into its constituent Q parts, each of which is affected by an adjacent particle differently based on proximity, (and the state that ends up propagating to it). Like we saw in the propagation of only half of the spinor radially (the spin 1 vantage point), a complete cancellation superposition on one side of an overlap causes the other side of the particle to be unaffected.



If this were a naked toroid, (in a charged pair situation for example where PA i.e. surface area of exposure, were simply a matter of radius), it would suffice to use the exponential as the magnitude in the phase shift, (which has radius from affected particle as the argument). But to be complete here, we must say that the superposition of those period elements (adding together the rotation directions with their respective intensities i.e. exponential with inverse of radius as argument) works differently than when radiating into the vacuum, because again, it is all about surface area of redundant propagation of state.

When propagating state "point blank" into another particle like this, we get a superposition that combines rotation directions on the outer 6 Q but the center Q state (which is the pivotal symmetry in charge determination), is completely shielded from superposition, since its outer 6 to the left and right completely negated their primary axis rotation direction, summing to zero. The center Q is therefore left intact with its original primary rotation direction, (but still comprising only 1/3 of the particle).

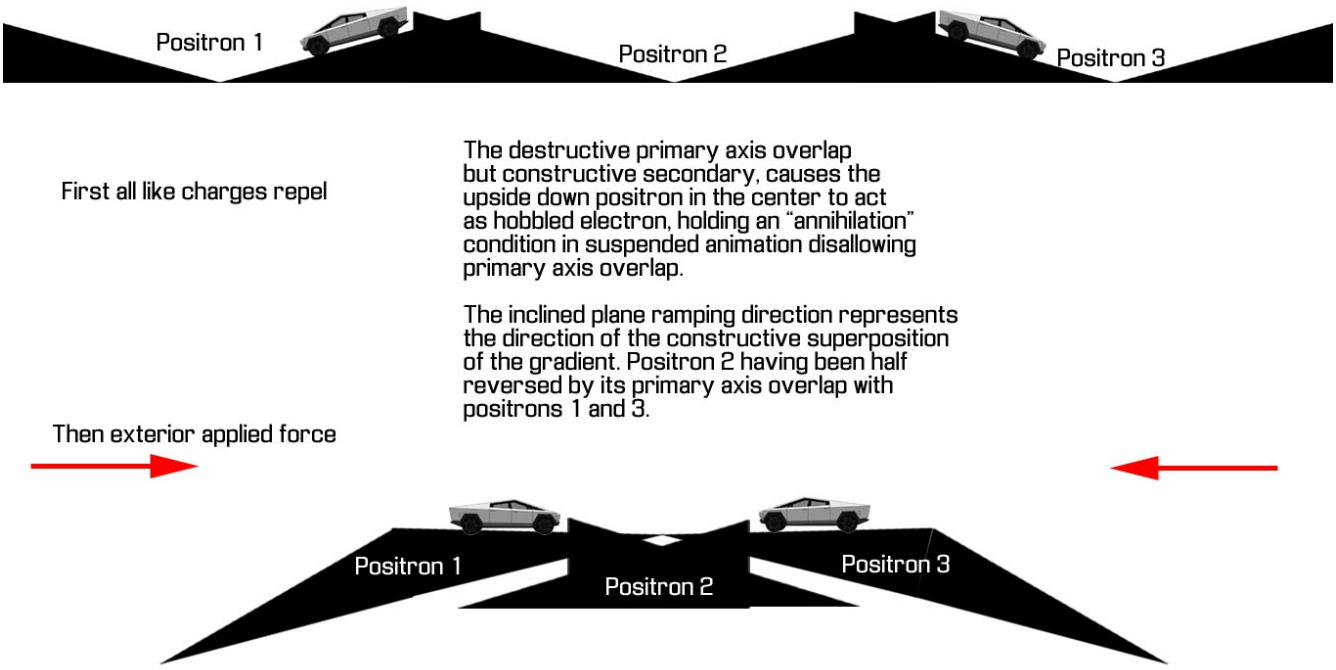
The outside particles being superposed by a primary rotation cancellation on only one side, will have only 1/3 of their structure canceled. So the two outside particles will have charges that are 2/3 of what they were, since the average at those points is based on one third of its surface area being averaged with the opposite rotation direction, effectively negating 1/3 of each of their original rotation directions, so 1−1/3 =2/3. If we then add all three particles' net rotation directions together, we get 2/3+2/3−1/3 =2/3.

The secondary axis symmetry will also overlap between particles but have the same direction of rotation in their symmetries, so the combined diffusion will be calculated more simply. For now however, only the primary axis is of concern, being the determiner for charge (since there is a clear secondary axis rotation direction), the secondary axis quantitatives will be included in the mass determination.

When the two right-hand primary axis loop directions of the flanking toroids predominate the primary axis direction of the center, the center toroid no longer has a a compound dual-plane superposition pattern that opposes the other two. The two spin down fermions cause the spin-up handedness to switch, resulting in a single rotation direction and a new kind of composite with the same opposing handedness we associate with a spinor. Where the center toroid was repelling along with the other two, it will begin to attract, with its remaining symmetry. A bond is formed by way of two toroids acting in concert, flipping one component of symmetry in the middle toroid, resulting in a fractional yet

homogeneous overall charge.

The center fermion then effectively acts like an stunted opposite charged fermion, and a charge bond is formed by the overlap from the two charged flanks, sandwiching into a constructive secondary axis rotation on both sides, rendering a virtual opposite charge in the middle. The middle only thwarts standard annihilation because it is pulled equally from both directions, (the two flanking toroids balance-out each others' "tipped" gradients' that they impose on the center).

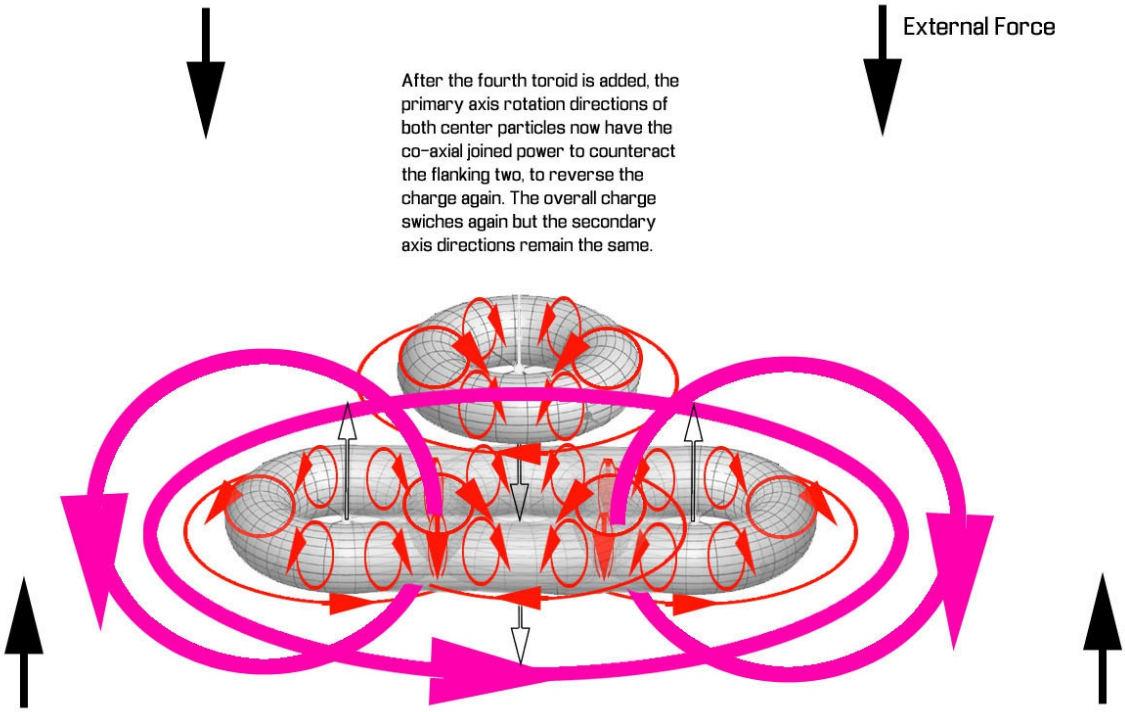


Again we are reminded that the force that attracts opposite handed spinors is the structure across the primary axis. If that imbalance is defeated, (or in this case bridged), the annihilation by complete overlap will not occur. Like opposing inclined planes that are forced together into a third structure in the middle, until they overlap, (as superposition allows), their gradient will be equalized by the overlapped superpositon interaction with the middle (antiquarks are used here in the incline plane example).

Of course stable is a relative term and although bond relationships form, exchanging the corresponding boson geometries, quarks are only truly stable in combinations within nucleons. The partial charges they feature are just too reactive, once the strong nuclear force is defeated and they are naked among

other particle structures.

Before we look at the mass determination we get from this vector superposition, we can look at the formation of a down quark from an up quark with an additional toroid. Since the forced overlap will have the same primary-axis rotation direction in this case, the primary axis direction won't need to be averaged, it will be a straightforward addition, to determine the resultant charge direction.



We can notice that the secondary axes maintain the same rotation direction and this time the two toroids in the center axis overpower, predominating the primary axis probability amplitude of the group, since they are axially in line. If it hasn't been pointed out explicitly the charge sign is strictly a statement about rotation direction relative to the secondary axis direction and the magnitude is about the fraction of the entire toroid primary axis rotation direction that is left uncanceled.

As we will be reminded in the next section, the measurement of mass is a function of surface area and when volumes are overlapped superposition surface area becomes density and when two axes of diffusion are entirely overlapped, the exposure to external random surface area is that much more durable than if they are only adjacent, (averaged), such as in the up quark side-

by-side configuration of primary axis influences, where, again, the secondary axes in the up quark are completely overlapped.

Since the new, added toroid and the up quark trio both have their primary axis rotation directions axial to one another, the charge direction math is more simple than when the up quark was calculated. Instead of needing an average across primary axes that were side by side, the complete overlap of rotation-direction allows the charge to simply be a sum of the up quark's 2/3 and newly introduced -1 of the spin down positron.

We must again recognize that no matter what the charge of the fermion was in isolation, its rotation direction is being added to the quark structure, so its "charge" is relative to, (with respect to) the net secondary axis rotation of the whole unit. Being a spin-down fermion, like the center fermion in the up quark, the secondary axes are constructive between the up quark and the new particle, but now the stronger axial joining of the spin-down pair in the center overrides the charge/rotation-direction domination by the spinup fermions that was present in the isolated up quark, (again, since they were dominating laterally, not axially). The sum of the charge then is 2/3 -1 = -1/3

The mass that results from these quark splicings will be one step more complicated to calculate than the charge. The charge is a useful number in the math of bonding but is not the whole picture, where total spacetime curvature is concerned. Although the charge direction, (primary axis rotation direction), uses the secondary axis direction as reference context in the determination of charge, the mass determination includes the secondary axis symmetry quantitatively.

Composites of Mass (Quarks Plus)

At first glance, we might think mass to be a straightforward scalar for stable geometries, (such as total circumference of diffusion through spacetime i.e. total fermion phase shift), but we will see that what a periodic structure in spacetime represents is more subtle than that, when we come to these composite geometries. The magnitude of the structured circuit of diffusion that is a mass is meaningful in spacetime because of the intensity of its reinforcing-effect for the diffusion balances of its neighbors. This is common to many other phenomena that have intensity that suffers non-linear losses radially, where the total intensity of the group is lower if they are spread out than if they were

densely consolidated, (the total energy of all individuals being the same in both cases).

It seems a paradoxical use of terminology to say that diffusing a number of sources of diffusion-force reduces net diffusion force but this is in fact the heart of developing an intuitive understanding of diffusion. The ordinary use of the word diffuse is one degree of freedom fewer than the diffusion that takes place as the spacetime differential. Diffusing the action, (trajectory) of dark energy over physical space is what the universe does, to the maximum it can. It is what heat does, it is what entropy does, it is what the march toward complexity of life is doing. When this happens in an organized geometric manner, it is more efficient and creates the gradient of this heat diffusion equation that we have discussed, where amount of rotation tries to keep up with amount of unequal distribution of the trajectory of time, (i.e. dark energy), across space.

So when we say the intensity of the diffusion force is weaker when a group of efficient geometries of diffusion are "diffused" apart and not consolidated in space, the core differential math is at basic play. The "gaps" that happens when separating these geometries are spaces of random, conflicting vectors of dark energy and introduce inefficient trajectories of time into their geometries. When they are consolidated into a more spatially compact stable structures, their loops of diffusion are neighboring and synchronous and with respect to surface area presented to the surrounding space, they should be a greater "mass" than the sum of their parts, but that isn't what we observe happening. There is something else going on that is a natural fact about stable geometries of increasing sizes.

When mass consolidates in this way, becoming more dense in symmetry by volume, the symmetries of the structures must overlap in order to form stable diffusion reciprocations. So in theory, adding masses together would make the whole greater than the sum of its parts, but to create the larger composite structures, parts of the symmetries necessarily cancel with one another in order to become a stable geometric structure in macro objects we observe, and so we see the parts being greater than the sum, in practice. Like interconnecting connecting plastic toy blocks to make bigger things, not all the tabs of each block are used.

If it hasn't been said as such, we can see that the calculation of this action-density thing we call mass is simplified when dealing with how "what mass is" is observed in the pure vector system. Mass is simply the percentage of total period in the vector differential of periodic acceleration that is associated with

the structure in question, as compared to random, (i.e. other other boson structures).

In the vector functions, we spoke of "mass" being a measure of the total magnitude of phase shift associated with a particle R, and that in reality the "massness" associated with an object, (the effective structured diffusion-action), depends on how far away you measure it. Our classical measurement method is to use reactions with other fermion structures as detection, so there is by-default a convention for "how far away from a particle" we define to be the correct radius at which we measure a mass. This method works unless we are calculating masses smaller than a single fermion and at a radius smaller than a single fermion.

If we are combining fermions, which overlaps both particles' diffusion actions, (the parts that constitute what mass is), we must be more precise about what happens to the mass. We can no longer just say " a fermion" and assume "the standard fermion-reaction distance away" in order to calculate joined fermion masses, (diffusion PA). The diffusion structure must be broken down into its parts, to calculate how those parts will combine their diffusion PAs, since they overlap differently depending on which part is where, (and how overlapped with the other particle it is and whether the diffusion effects are canceled in different regions).

Like the highly scientific process of squirting ketchup and mustard together, where they might partially overlap), and calculating how much mustard we have, if we were to only have the total mass of both condiments, it would technically involve a ketchup integral. But in the case of a quantum-granular particle, we can simply taking the amount of overlap of diffusion, 1. for each Q in the structure with magnitude based on distance from the other structure 2. split symmetry into primary and secondary axis of symmetry. This method is accurate enough to put us at the values found in the standard model. So we will be looking at how the geometries fit together and how far each Q is away from the partially canceling loop-diffusion Q of the other particle, how much each Q (or region of Q) are canceled based on superposition, the add the parts together again to find what state the total system will present to the outside radially.

The diffusion-action that we call mass has a contribution from the primary axis and the secondary axis and so we must mathematically treat them separately each being half the contribution to the mass. We can also observe that since surface area of Q that bear the symmetry is the operative factor, the

secondary axis of the structure can be split into its 6 Q-parts, to reflect the increase in mass to each part that happens in the overlap with other particles, according to the distance from the reinforcing (flanking) presence of the other toroid.

As we have discussed, the PA presence from a particle, (surface area adjusted for radius, i.e. intensity) is dictated by the inverse of distance to the particle, times time, as the argument for exponential growth which is magnitude for the phase-shift. In the computation of PA presence between Q in a stable-bonded configuration of toroids, we can disregard the time variable in the argument, since acceleration/growth of PA between particles in question can be considered halted, on average, in most types of bond or bond structures, (although we will see that in the bond associated with the strong force, these variations in kinetic energy are important although still averaging to be considered "fixed" growth relationships from the perspective of change in their second gradients). So we can simply use the inverse of distance in the exponential argument, to find the magnitudes.

The secondary axis symmetry (zx zy planes, phase-spaced 60 degrees apart around the primary axis) is ½ of the total mass, and the primary axis symmetry (xy plane) is half the mass, (since Q accomplish a complete loop of diffusion of the total period around the primary axis and complete a loop of the period around the secondary axis). So when calculating the mass of an up quark from the total magnitude of primary and secondary axis period-elements in the vector functions, we can say:

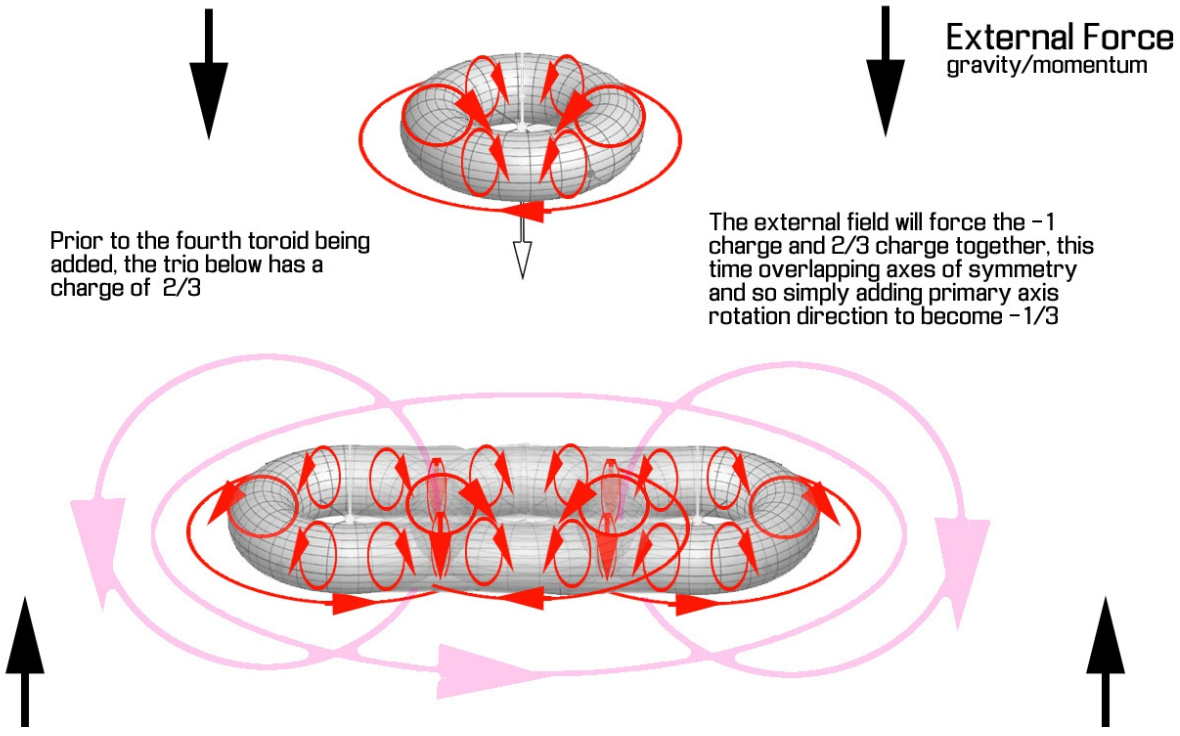
½(1/6ega+1/6egb+1/6egc+1/6egd+1/6ege+1/6egf) with "eg" being the exponential growth scalar for each Q, being n planck units away from the other particle next to it.

We find that only being 1 and 2 and 3 Planck units away, (within what is considered the standard model particle boundary) the growth scalar for all 6 Q around the secondary axis is effectively 1, (being "inside" the classically measured threshold for accuracy in defining the mass), which simplifies things. So we can say that when a toroid is flanked on just one side, its secondary axis contribution (half the mass calculation) is doubled, due to the added density of diffusion within that particle's surface area caused by the overlap. Again, we must remember that mass is a measure of to what degree structured diffusion is consolidated geometrically, (redundancy of structured propagation).

The secondary axis total contribution would be quadrupled then, when flanked on

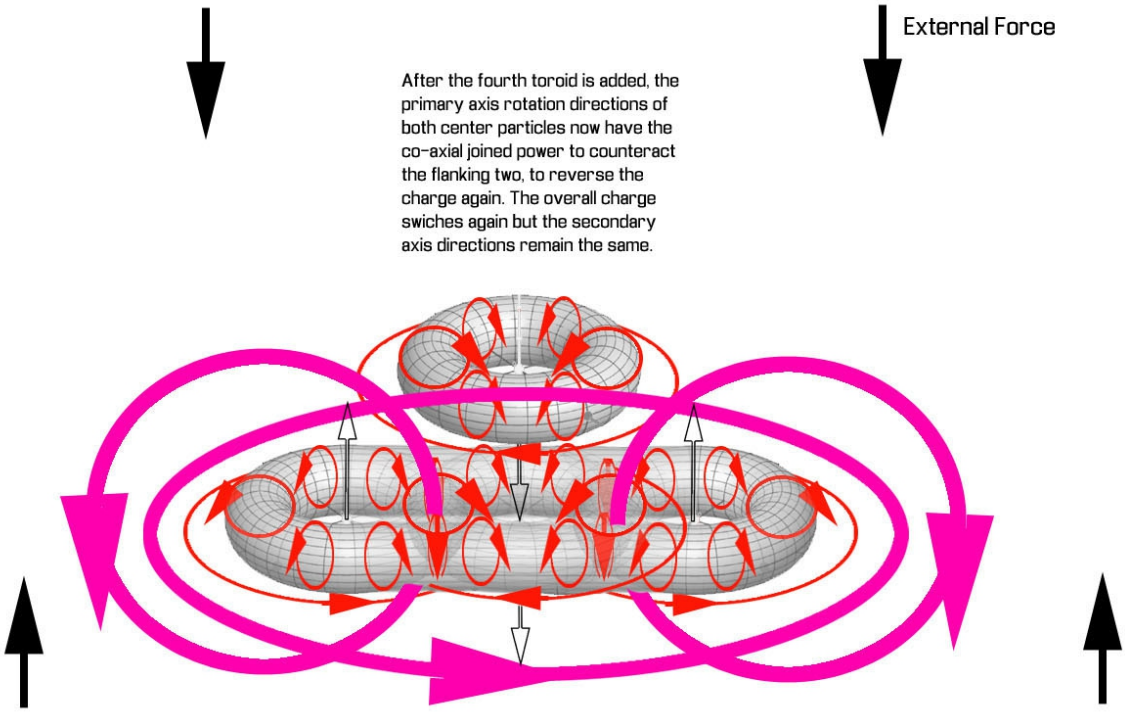
both sides. So first tallying the mass contribution from the secondary axis from all three fermions, we have the mass of the fermion (.511) times the scalar for overlaps: .2555(4)+.2555(2)+.2555(2)= 2.044 (where the center particle is the first term which has its secondary contribution quadrupled by flanking on both sides, where the other two are only doubled).

For the primary axis mass contribution, (diffusion contribution) we have seen that, just as the charge was calculated by a sum of differently-affected parts, each canceled to some degree by the others, to result in a net 2/3 charge direction. So the mass contribution for the primary axis will also be an average of each of the primary axis contributions, (again primary axis being half of the symmetry and therefore half of the mass contribution), will be: .2555/3 = (.511/2)(2/3)+(.511/.2)(2/3) -(.511/2)(1/3) and so we get .1703 + .1703 -.085166 = .34066 -.085166 = 0.255494 and to put the primary axis and secondary axis together we have our two components .255494 = primary axis resultant and 2.044 = secondary axis resultant adding them back together we get .255+ 2.044=2.299 as the mass for the Up Quark, using symmetry superposition by parts.



The down quark can be calculated again, by parts. The primary and secondary

axis symmetries are treated distinctly, and superposition is based on line of sight and rotation direction. We should note that when toroids are aligned axially, the entire mutually exposed surface areas have a homogeneous rotation direction. We can also note that in that in this case the secondary axes of all four toroids involved are constructive, so the tally will be simpler. For the additional toroid added to the existing UP trio we will start with the primary axis. As we saw with the charge calculation, the primary axis being aligned with the fourth particle and the middle particle between the three, reverses the charge direction again but lets unpack the reason why.



The two flanking toroids were superposed with a destructive primary rotation direction on one side, but the center toroid was superposed destructively in the primary on two sides, (leaving only the center Q non-canceled). When the fourth particle enters the picture, the original middle particle will now have its primary symmetry mass doubled in its center Q and the Q on its two sides returned to a single mass in its original rotation direction, (the same as the new 4th particle), where it had been canceled to zero on the two outsides. So the primary symmetry for the middle particle center Q will be (1/2)(2)(.511)(.333) =(primaryhalf)(twice superposed)(electron mass)(middle Q 1/3)=.17016 and for the outer Q in the middle particle (0) + (1/2)(1)(.511)(.333) = (upquark trio was canceled to 0) + (primaryhalf)(once superposed onto zero)(electron mass) (outer Q 1/3) = .0850815 for each side Q of the center particle so putting them

together for the primary axis mass for the center particle .17016 + .0850815 + .0850815 = .340323

Now for the outer two particles in the original trio, we do their primary axis mass by their inner 1/3 no longer being canceled to zero but now being superposed destructively by the middle particle and the new 4th particle, so changing to opposite of its original direction, (on its inner Q that faces the middle particle) and now canceling to zero in its center Q and outer Q (since all they face is the new fourth particle, which has a destructive primary rotation direction). So for the outer particle primary symmetry we have 0+0+.333(.511) = (outer)(middle)(inner) = .170163 this applies to both the left and right particle primary symmetry mass in the trio. So to keep track we have .340323 +.170163 +.170163 = .680649 for the primary axis mass for the trio. Now we just need the effective mass for the new fourth particle and to add back in the secondary axis symmetry mass, (which will be simpler).

Because of its exposed line of site and proximity being inside standard model definition, the fourth particle will have the same effective primary mass as the middle particle in the trio, (partially canceled by the flankers but doubled by the middle particle) adding another .340323 to the primary mass of the down quark giving us a primary mass of 1.020972.

To add the secondary axis, we take the calculation for the original upquark trio .2555(4)+.2555(2)+.2555(2)= 2.044 and simply add another .255(4) term because the 4th particle is flanked (superimposed on both sides) in the secondary axis, in the same way the middle particle of the trio was. So we get 2555(4) + .2555(4) + .2555(2) + .2555(2) = 2.044 + 1.022 = 3.066

We can then add both the primary and secondary symmetry tallies together to get the total mass of the down quark. 3.066 + 1.020972 = 4.0869 as the mass of the down quark.

We will not delve into the higher mass quarks at the moment, but we can mention that the up and down quark can be chained together with a less-stable bond overlap, the masses and charges can be calculated by the same method. We will instead take the time to investigate the attractive and repulsive effects between the up quark and down quark, how (unlike simple opposite handed toroids), because of their composite geometries, the up-down quark interaction features a repulsive interaction through one portion of their arc of rotation-interaction and an attractive interaction on the rest of the arc.

They don't have a consistent "fore side" and "aft side" as did the simpler positive negative charge. We might ask "when, then do we see the whole nucleus acting as a positive charge for an electron" and we must remember again, the handed interaction is all about line of sight, (i.e. line of force interaction). That is to say, again, what superposes with what along the radial line between them. When two quarks are able to complete full 720 interaction with one another, they complete full orbits of their geometries, when an electron experiences a charged nucleon, it only able to have line of sight on the net-handedness of the group of quarks, only ever interacting with one side at a time.

Only when electrons come within a specific quantum proximity do they interact with the quarks on an intra-circumference basis, (not just a net charge), which is the reason for the electron not crashing and annihilating into the nucleus. The electrons hit the radius at which the repulsion encountered on a minor portion of the quark circumference has intensity enough to balance with the major part of the circumference which has attraction-handedness. We will discuss this when we explore the fine structure constant and the infamous 1/137 ratio.

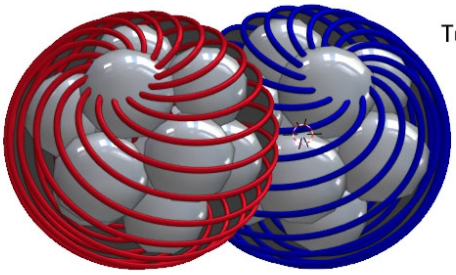
This part-repel, part-attract is just more of the same disproportionate superposition of sides of the spinor like in two charged particles, except the cobbled together quark forms the repulsion kind of arrangement on its sides and the attraction arrangement on it top and bottom, as can be seen in the rotation geometry diagrams. This keeps the quarks bouncing around with one another a lot, attracting through one axis of rotation but repelling in the other, attracting to the neighbor then repelling again and so on, corresponding to the 3 varieties of force "color charges" based on three alignment possibilities.

Phase Inside the Nucleon

It is in the action of a nucleus bonding with an electron that we can explore the nuances of the dark-energy-centric formula but the simple determination of the distance and time argument for the exponential that governs the period of phase shifting, (and momentum) becomes a step more complex when formed into quarks. Quarks, being comprised of multiple electrons that have been forced into overlapping their secondary axis symmetry, have a synchronization of the phase-shift elements of the phase that has them in lock-step, behaving as a toroid unit in terms of the secondary axis.

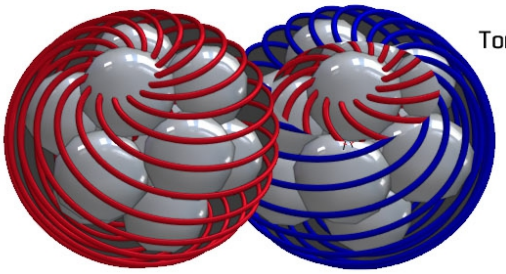
This means that the exponential is not homogeneous around the quark, turned one way it attracts an electron, turned 90 degrees, it repels an electron. When

quarks get together as nucleons, this non-homogeneity results in the fast moving game of the exchange of color charge, rotating as it attracts with the strong force until it rotates into repulsion and then is handed off to a different quark that is aligned conducive to attraction, and so we get the three types of color charge corresponding to the three spacial axes of rotation in the handoff, based on the joint phase of the group of toroids.



Toroid-toroid handed interaction

The like-charge spliced with opposite charge found in a quark makes a mixed attractive and repulsive interaction, essentially like reversed charge at the poles of the quark.



Toroid-quark handed interaction

Bonding and 1/137

The most significant affect of the Quark composition net charge of the nucleus is the fact that the electron does not continue beyond the Pauli distances and spiral into the nucleus to completely cancel its mass. Since the total surface area of positive charge primary axis rotation direction out-ways the area of negative charge, the attraction and repulsion there, fall-off in intensity at different rates radially. So as an electron reaches a certain radius, the “window” of repulsion gets larger with respect to the rotation rate of the electron (i.e. the rotation caused by the attraction), and the repulsion intensifies at a faster rate per radius than the attraction.

So at a specific near-radius, the repulsion becomes dominant. At some radius, (depending on the mass of the nucleus and how many electrons have already bonded with it), the electron reaches a point where the PA of attraction equals the PA of repulsion. (the negative exponential argument in the phase element associated with the electron results in a period for its phase element that equals the repulsion portion of the positive+negative periodic exponential argument in the nucleus).

The matter of the problem of the unit-less ratio of 1/137 for difference between the two photon energies, (where a spin-up and a spin-down electron occupy close orbits), becomes straightforward when we consider that the repulsion between the two electrons is a function of their handedness, (so they do repel one another). The difference between the energy of the nearer electron, and the electron that it pushes away slightly (because of the repulsion between them), is simply the difference between the energy of the nearer electron and what that energy intensity falls off to be at the distance of the outer electron.

The outer electron must stay at a greater radius, where the extra repulsion added by the relationship to the inner electron determines the "balance point" between repulsion and attraction. If the inner electron suddenly presented a repulsion PA that fell off slower radially, the outer electron would be pushed farther out to find the equal point, if the inner electron had a faster falloff rate, it would present less repulsion and the electron could come into a closer radius before the equal point.

The balance point of the growth rates presented by these elements, (again, due to the "tipping" caused by like-handed attraction or opposite-handed repulsion) for the outer electron, would be: nucleus repulsion falloff and attraction falloff (PA per radius) plus the inner electron repulsion falloff (all in the form of the phase element e^t/r in the formula). The reduction in energy of the outer electron's orbit (amount pushed out) is directly proportional to how close the inner electron is (and therefore how strong its repulsion is), the scalar for the quantity is 1/137 corresponding to the distance it is pushed out.

The c/137 question is also straightforward under the same dynamic. If we notice that, for instance, when a positron and electron annihilate, the final step in the exponential acceleration sees the phase-shift element, (the exponential growth for each particle) such that the PA imbalance imposed equals the entire other

particle, (i.e. the PA from one particle that is superposed with the other is the full particle PA since they are only one Q away from complete exact annihilation).

This superposition-overlap value is the value of the symmetry imbalance that causes propagation. If we remember that all Q in all particles, even at absolute rest are radiating their states at the speed of light. When there is a symmetry imbalance, the amount of the imbalance (i.e. PA from other particle) defines what % of the particles full symmetry structure, (e.g. the center Q of the spinor) is conveyed at c.

If the imbalance is 10% of the full-particle PA, the particle will move at 1/10 of the speed of light, if it is 25% of the PA, the particle is moving at .25c if the imbalance is 50% c/2 and so on. So a full particle-worth of imbalance superposed on the particle means that the state of the full particle is conveyed at c. So, at a certain distance from a nucleus, the superposition of the positive charge will be a certain % diminished (based on the exponential intensity falloff rate of spacetime) and so will be a certain percentage of the speed of light. As we have seen, 1/137 is the point at which the falloff of the repulsion of the nucleus equals the attraction.

On the subject of bonding, we are about to explore the minute details of the partial-cancellation of diffusion structure of two bonded particles, the orbital radii involved and the jumping between these orbits that corresponds to the packets of energy released and absorbed in the form of photons, but first it is important to briefly preview the nature of quarks as nucleons which act as the charge counterparts in the spiral dynamic we have been discussing, going beyond positron to electron attraction.

Bonding is the action of the major or minor axis of potential (rotation) partially canceled, the proportions of either being based on geometric arrangement. A straightforward example of this is the case where an electron is orbiting a nucleus and then is accompanied by another electron to share an orbital, each with spin orientation opposite to the other, (i.e. spin-up or down). When the charge component (major axis symmetry) of an electron is partially bonded, (partially canceled with the nucleus), the secondary axis symmetry that is left "sticking out" is constructive between like charges, and so they can share the space more readily.

The subject of the quantitatives between the electron and a nucleus bond is well known so we don't need to explore much detail on that subject in general but it would be beneficial to zoom in to the action taking place in the vector cancellation

at play, such as the action during the influence of a photon that causes an electron to slip out to a more distant, lower energy orbit, or then return into a closer, higher energy orbit. The dynamic once again is based on the photon acting to cancel a portion of the symmetry that would either act to repel or attract the electron to the nucleus and the distance at which the quarks repulsive symmetry becomes dominant in the relationship.

Forces

So why is there seemingly a great classical discrepancy between the strength of the gravitational force, the electromagnetic force and the weak and strong nuclear forces? The answer has three parts.

First, in the case of the weak intensity of gravity, toroids that have already been bonded, (and have therefore lost a great deal of their fixed-period curvature), require a large number of them in dense proximity for the leftover curvature to affect a significant ambient gradient, using only the component radial between two masses, (not a direct spinor interaction), with a non-handed (or you could say both-handed resulting) curvature.

Whereas the other, (handed) forces rely on directly inducing a gradient change in the spinor of the particle that would be accelerated itself, (manually if you will), gravity is in the ambient gradient of the medium, relying on simple tendency for a discrepancy in the ambient gradient to act as acceleration. Gravity is a force like a river, EM, electroweak and strong (plus momentum) uses a spinor/handed aspects of flow that directly turns the boat's propeller, (unbalancing the gradient structure of the spinor by handed symmetry superposition).

Second, in the case of the weak nuclear being stronger than the electromagnetic toroids, quarks have been forced to splice their geometries together. They have effectively the same force regime as an extremely close-proximity near-annihilation electromagnetic attraction. The argument in the exponential growth as 1/x approaches zero is very significant to the magnitude, resulting in a considerable increase in second gradient with the secondary axes partially overlapped. This kind of electromagnetic magnitude is only "seen" at near annihilation.

Third, where the color charge is concerned, quarks are already denser diffusion structures than individual toroids because of the frozen near-annihilation

proximity and then, in the nucleon, very high velocities, effectively increase their curvature footprint immensely (i.e. increases their mass) as near light speed propagation of full PA-per-Q action is taking place. Again, the contained high velocity between quarks is because of the irregular symmetries of the spliced toroids, which have a kind of half-charge, attracting each other with half their hemispheres but repelling with the other half, (oscillating between attracting, beginning to inter-rotate, then repelling to near c speed).

For this reason, trying to use momentum to "break free" a quark from the nucleus just accelerates their momentum-based kinetic handoff structure and the quark fountain is the result, instead of separation from the nucleus. Like trying to "break off" a piece of a vortex by blowing more momentum into the system, the momentum just makes more rotation by enhancing the primary system.

The geometry of the toroid spinor and it's delicate major and minor axis symmetries provide a ratio from which the magnitudes and effective ranges of the 4 forces distinguish themselves as being independent from the singular diffusion force. Those differences consequentially being expressed only within and around the wave geometries of particles. It is no coincidence that gravitation affects particle relationships that span over near infinite range, the relationships that are influenced by electromagnetism have a shorter range and the strong and weak nuclear forces affect structural relationships of very short ranges. All are nonetheless expressions of the diffusion force.

Time Dilation Length Contraction

As it is a pervasive aspect of spacetime, we have discussed much the subject of time dilation and length contraction, along with their relationship to entropy and relativity but we will account for any remaining aspects. It is however a somewhat non-intuitive concept but an important one to understand intuitively.

The relationship between the two units of measure, (time and distance) is reminiscent of the distance of a road over winding terrain and a distance to that same destination "as the crow flies", (where the destination is the geometry of a circle to complete a periodic action). This relationship between the action of pure

angular time dV/dt and its texture-affected alter-ego called distance dV/dx is governed solely by its cardinal rule, the heat equation, (minimize the gradient texture of time by turning toward the direction of the lowest gradient path).

Since propagation is the result of interaction with other fixed-period particles, the more texture of acceleration per revolution they have, the shorter the amount of time it requires for two particles to accelerate each other sufficiently for them to travel the distance between them. Since more acceleration is accomplished per revolution, that non-linear scalar is larger with a more random ambient spacetime.

Where we we see linear-velocity or gravitation-based time dilation, in individual reference frames, the same principle applies but is just localized. The greater a velocity of travel, the greater the energy footprint of a toroid in spacetime, meaning the process of the symmetry propagating makes the particle's "blurry footprint" more reactive substance with which to complete tasks per 720 (i.e. "effective particle ~circumference".

Ultimately we must recognize that all forces are the diffusion action of spacetime to the lowest energy configuration, as created by periodic gradient-efficiency geometries. Likewise we must accede that all diffusion action is, in its simplest form, time dilation/length expansion, (i.e. All gradients of the velocity c in spacetime represent a disparity in the energy density dx to dx, or the change in pure-angular path of a Q over 3-D).

Although it is only truly meaningful to talk about time dilation and length contraction as applied to observable periodic wavefunctions, since the notion of time or travel applies to foreground objects with structures of cyclical diffusion differential, (time being action per their revolution), the expansion and contraction of the vacuum itself, being affected by matter's ambients, is the most general ambient form of time dilation.

Whether handed or not, the differential of time trying to divide space equally causes contracted spacetime to seek to expand, into periodic structures, then gravitation together making more complex periodic structures. The more compound the diffusion structures, the more indirect the annihilation process becomes and lower frequency the photons that are produced and ambient "temperature" (random curvature) gets converted/locked-into structured curvature, cooling the ambient environment and speeding up time in the universe until the consolidation-based structures cause reduced ambient gradient between the structures, and increased structured gradient,

(essentially converting random-trajectory gradient(acceleration) into consolidated linear gradient) until the buildup (lining-up of the diffusion-action) accelerates the masses until they finally collide in the big bang, destroying and re-randomizing the diffusion vectors, re-releasing ambient temperature, which re-dilates time, shrinks space again and the process repeats, in a non-linear process, (i.e. heat equation). The process of entropy merits a run-on sentence.

Big Bang

If the ambient temperature is hot enough in the early universe, all the annihilation and pair production would be seamless and complete. "Hot enough" refers to the ambient acceleration that modulates fermions, which applies to dark temperature and observable, based on frequency of photons present. The relativistic distances between fermions would be seamlessly small. Pair production and photon production would be space-less transitions. Annihilation and photon production in region1 would result in photon2 from neighboring region2 to collide with photon1 and return directly to pair production and so on, everywhere in spacetime. The cycle would complete within one complete circuit of the fermion, (no actual independent "space" between photon and new fermions).

"Space" would be created once the modulation state of the fermions was reduced and the fermion could accomplish less, per complete-circumference. If we imagine the photon production process from a pair being surrounded on all sides by other photon production, the photons that "cross the path" perpendicular to another pair production represent a modulation of the process. When the photon that is created is of longer wavelength, it will result in the fermions it modulates having less total action per circuit. A fermion with effectively high enough intensity would "be in range" of reacting with other fermions in the universe without "needing to move". Again, the radius at which particles effectively react is the definition of their particle-ness. Once the fermion cooled, it would have "space", (reactively) that would desperate it from other mass.

It is only when this landscape results in the low-probability event of the compound structure of an upquark, that cooling begins. When that happens, we get less-than-full-toroid photon productions and the reduced acceleration texture from lower frequency photons, and the modulation condition directly

results “extra” space between fermions. We can think about dilation/contraction in two ways, 1. Space between fermions “expands” because extra acceleration that was geometrically randomized in the extra hot photons gets “coiled up” like a rope, (synchronized) inside the mass geometries causing them to take up less space and have smaller boundaries. 2. Time “speeds up” resulting in less accomplished by the synchronized pure-angular structure in the fermion because of “wasting time” on coiled-up organized intrinsic structure that reduces the net acceleration that otherwise works as potential in the accomplishing of reactions.

Like any common intuitive opposing forces, (like tug of war), when an organized geometric path is a more efficient, lower average acceleration use of space, it presents a zone of reduced force and the surrounding medium will “give”, directing its vectors in that direction more. Mass consolidation as entropy evolves will effectively remove ambient acceleration from the universe by coiling it up. But coiled up mass is just a relativistic format, it just changes the “scale” at which things exist. A 1-D force in optimal 2-D circles arranged in 3-D can never be at equilibrium. The more mass consolidates, the more the action of “time dividing space equally” becomes large-scale and the process of “the big crunch” is not only inevitable, it happens on smaller scales such as in black holes until the kinetic energy of them diffusing together crosses the boundary where all of our currently observable universe is involved. We will look at black holes and get a little more quantitative in the next few sections.

The maximal linear momentum from the big crunch would render all of spacetime virtually structure-less to infinite resolution. We say virtually because in a system that 1 dimensional force, in 2, 3 system that cannot achieve equilibrium, there is always a non-zero probability of toroid coalescence, regardless of how hot it gets. In the crunch, the injection of such momentum, at once, into every stable periodic structure would for a very brief “time”, cause a relative velocity between Q that would greatly reduce the probability that the 60-degree angle configuration all around the toroid secondary axis would “stick”. The overhot modulation would make the motion of overlap between the pure-angular Q planes less probably to get all six in the right phase. But it does happen. And the cycle repeats.

In this earliest stage of the big bang, spacetime would look like the random vacuum everywhere, but much hotter. Random unstable half-production events would be happening everywhere. But since the state would be random, the process of cooling would compound, and so be extremely fast once it started. Once that “first” toroid formed by photons colliding in just the right random heat,

the reduced temperature caused by the structure of the pair production would increase probability of it happening again and this would induce more structure and so on.

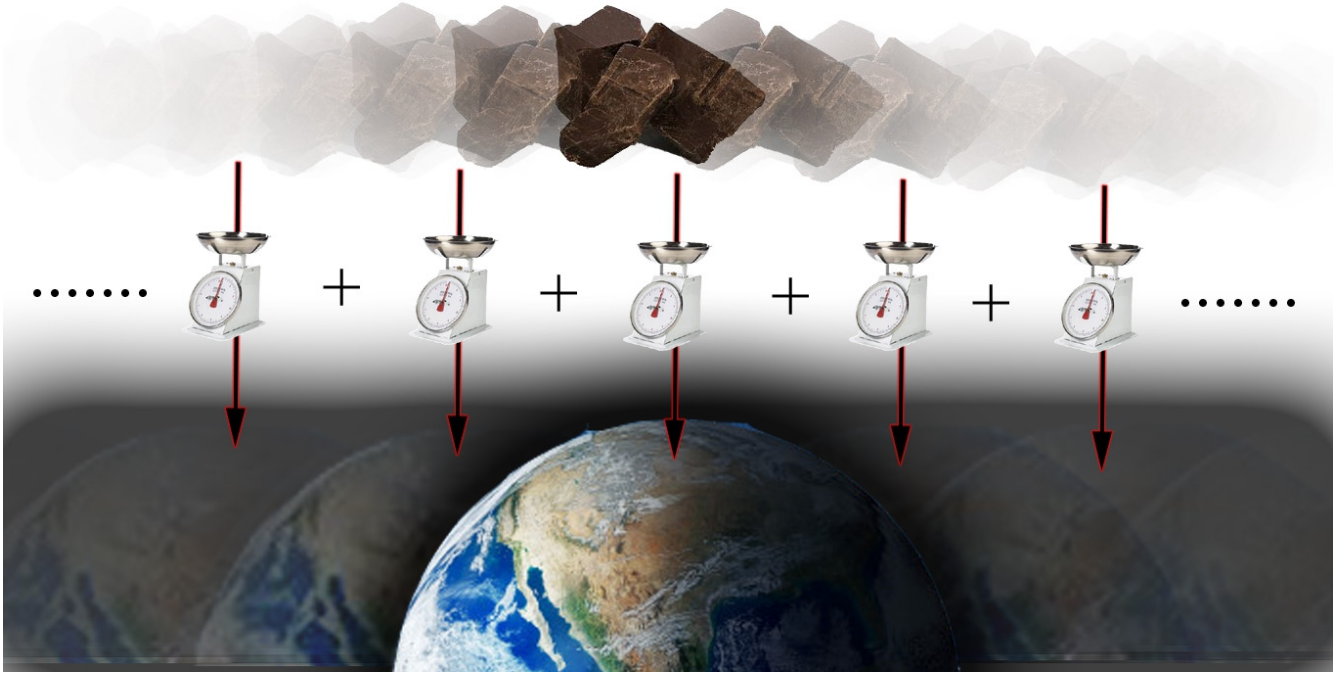
Weighing Mass, Dark Matter and Radius to the Scale

When we measure the force of gravity of a mass, it is taken for granted that the mass of what we are measuring is contained completely in the tangible blob that we put on a scale, with physical boundaries that stop where reactions with that blob take place. But we know that the wavefunction of any particle continues to infinite radius in all directions, but with diminishing probability amplitude of reacting, as radius increases.

So, we are presented with a problem in the fact that the intensity of the force of gravity also diminishes with radius. "Placing something on a scale" relies on the ability for the electrons in the hunk we are weighing to interact with the electrons in the scale platform, (so that we know that the force of gravity acting on our hunk is translated through the scale mechanism). In the weighing action, we are aligning the center mass of the hunk and the center mass of the earth in a straight line and measuring the force between them. But both their curvatures extend out far-beyond the range of this scale-mechanism-interaction.

This kind of measurement of mass is like determining how much water a bowl can hold by only measuring its depth in the middle, (but ignoring its width). If that's all you ever did, and bowls were all round-shaped, (like mass distributions are), you could reliably compare volume capacity among bowls by depth-at-center alone. The same goes for masses. But being consistent as a comparison between masses doesn't mean the actual amount of water in the bowl or actual quantity of mass would be accounted for. If it did, there wouldn't be all this "dark matter" lying around.

Since the wavefunction of the hunk diminishes off to infinity, and the effective wavefunction of the mass of the earth does the same, the scale is only measuring the interaction between those two wavefunctions along that line, (within the range of their gravitational forces).



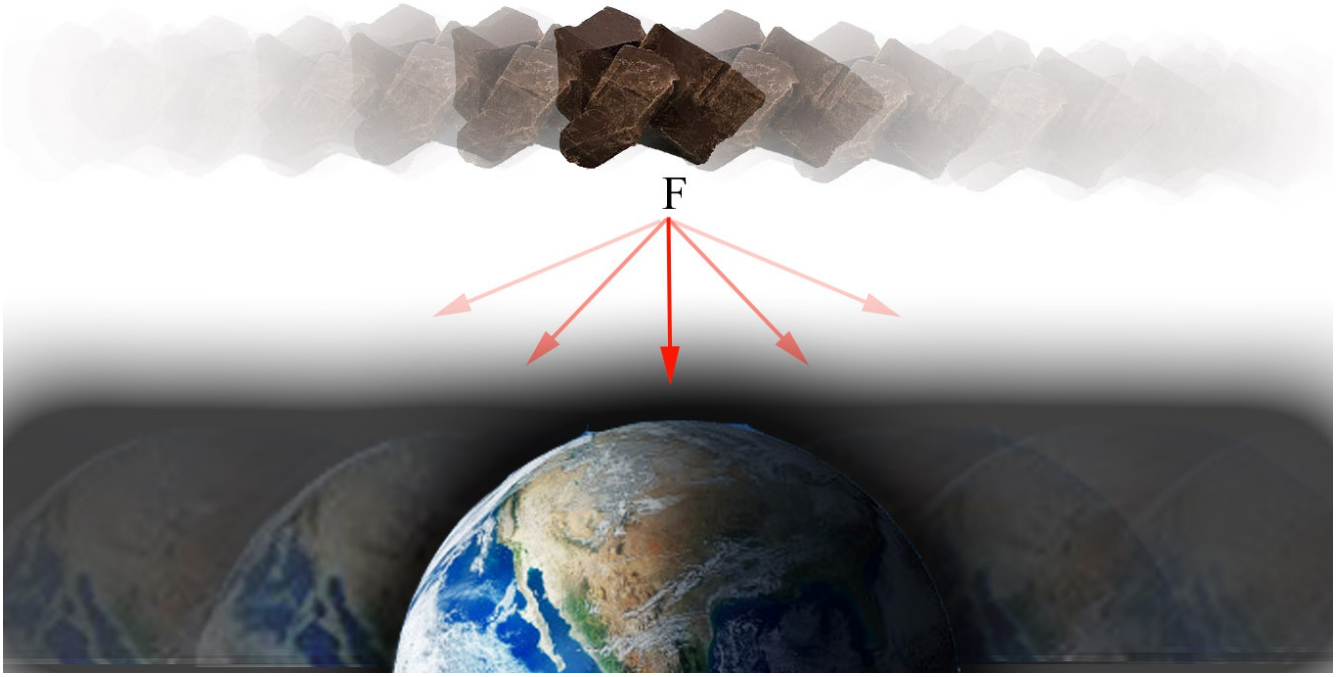
The scale relies on a specific line-of-sight reactivity, (i.e. Gravitational force causes propagation toward the center masses, so the measurement of mass via gravitational force is limited by the fact that the gravitation action will continue toward that center mass until it is stopped by the molecular forces). We can't measure the in-observable dark mass (curvature) from the wavefunction that exists at greater ranges from the center mass by the method of using the tendency for center masses to gravitate together.

If you turn a spoon upside down and drip water on it, the spoon can be tilted where the water has a 100% certainty of traveling off the tip of the spoon (the steepest slope). But that doesn't mean the lateral slopes, (the sides of the spoon) aren't also curvatures. The other features of the spoon are just 100% impossible to measure, by that measurement configuration, since the drops will never go that way. It is difficult to do a controlled experiment with the laws of physics, because the variables are inextricably inter-reactive. We can however isolate behaviors inductively.

This ambiguity of clearly defined boundaries for the wavefunction is not new. The "center of mass" that is the ultimate destination for all spacetime curvatures is purely a trick of a focal point in the the geometry and not a real place where all the mass is "stuffed" and where all gravitation comes from.

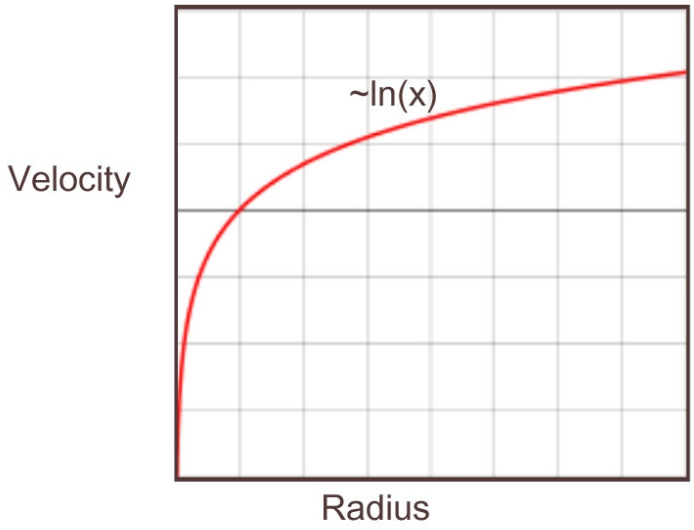
For a fishing-weight to drop to the bottom of a pond it must travel through the gravitational field of the body of water to get there. Obviously a denser mass must pass through other mass to get to the center of mass at its max-reactive destination. While it is half way through its descent to the bottom of the pond, the water surrounding the fishing weight is most certainly still exhibiting a gravitational field perpendicular to the descent trajectory. But this is impossible to measure because this lateral gravitation is equal and opposite on all sides and so could never register in that scenario as being a "force".

So the path of propagation of any two gravitating objects will be toward their centers of mass, but that does not mean there is no contribution from their wavefunction that acts to gravitate them together at various radii away from the center of mass, (at distances from the scale that are diminished in intensity, line of sight).



This is true on the macro scale and must also be true on the quantum scale. No one would assert to have identified "the part of the quantum wavefunction" where the gravity hangs out. The other components are not practical to measure, and so are effectively "negligible", (again, depth of bowl i.e. curvature, is useful for most mass-comparing practical uses).

So we can't measure the total gravitation of the mass while "within" the wavefunctions that are gravitating, but we can however observe the total gravitation force from "outside" the systems, (we should note that even at a great radius, we are still "within" the outskirts of the mass system we want to measure but the measurement would be much more accurate), due to line of measurement-sight and bulk of mass distribution. This "view from outside" circumstance happens when observing the gravitational action of galaxies, as they hold their mass from escaping the bounds of the galaxy. Radial and more-tangential components of attractions, (between stellar systems within the galaxy for instance) exhibit the force of gravity acting between all gravitating masses. In effect the measurement device is the galactic material, and is, itself, spread out as the same inverse square of intensity, so would be a more accurate scale than the "center of mass, line of sight" method. The attractions of the entire system contribute to the coherence of the galaxy. Every part of the wavefunction of each mass in a galaxy contribute to the total curvature of that galaxy, even out to where the PA of the wavefunction is approaching zero.



When observing the velocity of stars at different distances from the center of a galaxy, a graph that flattens out, showing an even distribution of gravity-contributing matter as the radius of a spiral galaxy increases would correspond to a distribution of matter that follows the same intensity graph as gravity, (i.e. the actual curvature-contribution falls off at the same rate as the gravitational field does from the "center mass"). This would yield the flattening curve. So if the gravity-producing mass of all objects in a spiral galaxy were actually spread out as $1/r^2$ from the center of the galaxy, then the result for the velocities of the stars match what is observed.

The gravitational field and the effective radius of the matter occupy the same physical volume and intensity distribution. Periodic acceleration happens within spacetime and the "footprint" of that fixed-period is diffused exponentially away from that point of consolidation because of the propagation of state. The center is not "the particle", and therefore is not strictly the source of the field. The "particle-ness" is any trace of that fixed-period footprint the fixed-period state causes, (weaker traces of footprint as you travel from the center of the loop geometry, i.e. reduced component in probability amplitude).

As an analogy, the human body with outstretched arms radiates heat from all parts of the body, and a thermometer suspended near a person's chest would

measure a certain temperature, but the heat that radiates from the person's hands would, in actuality not contribute significantly to that measurement, having diminished in intensity at that distance from the thermometer. If our only method of measuring temperature was a device that "pulled" by some measurable amount toward the center of greatest temperature, it would not be clear that the arms were radiating heat at all. In short, "dark matter" is simply out of range of detection of any localized measurement, but nonetheless contributes to the total curvature of a large scale system.

Entropy and Dark Energy (macro story)

In what way does diffusion relate to entropy? The 2nd law of thermodynamics discusses the fact that the universe has been observed increasing in overall entropy over time. The action of increasing entropy is the action of dark energy increasing its diffusion by way of geometric organization, and producing more-chaotic observables in the process, (although cooler). The tapestry of entropy's process as it works to diffuse dark energy owes the complexity of its layered depth to the intriguing dichotomy of kinetic vs. potential energy. These two classifications of pronounced observable energy are in fact the same in all ways other than their scale, (subjective vantage or objective),

Our intuition about entropy is that it represents the evolution from controlled-ordered-unlikely to more random-loose-likely. Indeed observable things go from ordered observable to more random observable. But when absolute-random dark energy (i.e. the state of uncertainty) is included in the process, we see that the broader action is a cycle from nearly total random dark energy with low-entropy states (mass) being very-unlikely, to nearly total organized matter with
The missing dark energy in the picture shows us that the photon production we attribute to increased entropy actually reduces "dark entropy" (the ambient state of uncertainty), via the transition to cooler photons, (as the biproduct of structure that increases observable entropy). In this way the Boson/Fermion dichotomy are the mascots of the two sides of the differential relationship, (the angular and the straight line, the dt and the dx). The evolution of entropy, which is the evolution of the spacetime differential is a relativistic one and only truly changes the relative scales on which the action to diffuse, forms its "turbulence".

Black Holes

As we have seen, the quarks-as-nucleons present an inner repulsive (opposite-charge) structure as a minor arc of their total-circumference, together with the core of their attractive structure, but as mass stacks up to a critical point, the strain on those inner repulsions eventually are overpowered, (as can be calculated by the balance of arguments in the exponentials for phase-shift elements of the particles involved). The "balance of inclined planes" is broken and annihilation conditions between the constituent fermions takes place, beyond that wall of differential opposition.

When that happens at the onset of a black hole, the super-dense mass of what amounts to matter and semi-antimatter present in the quarks squeezes the quarks to that annihilation point and suddenly results in a tremendous amount of high energy boson modulation within an already close-quarters situation. Relativity does its handiwork and the greater ambient modulation makes fermions more potent in potential and length contracts.

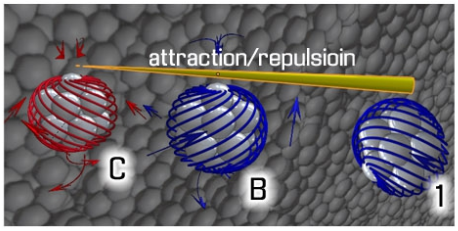
The result is effectively indistinguishable from the early stages of the big bang. Time would be maximally dilated, since the effective circumference of the toroids would be maximally modulated, (giving them a super large effective circumference), making complete production of a photon something rare. Until enough quark geometries are able to reassemble, (re-introducing fractional toroid annihilation photons), and cooling begins, time will progress very slowly within the radius where the mass was dense enough to result in this reversal of entropy. Beyond that radius, (the event horizon), the matter did not shrink itself with it's own compression-annihilation and so we see an increase in the relativistic "size" of the Q (ambient wavelengths that seem larger because less gets done there per toroid revolution).

So in the billions of our years to come, either this particular black hole merges with other regions of other black holes or it doesn't, (being subject to gravitation and momentum as a unit, regardless of contraction state). If the conditions for combining are right, multiples or many may combine before a "beyond the big bang" real-expansion to a new universe takes place. Again, the differential is based on gradients in 3-D where surface areas are involved, so are always subject to reference frames with effective reaction radii, depending on the circumstances. In our measurable universe allot more crunch of black hole merging would have to take place before we are "on the inside" of that relativistic reference frame that would then re-expand at some point, from our vantage point.

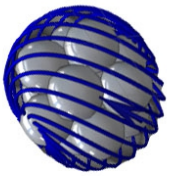
Quantum Entanglement

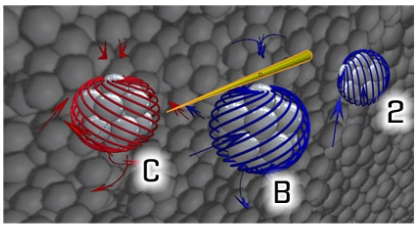
One of the benefits of knowing the geometry of the spinor is the additional information we gain about how quantum probabilities work and how detectors go about detecting. Spin is quantized and that means the magnetic moment will be the same regardless of orientation. This is because the superposition of the Q vectors of two particles results in a rotation and gradient drop that are the same regardless of orientation. Saying the electron has a magnetic moment that is invariant, regardless of orientation is like saying a windmill has the same torque in an invariant wind, regardless of wind direction. The particles are fixed in their dimensions and the diffusion force is uniform. As we have seen, spin-up or down is a phase relationship relative to another particle or group of particles. Interaction with a magnetic field sets up a standard phase relationship and oscillation geometry in the closest-match phase orientation, either spin-up or spin down.

Nonetheless, if the magnetic field of a detector like the Stern-Gerlach machine changes angle, the particle will shift to assume the new standard phase relationship and oscillation geometry, according to the superposition. Like a windmill when the wind suddenly changes direction, the shift can adjust the particle's phase orientation in either of two directions. If the new direction is beyond 180, it will go one way, if less than 180 it will go the other way.



The spacial orientation relationship between B and C represents that of opposite charges, once mutually superposed. B can represent a mag. field





1 and 2 represent random orientations that, once superposed with a fixed spin/phase (mag. field) state will re-orient itself, to standard, (as in B-C) ending up in either spin up or down, depending on where it was in its cycle

For the probability of 1 or 2 to result in being "up" we must consider both angles that comprise the orientation with B hence $\cos^2$ in the probability

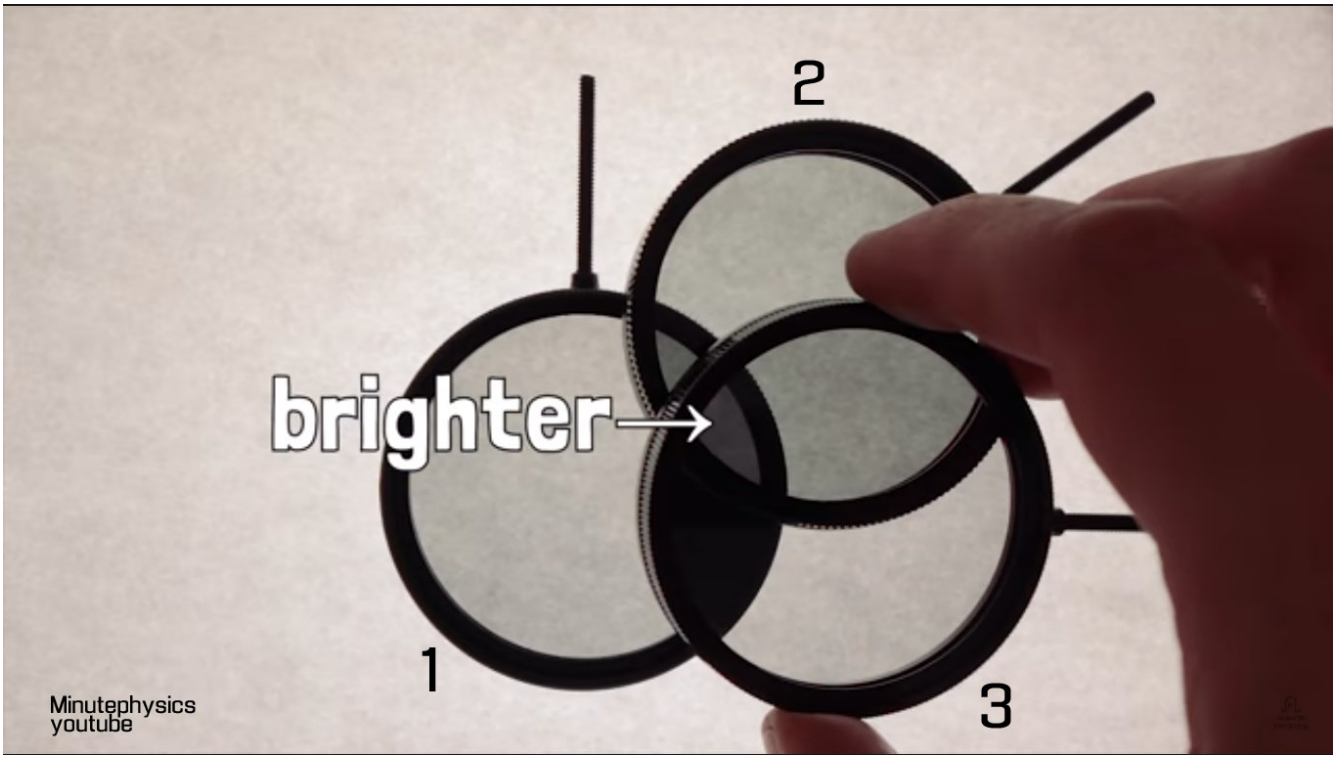
It is somewhat misleading then, to notice that orientation does indeed matter when it comes to the probability of a detector registering a spin-up or a spin down. The "hidden variable" that Einstein suspected, was multiple pieces of new information. The impact the medium has on orientation, and also the compound geometry of the particles will both play a part in determining probabilities of detection. For this reason we don't have the luxury of assuming that a quantum entangled particle is restricted to either "knowing" or "not knowing" what its partner's orientation will be. The geometry is all that is pre-determined, the medium circumstance at the detector is the other half of the "information" they share.

Bell's Venn Diagram

Observable particles are observable because they are sustainable diffusion. As we have noted, the arrangement and orientation of Q constituent wavelengths gives them a redundancy via proximity of superposition. In the vacuum, the random ambient wavelengths that would cause them to experience destructive

superpositions are hedged-against. In proximity of other particles, which affect the state of the Q in spacetime in a wholesale manner, they are of course vulnerable to destructive interference, most notably in the form of antimatter and functionally-antimatter structures, such as are found in nucleons. There are also more subtle group-acting structures that affect the medium in a wholesale manner. Polarizing filters are one such structure.

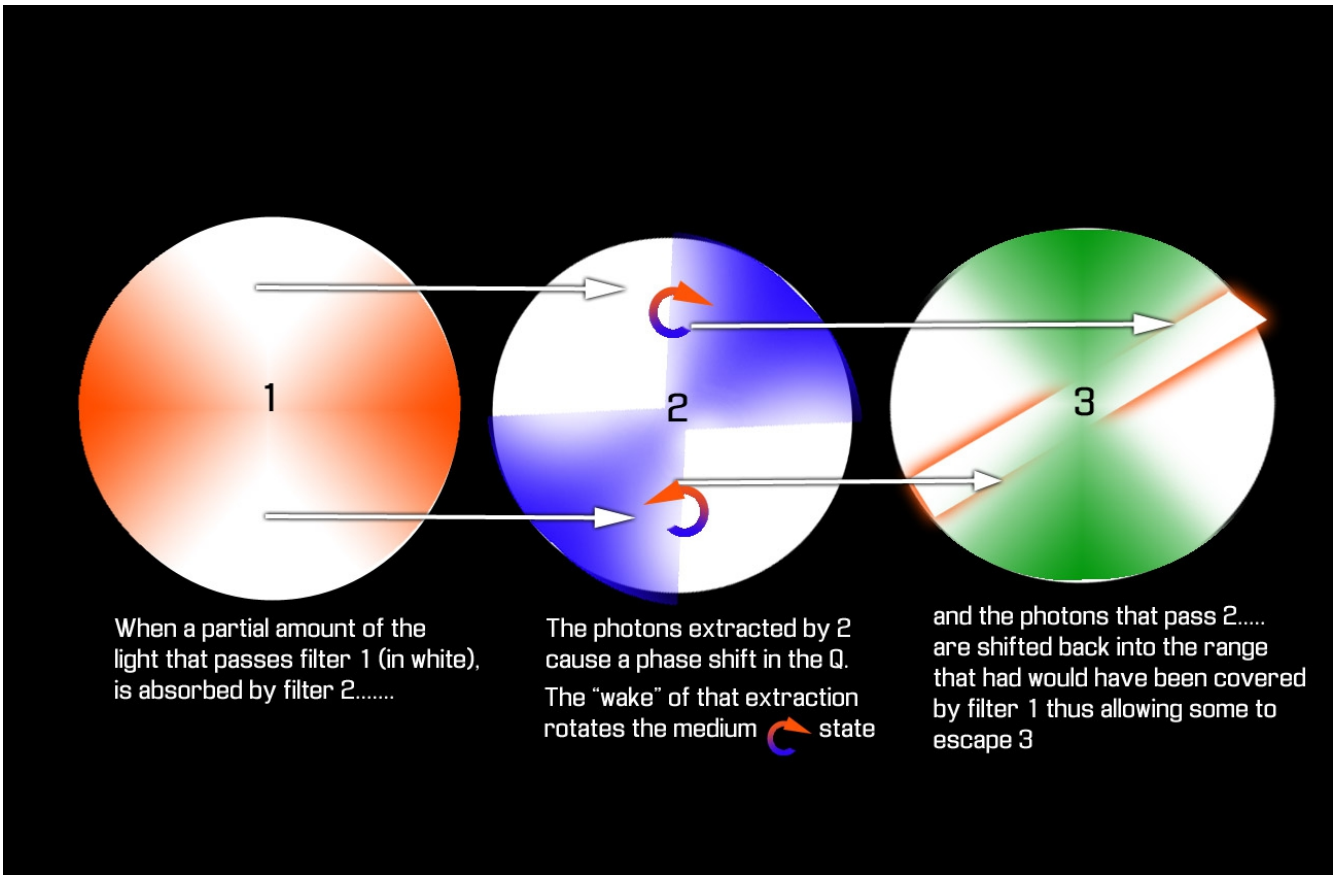
In the notorious Venn diagram paradox, Bell points out a phenomenon found in the problem of a third polarizing filter that is placed in between two other polarizing filters, which increases the amount of light that passes the filters. Filter 1 removes any photons that aren't oriented "up/down" we will call it, and filter 2 removes any photons that aren't oriented "sideways", (i.e. the remaining half of the photons). Filter 1 removes half the intensity of the light and filter 2 removes the other half until none pass.



When you insert another filter (filter 3) at a polarization orientation halfway between 1 and 2, (at a 45 degree angle), mysteriously, the addition of filter 3 causes some light to now pass through all 3 filters. Bell uses Venn diagrams to discuss how the light could do this, using accurate logic. This is however a demonstration of how logic is forever imprisoned to be a type of mathematics that is only accurate when there are no unknowns. The word unknown is not to

be taken lightly, being not only applied to new things, and often multiple new things, that might be present, but new properties and dimensions of properties of already known things, (including logic-breakers like new degrees of freedom). The shedding light on the intrinsic unknowns about the geometry of photons, and the medium that propagates them, converts a paradoxical logical-impossibility into a basic explanation. [Paradox: from ("para-"), "contrary to" and ("doxa"), "opinion,"] With new information for logic to operate on, paradoxes are no longer para doxa.

Just as the annihilation of two fermions results in a bona fide particle, and partial sub-quantum-definition interactions result in virtual particles, a polarizing filter leaves an impact on the spacetime around it, like a truck passing on the highway or our metaphorical diver's curvature in the pool.



The action of a filter canceling a polarization angle effectively phase-shifts the medium, (something we see in the partial collapse of a wavefunction at a detector). This wouldn't be noticeable with just two filters because the phase shift is itself the absorption of photons in the range of the filters. But with a third

filter, the phase shift is noticeable and again, involves two angles of orientation associated with the phase re-alignment, in order to find the probability of absorption, once the photon has been rotated, hence $\cos^2$.

Elitzur-Vaidman Bombs

When it is considered that a photon's interference pattern exists on the medium, which is a factor in calculating probability, and the detector is also subject to the arrangement probability of the Q it is a waveform on, it is clear that the waveform can be affected by a detector-bomb without necessarily resulting in an arrangement of the Q that triggers the detector and collapses the wavefunction, (i.e. absorbing the photon and triggering the bomb). It is difficult to logically deny that the presence of the detector-bomb is indeed physically affecting the path of the wavefunction, whether it absorbs the photon completely or not.

e

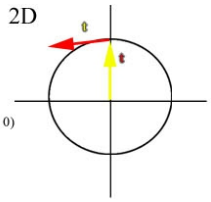
Euler's use of the infinite polynomial series has special significance in that it directly maps out the infinite layers of acceleration that can be found at any point Q in space and time. The fundamental force in the universe, (the action to diffuse dark energy, 1,2,3) is a geometrically irrational action, never converging to equilibrium. This necessarily means spacetime will have a granular nature. The attempts for the 1-D to accelerate to balance angular time across linear space mean a texture of acceleration, where the action of angular motion is the anchoring "resolution" of this attempt to minimize acceleration with respect to distance, (with respect to "other" dark energy).

So we have a linear progression of time, (in an angular direction), conforming to compound angular geometries and non-relativistic linear Euclidean space, but a relativistic measurement of distance taking place, in those angular geometries at any given point in spacetime, (i.e. the amount that the 2-D angular action from one dx "intrudes more often" changing the space derivative balance between it and the next dx over, whether ambient or localized).

In 1-D time's perfect minimization of energy by angular motion in a 2-D plane, we might imagine synchronized angular motion of dark energy across the 2-D infinitely, with zero gradient.

2D

$dV/dt = d^2V/dx^2 = 0$



= $t = V = x/t = c \cong 0$
(where x->0, x/t ->0 ; dV/dt = dt/dx = 0; entropy = 0)

= $t' = dt/dt = dt/dx = 0$
$dV/dt = d^2V/dx^2 = 0$
(where r = x->0,
entropy = 0)

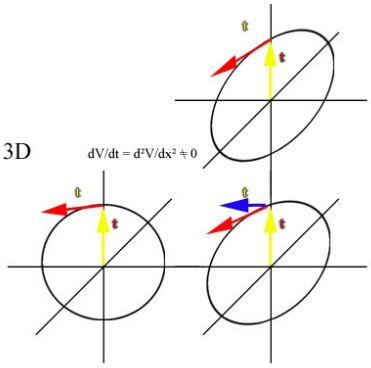
1D $dV/dt = d^2V/dx^2 = 0$

Distance emerges when
$d^2V/dx^2 = 0$
$d^2V/dx^2 = \text{distance}$

= $t' = dV/dt = d^2V/dx^2 \neq 0$
where x > 0

With 3rd dimension, distance increases and time decreases in value when:
d^2V/dx^2 -> dV/dx ->

3D $dV/dt = d^2V/dx^2 \neq 0$



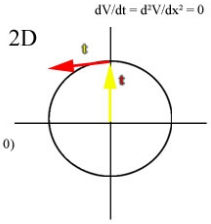
In the 3-D environment, this dynamic becomes irrational. A component of velocity from the region on the right will represent an acceleration for the region on the left, in order to seek minimum energy perpetually, as this chain reaction pervades spacetime.

"Distance" arises as a mearement of component of affect-overlap on adjacent region, when the action of time has a nonzero differential effect on its neighbor in a linear direction. Distance is a relative measure, based on the amount of time (measured in angular arc length), that is spent with a nonzero relative velocity with neighbors. The more d^2V/dx^2 the greater the Euclidean component per angular arc length.

The component "overlapped" between dx, per dt is reduced the more ambient entropy increases toward maximum and ambient temperature approaches absolute zero

2D

$dV/dt = d^2V/dx^2 = 0$



= $t = V = x/t = c \cong 0$
(where x->0, x/t ->0 ; dV/dt = dt/dx = 0; entropy = 0)

= $t' = dt/dt = dt/dx = 0$
$dV/dt = d^2V/dx^2 = 0$
(where r = x->0,
entropy = 0)

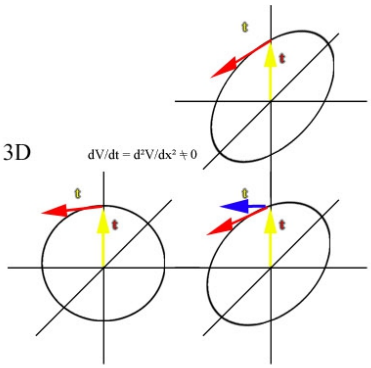
1D $dV/dt = d^2V/dx^2 = 0$

Distance emerges when
$d^2V/dx^2 = 0$
$d^2V/dx^2 = \text{distance}$

= $t' = dV/dt = d^2V/dx^2 \neq 0$
where x > 0

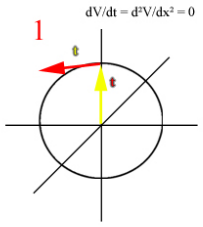
With 3rd dimension, distance increases and time decreases in value when:
d^2V/dx^2 -> dV/dx ->

3D $dV/dt = d^2V/dx^2 \neq 0$

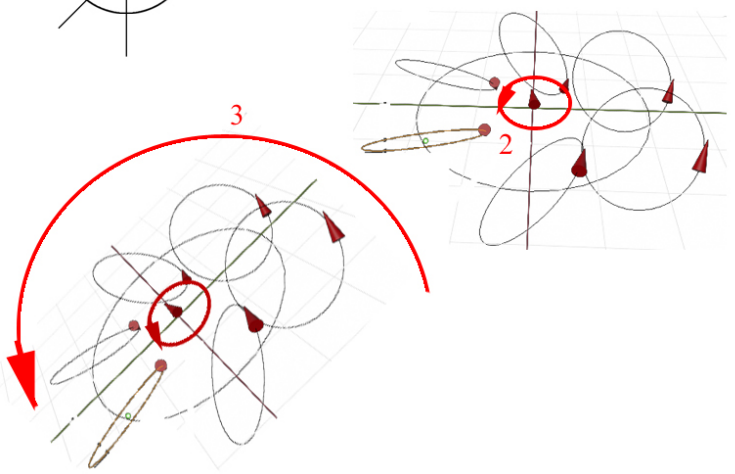


$S dV/dt\ dx = ax$
$S d^2V/dx^2\ dt = 1/x$

Both mean a sustained reduction of gradient



The single force (time) is a 1-D action to diffuse to lowest energy gradient. The perfect planar circle 1 (100% angular motion) is the minimum 2-D symmetry and lowest gradient trajectory. In a 3-D system the 2-D angular lowest-energy action of time would have randomized acceleration, as maximum diffusion could never reach equilibrium. 3-D structures made of the 2-D planar symmetries, featuring a stable symmetrical component through the 3rd dimension 2 maximizes diffusion more. Bonding of these structures furthers the diffusion, via symmetries in proximity inducing the structure of circles itself to oscillate in circles 3.

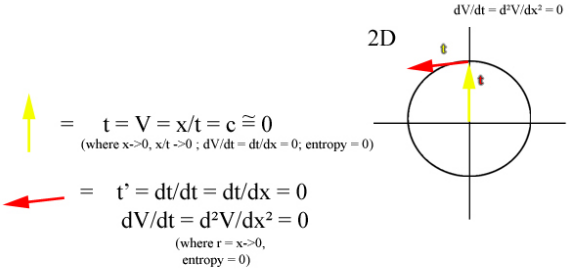


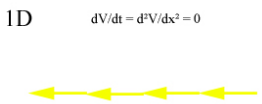
Time is a purely invariant, 1-D angular action for edark energy to diffuse to lowest E in 3D space. because it is 100% angular. Thus the invariant speed of light is a definition tied to the diffusion action signified by the perfect circle symmetry.

Time is also velocity. How does time become velocity? By the emergence of distance.
Time acts to diffuse in 2 dimensions but is dimensionless in a 2D space.
With symmetry partially occupying a third dimension, "distance" arises as a discernable alias of time, in the context of its affect on actions of observable particles. Distance is the observation of the amount the diffusion force propagates in a linear direction, per arc of planar, angular action. The random vaccum has an average ambient force to diffuse, (an average component from the neighbor that is greater than zero gradient (pure angular), due to the inability for a volume of 1-D action to keep a zero-gradient, (pure angular 2-D symmetry) throughout its 3-D volume. The attempted perfect-planar loops are always overlapping somewhat. Since observable particles reduce the gradient via geometry, the measurement of disance is directly tied to this average overlap, (average amount the angular action of time overlaps with neighbors, which is the fundamental basis for the action of propagation.

Thus distance is a measurement of the amount the angular action of time accelerates, being a comparison between the action of purely angular time and total percentage the structure spends in the third degree of freedom, "dilating" the 2-D pure action of time. The dilation in the random vacuum would have a random average temperature.
The arc length in a 1-D plane divided by the arc length deviating from that plane
The action of time becomes distance by rotating its plane, (accelerating),
as a further way to maximize diffusion of the 1-D action of time.
The acceleration between neigboring pure angular paths of diffusion, (as lowest energy angular path tries to be accomplished though the 3rd dimension to acheive equilibrium), results in an imbalanced component of the 1-D diffusion action that is imposed on the neighbor. This imposition of diffusion in a linear direction is dx^a, the greater the ambient acceleration, the less the 2-D symmetry has a component of diffusion on any one linear path.

Since the plane of the action of time is free to rotate, the rotation pattern of time that allows for maximum diffussion are the fermion/boson geometries. These geometries make sustainable the fixed units we call velocity and acceleration, as their geometries act as standards of measure.

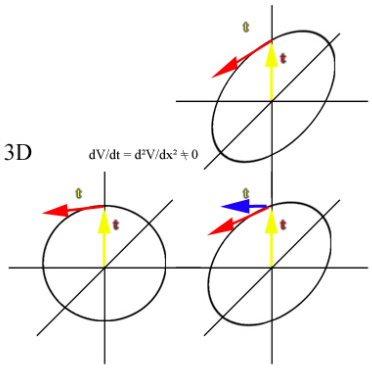




Distance emerges when
$d^2V/dx^2 = 0$
d^2V/dx^2 = distance

$= t' = dV/dt = d^2V/dx^2 \neq 0$
where x > 0

With 3rd dimension, distance increases and time decreases in value when:
d^2V/dx^2 -> dV/dx ->



In a 3D space there is always an "overlap" component of angular t in neighboring dx, amounting to an acceleration, (i.e. diffusion force). The hotter the ambient spacetime, the more dilated, (accelarated) these components are on average.

In the general vacuum we find a randomly directed average component of force. fixed-periodic structures have a lower average force, (i.e. a gradient)

General dilation, (entropy) is the average gradient Q to Q, either locally, based on particle vicinity, or ambient in wider regions, based on photon presence, such as in the vacuum.

The speed of light (the speed of communication of periodic 2-D planar patterns of this overlap state), is invariant regardless of the ambient (entropy), because it is the amount that an angular action dt affects an ajacent region, in a linear direction dx with a component of overlap when that component of dt can otherwise be reduced by dt moving on a plane through a planar path lateral to dx, (when accelerated by ambient perturbation).

$$\int \frac{d^2V}{dx^2}\,dt = \frac{\frac{xt}{t}}{x^2} = \frac{1}{x} = \int \frac{dV}{dt}\,dx = ax = c^2$$

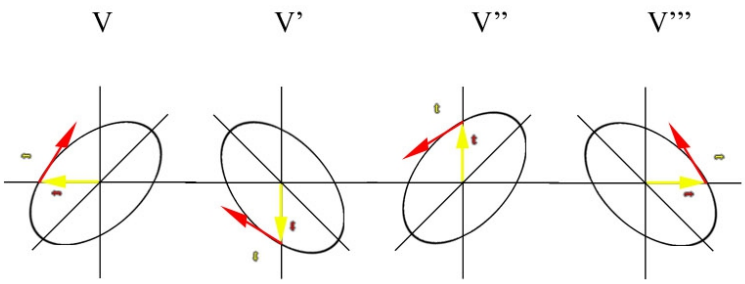
And we know the second gradient of V equals the time derivative of V. If we see an acceleration at point A in spacetime, (i.e. the progress around the circumference of the angular action of time in a specific euclidean component at

that point, there will be a corresponding variation in the gradient or vice versa (one point having increased velocity in that component but the neighbor hasn't). We will find that at point B, at some linear measure of distance across space "10 meters" or in time "5 seconds", that the rotation in that component at point A will affect the state of rotation at point B. The progress of (t) at point A will be reflected at point B at some distance x in the form of

$$e^{t/x}$$

Euler's infinite relationship contains all the derivative relationships possible between two points in spacetime, so when a linear distance (inverse) constitutes the argument, the magnitude of the changes to vector direction at that distant point, (as it translates through the chain of differential relationships along the way), is represented by the result of the exponential.

The heat equation differential relationship between velocities with respect to space and time conveys state information. The relative velocity between dx1 and dx2 is carried through as the derivative of relative velocity between dx2 and dx3, and that change in velocity is carried as the second derivative from dx3 to dx4.



Now, the information conveyed in the infinite series is limited to the adjusted magnitude based on distance, but when we are dealing with identical geometric structures at some distance, it is entirely useful information about the interactions between them. As we have outlined, certain handed geometries interact by causing a handed increase in the derivative relationship of spacetime

between them, and for this reason the exponential is used in its continuously compounding growth capacity, to describe the change in magnitude resulting from attraction or repulsion. Indeed interactions between wavefunctions of fixed geometric shapes, in spacetime, behave with continuously compounding increases to those shapes, as the wavestate of one particle superposes with the state of the other, steadily increasing or decreasing the overlap as they attract or repel.

Each individual term in the infinite series of terms act as constantly changing placeholders for every Q along the path, beginning with the Q at a point of origin and increasing the order of magnitude of the exponent in the numerator while reducing the overall contribution to the sum by the factorial in the denominator. As the argument increases in value, the placeholders of higher order have greater impact.

As observed in the inverse square rule, intensity of something at a point decreases according to radius. In most uses of the exponential function, this formula accounts for an actual greater calculated volume of Q of something "active" that would affect the output of the function and its derivatives, (such as individual bacteria or invested dollars). We see the number of "sides" as the number of orders of derivative in the volume-esque calculation for structured footprint in spacetime, (scaled by the factorial) because ultimately intensity is quantized by these "areas-encompassed", (by the conflicting dark energy of spacetime that we call acceleration, (i.e. c^2 and a scalar)). The "texture" of acceleration corresponds to a texture of increasingly higher order numbers of dimensions of volume-esque quantities, (again, scaled by proximity).

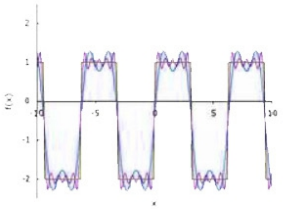
As we have discussed regarding propagation within the medium of spacetime, the geometry of the fundamental medium results in a uniform mechanism for the propagation, creation and destruction of structures of energy. As things grow larger, the do so by increasing the natural arrangements of the medium of spacetime, which is itself based ultimately on equilibrium between the planes they assume, to achieve the minimum energy configuration of the pure-angular action of a 2-D circle. When structures decay or change, they also must obey these mathematical textures. Calculus with its derivatives and integrals is ultimately a navigation of the compounding volumes of spacetime that render the magnitudes of its properties.

hbar

Planck's constant represents the relationship between the perfect circle and the geometries of changes to the planar orientation of that circle that are found in the spacetime differential equations. For this reason it is found in the rest-wavelength of the toroid and in other particle's wavefunctions, used in both the h and hbar form for the diameter or circumference.

Fourier

There is not much that can be added about how this subject pertains to Fourier's work, except to say that it is significant in every facet. Simply put, all straight lines are relationships between circles and all large circles are made of angular relationships within smaller circles. All things, observable and dark are ultimately describable by Fourier superpositions and transforms.



$$A_x \cos(\lambda t + 3\pi/2 + \cos((e^{t/x\{R_{toF}\}}_{(t)} + 3\pi/2))(\tan(y/z)^{-1}_{R}))_{R}$$

A B D_R

The fundamental minimum-gradient unit (the Planck) in the spacetime differential is the circle, and the structures that make stable particles do so by phase relationships between the accelerations found in that differential. Given dark velocity @c is present everywhere and observability is just a matter of stable gradient-reduction structures, Euler and Fourier team up in the texture of spacetime, as it is a superposition of angular acceleration states as an infinite series of time and space derivatives.

$$\frac{\partial V}{\partial t} = \alpha\left(\frac{\partial^2 V}{\partial x^2} + \frac{\partial^2 V}{\partial y^2} + \frac{\partial^2 V}{\partial z^2}\right)$$

Conclusion

The final set of differential equations were not included in this paper for a reason. The implications of the new field of subspace mechanics are wide-reaching and a technological revolution is right now underway. The choice was made to disclose the general overview publicly, but initially withhold those specific proprietary development tools in the hope of directing revenue to maximize the delivery of this technology to the public. We will accomplish this by channeling it to directly to the scientists, engineers, technicians, and other

critical individuals on a results basis to bring that about. Our choice to initiate the tech development drive and educational institution on a decentralized platform was for the purpose of maximizing incentives with no red tape, for those talented individuals, so we can explore and achieve these advances in the shortest amount of time. We have found that there is more than enough enthusiasm about the future to go around.

The majority of brute force work is currently involved in a laminate material that can sort atmospheric nitrogen by kinetic energy by way of an innate material geometry augmented with a material-conducted EM. The effect is a much higher rate of absorption of solar thermal energy than current photovoltaic cells, extracting heat directly from earth's atmosphere and converting it to electricity, currently by simple thermocouple. The technology has the secondary effect of direct-cooling and reversing the carbon footprint resulting from fossil fuel combustion. The goal is to offer a new carbon credit solution and develop an equilibrium between heat creation and heat absorption in energy production technologies. An upcoming paper will explore the details of how the "sorting" mechanism includes the particular structure of the material that only requires a minor alteration of geometry by applied field, so wear and tear of the inexpensive material accounts for the "information cost" typically thwarting other proposals for similar "Maxwell" style devices.

Efforts ranging from blueprints, plans discussions and potential possibilities are taking place in the think tank, (which is now open to the public at the links below), involving but not limited to the following:

1. Direct field-alteration. The use of micro-resonant-antennae arrays to create low energy photon packets which serve to modulate the medium of a reference frame, (in the same way a normal field would, but with specific composite symmetry), to alter the ability for fields of all sources to effect, (rotate) the matter within that frame. In effect the modified field "rotates the rotation" presented by the field.
2. Energy-to-matter synthesis. In much the same way as field alteration is implemented, sculpted photon packets can induce pair production and eventually higher order elements. The potential applications include simple hydrogen production for use in energy-to-matter propulsion systems, to carbon synthesis or eventually molecular synthesis such as carbohydrate synthesis for agricultural or industrial uses.
3. Manual time dilation. The control of the ambient modulation of a reference frame in a way that is "randomized" (i.e. incomplete photon wavelengths), such that the frame is not "hotter" according to observable definition, but

nonetheless experiences greater dilation, can result in a kind of “time-hybernation technology that allows time to be greatly reduced in a reference frame.

4. Finite singularities. Theoretically, the direct alteration of force-state profiles could be applied to intricate levels, resulting in controlled singularities, used as tomorrows version of PCMs (phase-change materials), altering matter entropy instead of matter phase, for a wide range of applicable uses.

Get involved in the discussion and the production, right now, this very instant. Time is beginning to move much faster.

Subspacerace.com

Subspaceinstitute.com

Thank You

Humanity in general owes a great thank you to the following great individuals in our lifetimes for their enormous contributions to bringing the future within our grasp:

Peter Higgs and François Englert: Their prediction of the Higgs boson, confirmed by the Large Hadron Collider (LHC) revolutionized our understanding of the universe.

Stephen Hawking: Known for his work on black holes and the origins of the universe, as well as his popular science writing.

Brian Greene: A string theorist and public figure who has popularized complex physics concepts.

Lisa Randall: Working on dark matter, extra dimensions, and the hierarchy problem.

Neil deGrasse Tyson: Renowned astrophysicist and science communicator who has brought astronomy to the masses.

Michio Kaku: Known for his work on string theory and popular science writing.

Kip Thorne: Who contributed significantly to the detection of gravitational waves.

Wendy Freedman: Known for her measurements of the Hubble Constant, a crucial parameter in cosmology.

Alain Aspect: Whose experiments helped confirm the non-locality of quantum mechanics.

John Preskill: Who has made significant contributions to quantum computing and quantum information theory.

David Deutsch: Considered one of the founders of quantum computing.

Scott Aaronson: A theoretical computer scientist and physicist known for his work on quantum complexity theory.

Shor, Peter W. A mathematician and computer scientist known for Shor's algorithm, a quantum algorithm for factoring integers.

Andre Geim and Konstantin Novoselov: Who isolated graphene, a single layer of carbon atoms, leading to new materials and technologies.

Duncan Haldane: Who has made significant contributions to the theory of quantum magnets.

Charles Kane and Laurens Molenkamp: Predicted and experimentally observed the quantum spin Hall effect.

Shubha Narayan: Known for her work on topological insulators and superconductors.

Juan Maldacena: Known for his conjecture relating quantum field theories to gravitational theories.

Edward Witten: Considered one of the leading figures in string theory.

Nergis Mavalvala: Who played a key role in the detection of gravitational waves.

Jocelyn Bell Burnell: Who discovered the first pulsar.

Vera Rubin: Who provided evidence for the existence of dark matter.

John Mather: Who was awarded the Nobel Prize for his work on the Cosmic Microwave Background Radiation (CMBR).

George Smoot: Who was awarded the Nobel Prize for his work on the CMBR.

David Gross: Who was awarded the Nobel Prize for his work on quantum chromodynamics (QCD).

Hideo Nakatsuka: Known for his work on nonlinear optics and femtosecond laser technology.

Paul Milgrom: Who proposed the Modified Newtonian Dynamics (MOND) theory as an alternative to dark matter.

Eric Cornell: Who was awarded the Nobel Prize for creating Bose-Einstein condensates.

Carl Wieman: Who was awarded the Nobel Prize for creating Bose-Einstein condensates.

Donna Strickland: Who was awarded the Nobel Prize for her work on laser pulse amplification.

Sean Carroll: For bringing physics to the general audience

Roger Penrose: For his work in black hole calculations and his approachable communication of deeper understanding to the public

Additional Thanks

Elon Musk for fueling humanity's desire for space exploration and his optimism

about our future.

Khan Academy for making information accessible to the world

WolframAlpha for taking theoretical math and physics tools to a super-leveraged new level

MIT OpenCourseWare

Influencers Deserving Thanks

(For inspiring the public to science)

Grant Sanderson @3blue1brown (For kindling the intuition for mathematics)

Nick Lucid @scienceassylum (He makes difficult concepts more approachable)

That Physics Girl (For finding the profound in everyday things)

Minute Physics (Exploration into very detailed stuff made fun)

Veritasium (Excellent use of props and creative metaphor)

Don Lincoln and the folks at Fermilab (Bringing lab experience directly to the public, not to mention scandalous science-joke T-shirts)

Sabine Hossenfelder (She sorts out the true from the not-so-true)

Andrew Dotson (He has an intuitive understanding and conveys that via personality)

Michel van Biezen (Does a great job covering all the details, especially derivations)

@Drphysics (He covers it all, in a pleasant way and was one of the first to bring physics subjects to the public)

Physics Videos by Eugene Khutoryansky (excellent intuitive visuals and common sense descriptions)

Richard Behiel (composition and visual work is outstanding)

Udiprod (good descriptive style)

PBS Spacetime (they have their finger on the pulse and share it with the public)

Physics with Elliot (great channel and choices of topics)

Up and Atom (nice visual work and teaching style)

The Royal Institution (reminding us that science is the most dignified pursuit)

The following are also great channels to check out:

Vox

Stand-up Maths

Physics Explained

Eigenchris

Professor Dave Explains

SmarterEveryDay

Reducible

Numberphile

Bozeman Science

PhysicsHigh

Universeio

Additional note: The utilities made available by artificial intelligence models was invaluable for the work done on this theorem. Language models made access to

data a streamlined process, in addition to computational technologies that allowed rapid exploration of the higher order derivatives involved.

End of Section 11