

From 'Now' to Dark matter – a concise view

Noel Eberz Na'alehu, Hawaii December 2009

Abstract – While the assertions here are very different, they only add equivalent but generalizing views on time, energy, mass & space, with a minimal set of operational parameters. Foremost, justifying time as only Now and a 'dependant' variable of the Space fabric and its contained Substance can yield a concise view of how the immediate universe works. This includes defining all Mass as the confinement of energy and Energy, a ubiquitous particle, always in motion with self-induced refractive optics behavior and enhanced by decoding some relevance in the partial charge of Quarks.

Introduction – In summary, the essential thesis – Only Now, Mass as the confinement of Energy and Gre theory – on my website www.cosmic-concerns.net and in my book *'From Now to Dark matter'* is not as radical as might first be imagined. It does have differences in perceptions of reality vs. their assumed mathematical expressions. First order, Space-now or Now physics has serious contrast with Space-time, the velocity of light (Voc) and the nature of Black holes in Relativity, but it does provide an obvious solution to Time's arrow¹. It doesn't argue with Quantum mechanics except excluding the 'undiscovered particulate graviton' for gravity and then bring it all together with Gre theory, a suggestion for the nature of Dark matter and a better alternative to the elusive concepts of Strings. While much has already been previously stated, certain additional comparisons here can advance some relative arguments and further insights. In some cases overlapping views, like the duality of light propagation, might be appropriate. For example, while I claim Now more realistic than space-time, there is no competition on the usefulness of Relativistic mathematics. Granted my objection to the physics of Relativity in Black holes is more daunting. Yet this whole subject is indeed more controversial and hypothetically varied in astronomical observations. My alternative interpretation dealt with the nature of Mass as the confinement of energy, middle-out, and how it is agglomerated or destroyed, with the expansion here into the realm of quantum particles and quarks. Together all this presents a reasonable argument that gravity is not likely a quantum particulate member and is better defined in Gre theory optical behavior with its temporal contribution to mass as the confinement of energy. Equivalently, my book does not refute as much as suggest these differences or dualities, particularly for better potential layman understanding. Outlining the topics herein and starting with a concise view on how the fundamental elements of the universe work, is followed by additional rationalization for this theme.

The Fundamental elements and their Interrelatedness:

1) Time is only 'Now' – There is but one copy of the universe and it's Now, the only venue of change. No other temporal state exists. Our present daily existence is an example of real continuous change compared to all other rapid or slow physical changes. Further, mentally the past is only memory, the future mere anticipation, again, both extant only Now.
2 & 3) Space & Energy – The two bare essentials: Space the volume, contains the space fabric with unique electromagnetic properties. And Energy, ever in motion, is either in transit at the Velocity of light (Voc) or is arrested (confined/slowed) in mass configurations. This energy will be defined as a sub-sized particulate flux, called Gre particles².

¹ Can you believe that formal Physics is still out to lunch on the issue of Time's arrow?

² The Gre particle is the Erg spelled backward, a tiny energy unit ever in motion, as small as strings might be imagined. All this is content within a Newtonian/Euclidian framework.

4) Mass is a 'kernel of mass with additional confined forms of energy'. There is a myriad of these 'named' kernels of mass (any scale, quark to galaxy) with added dynamic energy forms eg. heat, kinetic, phase, chemical etc.. While this can include all quantum particles which are more defined, there is only an arbitrary division between a named mass and its possession of other related fields or energetic phenomena, particularly at larger scales.

More detail:

1a) Time has two elements: a stress/strain on space and its contents, and as such is a 'dependent' variable. The stress aspect is the cause & vector of change (time's arrow) and any active strain is the illusion of flowing time. While there is only Now, not a duration, flow rates and duration depend on the space environment working on the present integral of its physical past with the future being mere propensity for further change. The Entropy trend is not relevant³. Now is synchronous throughout space by 'default' eg. a singular value and consequently, any event is commensurate in reciprocity between multiple observers. In infinite set would yield a unitary Now manifold.

2a) The Space fabric must be a 'shear' medium with potentially 3 relevant axes: Electromagnetic radiation is a transverse wave (2 axes) and travels at the Voc, it has energy but no mass. Charge is a quantized spin vector in 3 axes and the foundation to any mass object. While charge first is a dynamic stress/strain of the space fabric, it is only the bones about which the energy flux is arrested in dynamic wave patterns. The mass equivalent is the integrated resident time (temporal presence) of all the Gre particles involved⁴.

3a) Energy - The nature of energy as a ubiquitous Gre particle, always in transit at the Voc and interacts (does not collide or scatter) with other self particles and like photons, behaves with optical refraction properties, where the Voc is based on the instantaneous Gre particle density, eg. a self induced refractive index (RI) and the path travel curvature involves the same RI gradient. In other words, the scalar & gradient values are and synonymous with the gravitational field. An individual Gre particle is nominally isotropic (in open space) but more contingent in direction in more complex mass environments.

4a) Mass - The interaction between the space fabric and energy flux (Gre particles) is basically inert to observation. However there are four collision processes of relevance that are observationally manifest: Mass creation & annihilation, is the essential quantization with charge creation or loss. In addition to the charge, this also establishes the quantized amounts of subsequent arrested energy but becomes less relevant in larger mass structures. Mass agglomeration includes gravitational attraction and other energy augmentations beyond rest mass. Mass reductions are merely the reverse or the collapse of organizational modes as in the Roche limit⁵ in different stress environments. In general, pure energy is always on the go at the Voc or totally confined as in rest mass or arrested in variable amounts with mass motions; kinetic, heat, spin, etc.

Pertinent consequences:

1b) Time – As there is but one copy of the universe, at best space-time is merely a math tool of Relativity, not reality. Gre theory judges time rate and the Voc proportional to local physical environments, not space metrics.

4b) Mass - While there is a micro mass minimum (quark configurations) there is no macro mass organizational limit including where the gravitational field itself can be interpreted as

³ Locally, the dynamics of things (their equations) can go both ways and judging the boundary of a closed system maybe arbitrary, unknown, forgotten or indeterminate.

⁴ In analogy, the existence and duration of a traffic jam is independent of any individual car's delay.

⁵ The Roche limit creates Saturn's rings by destroying its moon in a sufficiently high gravitational gradient. Similarly in high heat or compression, this process can destroy a higher level named mass organization eg. atomic star to neutron star.

additional matter (Dark matter) in galactic clusters. Although in the extreme, the idea of a Black hole is becoming ever more unrealistic, most significantly - the point singularity is contrary to the above mass definition. Consequently, Active Galactic Nuclei (AGN) seem a more likely fate for massive mass compression environments and a possible mode for new galaxy formations which further opens the question of ultimate entropy trends.

2b & 3b) Space & Energy - There is a Maxwellian similarity with div & curl for both charge and the Gre flux. Charge tugs at the space fabric, unbounded in extent including with motion, its associated magnetic field. Whereas the Gre flux, to wit; always in motion in space, the gravitational field or individual mass centers (3 named states), and as such, having a div & curl creating the local Voc and all mass manifestations. Still, most Gre flux static states obscure the actual internal Gre dynamics. However in some very large galactic collisions, the unequilibrated state (temporal Gre flux imbalances) of the gravitational field can be considered a new compelling expression of dark matter.

Yes, this set of assertions favors standing waves over quantum particle concepts but thanks to Gell-Mann, identifying quark characteristics of partial charge, while they are not direct observables, they do have a full array of 2&3 quark combinations. Equally profound is the fact there is no observation of an isolated quark and requires all detectable combinations of quarks to have unitary charge (even a sum to zero). However, since only the electron and proton are permanently stable, it further emphasizes we have apparently hit the bottom of mass organization. So starting with 'Now', the foundation tenets of Relativity for time and mass are realistically invalid, and all the rest of my thesis follows.

Phlogiston II – a variable E/m ratio

How well are things settled? Consider some history: Phlogiston is an ancient Greek word of dubious meaning associated with fire or even life itself, sort of an element as in 'Earth, fire, air and water' but not in our modern table of elements. The literature identifies Joseph Priestly as its greatest advocate and Antoine Lavoisier as the debunker-in-chief of the concept. But to me the scientific conclusion is a little flawed and demonstrates a concern. While Lavoisier was the precision chemist of his time (there was still confusion identifying oxygen as an oxidizer or with 'fixed-air' being CO₂), his determination that combustion could be equated with a conservation of atomic masses including recognizing the elusive gas of oxygen and uncovered its profound role in chemistry. But all this is a long way from determining the conservation law of mass & energy and their exchange ratio extant today, $E=mc^2$.

Consequently phlogiston was that E/m so miniscule in 'weight' but so evident in the energy release in combustion, or simply the comparison of chemical energy between very obvious material states. This remains hardly more measurable in a modern laboratory and more likely accountable in electron volts or other caloritic terms, not in ergs/gram as $E=mc^2$ would suggest. Or another equally major but miniscule step down of the magnitude of the E/m ratio, as in moving a mass from one gravitational environment to another, is as much unrecognized as the ancient concept of phlogiston. This is a direct consequence of what I refer to as the sterile nature of Relativity establishing the E/m ratio as a constant and not a variable dependant on the environment.

My conjecture that the essence of the gravity field, which establishes the basic feature of pure energy as exhibited in the velocity of light (Voc) but also establishes the ratio of that quantity contained – eg. confined – in the measure of static or rest mass, $M=E/c^2$. If indeed the Voc slows down in a higher gravity environment (refraction vs. space metric expansion) then there are two ways to perceive the effect: the unobserved gravity field becoming more ponderous itself, or that the ratio of energy to mass where confined, would appear to be modified, yet not easy to observe.

Either way, this supports a new concept of mass exhibited in high mass environments different from the hierarchy of mass organizations as we normally perceive it. As previously noted in my Gre theory: in open space this excess ponderability could be divergent Gre particles as manifest in recognized Dark matter environments, or in high mass objects like black holes/grey holes, where it is a longer more temporal release of both div & curl components in extreme Gre concentrations. Closer to home, moving a rest mass from one gravity field to another would be manifest in an E/m ratio modification, readily calculable but not measurable – the last unrecognized remnant of phlogiston.

Energy Confinement II – the quirks of Quarks

Getting to new specifics concerning the theme ‘Mass as the Confinement of Energy’, this essay expands the scope to the quantum level. As discussed previously, the kernel & KE (kinetic energy) concept is a pretty effective principle for all larger named forms of mass concerning both aggrandizement and destruction (Eberz, 2008). Besides it being applied to dark matter and delving into faulty black hole physics, little was said about quantum physics. And while dynamic fleeting Gre particles explain a lot, charge was not really addressed. On the latter, I have become more intrigued on the quark triplet complexity well described by Anastopoulos (2008) or Close (2007), and with Gell-Mann’s contribution, how it might fit into my Gre theory refractive physics. But the greater concern and mystery is how important charge and magnetism plays in all physical phenomenon. I will assert that charge is not only the quantizer but also appears to be the stabilizer for all permanent forms of mass. And the quirks of quarks offers a lot of clues in this behavior. The facts: All known particles have +1, 0, -1 charge and composed of two or three quarks of individual $+1/3$ or $-2/3$ combinations. But only the electron, proton and their antiparticles are indefinitely stable. All the others decay and an isolated quark has never been observed. As such, quark characteristics have been derived from the transient energy and decay modes of all the quark pair and triplet combinations including their moderator/boson hidden energies. But with this information it could be asserted that the quark is the bottom of the energy confinement model and its raw self does not exist.

But Quantum physics utilizes some other conceptual notions. It principally deals in particles and/or their fields (like Higgs particle vs. Higgs field), which are terms different than just mass, or independent free energy as say in a photon as a wave. In fact, many of the mediators (bosons) like gluons are not necessarily just particles but free energy packets and could be considered the KE associated with the kernel mass of the quantum particle hence just additional ‘confined energy’ (CE). This merely changes the gluon concept from being ‘glue’ to being the free energy the atom or quark has captured e.g. Who’s doing what to whom? For example: a proton can be considered 2% quarks and 98% CE and a quark 10% electron base mass (no name but hence called Qm, quark mass) and 90% CE. To explain further, defining atomic mass can be expressed (revealed) two ways: With the electron mass = 1, and the proton = 1836 electron masses or in Qm terms, again the electron = 1, the up quark (uQm) = 10 each with the down quark (dQm) = 18. See Fig. 2. Together $10+10+18= 38$ Qm for the proton with all the rest gluon/CE energy. Then in effect, the kernel & KE concept can be extended to the base of all matter, below which there is no absolute single quark or mass except the naked electron, mass = 1. But as a final note, compared to the electron weight, while we might imagine the individual quark weights vs. nucleon weights, it is still difficult to interpret the up/down Qm difference ($10-18=-8$) or the proton/neutron differences ($1836-1839=-3$) as related to individual partial-charge configurations. Compare Fig. 2 & 3.

about each other. But is that arrangement workable (beside being prone to annihilation and degeneration) and how do electrons and positrons become established as independent ions? However once they are, it is recognized they are not just point charges but do have a scatter or jitter radius as if the electron maybe did comprise a $-2/3$ and $-1/3$ spin pair. Then from that point what are the possible collision environments to create a quark? See Fig. 4. While the creation environments might be poorly known⁶, obviously appropriate energies and orientations with respect to the space fabric determine these probabilities including more energetic spin entrapments. While strangely correlated with arrested mass, the dual nature of free energy is also relevant. In terms of energy content, the idea of a photon is practical but as a wave, transverse at that, it is more comprehensible, explaining polarization, reflection, refraction including other optical behavior and demanding some form of 'shear'⁷ from the space fabric itself.

So beside the mechanics of the collision environment, I see the intriguing importance of the space fabric creating these partial charge states four ways: not only complicated by having two quantized values, the positive/negative form but also particle/anti-particle. However, we might add a real distinction to narrow the choices as when antiparticles obey not the right but the left-hand rule. If these features are not balanced locally (atomic size) they can pervade endless larger scales with gravitational, electronic charge and magnetic fields with tremendous interacting effects. For the most part the astronomical mass, energy, space environment is pretty balanced with their mass and charge requirements satisfied but there are some very violent and disruptive environments that we can assume major dynamic redistribution of these elements. Great energy fluxes are observed on stars, novae and mysterious jets in massive galactic centers.

So in summary and reinterpreting, the dynamic Gre particles combined association with the space fabric's partial stress, charges do build up to an observable form for all our known permanent and unstable element or particle world. The charge element is quantized and all rest mass configurations must establish standing Gre wave patterns proportional to the local Gre density environments. A Maxwellian div & curl flux would be essential to both these complex space and energy patterns. In analogy we might imagine the charge patterns the bones and the accumulated fleeting Gre particles the flesh of all observable mass. A form of absolute space, at least in part, also seems essential to the rest mass vs. transient energy forms. All this is only conjectural to my previous Gre theory material where I left open the subtle charge issue, but I like it. I have no special claim to dabble into quantum characteristics other than how it might interface with my dynamic Gre theory behavior. However as noted, any attempt to marshal the many clues extant in this middle-out view may only help us to ponder our still inexplicable but very real macro-micro universe.

Looking at Weird Particles

Our neighborhood on earth and our solar system is pretty tame for our existence and comfort in it. Similarly well behaved in the fine scale as particles: are photons, electrons, protons and neutrons, but if you look hard there are many others. In this plethora, we are familiar with Strange and Charmed particles of which the meanings are recognized as frivolous. In this short essay, Weird suggests a real connotation for some of their behaviors. I have asserted with 'Mass as the confinement of Energy' (MacE), essentially two things: That mass particles (Fermions) appear to require a full charge (-1 , 0 , $+1$) and Bosons, charge-less energy packets, seem to interplay between quarks, like gluons or mass-less like

⁶ Particle physics experiments are more like massive train collisions than individual creation events.

⁷ In classical physics a shear wave requires a rigid medium and will not propagate in a liquid or gas.

photons which travel at the V_{oc} ⁸.

Numerous particles outside this set I consider weird, not meeting the idea of pure energy at the V_{oc} or mass not having charge. These are the neutrino, graviton, Higgs and the unknown 'macho/wimps'. And while antimatter is seemingly just like matter except opposite charge, is there any difference between them beside just being capable of total annihilating of each other's mass and charge? Further as a special duality, the Photon (equally a transverse electromagnetic wave) travels and in effect defines the V_{oc} with contained energy associated and proportional with the wave frequency.

So what is weird about the neutrino? While mass-less? and charge-less, it does have spin with a velocity a little less than the V_{oc} . Its head direction spin is left or right hand (matter like/anti-matter like) but can yield some interesting reactions, not quite equal yet affecting the charge status with minimal energy addition.

ν neutrino	>->	<u>+2/3</u>	>->	<u>+2/3+2/3</u>	+	<u>0</u>	Net atomic mass
as quarks		-1/3-1/3		-1/3		-1/3-2/3	1839 -> 1836+1= -2
		neutron $Q_m=46$		proton $Q_m=38$		electron $Q_m=1$	Net $Q_m=-7$

ν^* neutrino	>->	proton $Q_m=38$	>->	neutron $Q_m=46$	+	positron $Q_m=1$	Net $Q_m=+9$
							Net $A_m=+4$

What's weird about the graviton, even if it is a very-very weak force compared to other bosons? Typically boson exchange, at any rate, is internal and integrates to zero in particle mechanics but also supposedly has an attractive function⁹. Can a mass particle keep throwing out gravitational packets (in all directions) without depleting itself or if a large mass (10^x particles), shielded by many other particles? Either like neutrinos or photons in the center of the sun, how do they work their way out or as implied in attraction for a local planet, by effect of cross-section or volume or what? In Gre flux, mass and the gravitational field are the same and satisfy both this function and the Higgs function below.

And now the Higgs, both a monster in energy/mass, supposedly gives normal mass its inertia. First, why can't mass have its own inertia or resistance to acceleration and secondly, what kind of punch (particle) or field (smeared out/gradient) creates the inertia effect? The anti-particles for this dude or its actual existence are the topic of the decade. Truly weird!

While I assert charge captures spin energy (Gre flux) and slows it down, creating mass and consequently, anti-matter seems ideally appropriate to cancel each other's captured spin energy, returning mass back to pure linear energy (gamma radiation) and cancelling the opposite charges. To add, I think the asserted Big bang mass/antimass event of a 10^{10} to 1 miss balance is pretty ad hoc and favor the CP violation in kaon decay as a better clue to the normal mass preponderance even if still vague, but presently under consideration also.

As described previously, the partial charge of quarks and my suggested partial charge

⁸ One thing weird about a photon/wave is imagining it as a particle in the sense of a low frequency energy packet. The lower the frequency the bigger it must physically be. Think of loading space with a radio signal from an antenna acres large, by an AM frequency station. In a way I tend to think a quanta of electromagnetic energy more equivalent to taking a 8 oz glass to either pour water into a river or scoop out it. Is the quanta judged by the observation rather than what might be imagined in a wave set?

⁹ Imagine two pitchers throwing hardballs back & forth. Their mutual attraction seems only their enthusiasm for the game, as both throwing and catching the ball are classic repulsive energy packets.

aspect for electrons and positrons might be a powerful tool. What I've just stated for the above weird particles – existent (neutrinos), non-existent (in my mind or still really unknown) particularly deviates from my MacE and Gre flux mechanics or just lack of a reasonable explanation of their energy packet nature.

Dark matter and Dark energy are bigger unknowns than knowns. Dark matter is the observation, rather than macho/wimps a suggested particle solution. Conversely I relate any gravitational field to be no more than the Gre flux as energy captured (slowed) in mass. So potentially is the same thing as matter but much more evident in greater galactic accumulations of mass and seen as strong refraction in Abell focusing clusters. Dark energy seems to me much more contingent on grand Cosmo models and much more elusive as to existence or its nature. What is weird about Dark energy is the idea that it is an unchanging force magnitude in any volume of Hubble expanding space eg. like a gas pressure of unknown character. Originally derived from a grand Cosmo model 'closure' math but is now incorporated into the Cosmos expansion acceleration too. The present summary of Cosmic mass/energy balance is: 4% baryon, 24% Dark matter and 70% Dark energy.

Possibly weird, present Quantum physics with its space Vacuum foam seems to be able to conjure up both charge and energy without a lot of creation explanation. While necessary to satisfy any Mass/energy reaction balance, in massive energy collisions it can be tough to figure and satisfy reaction schemes or evolution of the convoluted events, even with Feynman in your camp. Earlier in my 'quirks of Quarks', in building mass, first as a photon pair collision, then a positron or electron with a positronium collision yields a proton/antineutron or antiproton/neutron respectively, an implication that energy to mass conversion needs distinct steps.

As an aside, I think the space fabric should be the medium of photon/wave transmission to some degree absolute, independent of observer motions. I would wonder the same thing about assertions for the Quantum foam – is this motion distinction established or just relative (forget the middle medium distance) like Relativity asserts.

Briefly, I have tried to associate all the interrelatedness of what we can know about Time, Space, Mass and Energy. For further arguments, my bio or your comments, see my website www.cosmic-concerns.net.

Footnotes

- 1) Somewhere I read an electron has jitter and I suggested a $-1/3, -2/3$ spin pair as relevant. Frank Close in *Antimatter* (2010) says it is only a point charge with spin. In spite of that assertion, a point only spin is weird. I will try to double back to resolve this issue.
- 2) I don't question the brilliance of the Quantum world, its complexities and symmetry rules. My effort minimizes the parameters in my head and offers some alternatives to my sense of Weird particle interaction but also some other contrary views vs. the consensual paradigms. Yes, I might be the weird one, not giving up the Classical vs. Quantum view.

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