

Our Charged Universe
MC Physics: Early Universe Matter Formation
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Abstract

MC Physics finds that we live in a CHARGED UNIVERSE. Our Universe is charged because all matter is made of quantized charges and all forces result from interactions between those charges, called “mono-charges” or “monocharges” or MC. It is not an ‘electric’ Universe as that is too narrow a charge strength definition to describe all known matter, their properties and behavior, and all forces. We now live in a (mostly) charge neutral Universe because those mono-charges were selectively ‘driven’ by attraction charge forces over time to become overall charge neutral. This paper describes How and Why those mono-charges and natural forces and process formed the matter we see around us today.

MC Physics is proposed that a set of earliest Universe events (collectively called “Big Bang”?) first split basic neutral CHARGE into two equal charge types (positive and negative, by convention), then it caused an uneven (or statistically skewed) charge strength distribution of those two charge types, which formed all mono-charges. Lastly, those actions caused all mono-charges to be forcibly repelled at high velocity, causing a very high kinetic energy initial Universe.

Those highly kinetic quantized mono-charges, each now with a singular charge strength of either charge type, caused all force interactions which generated all applied forces and real subsequent physical reactions in the Universe, as all forces are charge force derived as discussed in separate papers and essays on Force Unification [5,6]. Those mono-charges used those charge forces to ultimately form all matter as the Universe slowly kinetically cooled into our current, calm and (mostly) neutral environment.

The strongest evidence of mono-charge existence comes from MC Physics’ real physical model of the simplest physical entity in the Universe, a real photon particle [3]. No other real physical model currently is known to exist to explain all the properties of light/ radiation photons. Those above referenced experimental results provide strong evidence of mono-charges with normal charge force interactions and joinings. Additional evidence of mono-charges comes from the continuity and repeatability of the ‘flipping/ rotating’ to form alternating mono-charge type structures theorized for: quarks joining other quarks to form protons; protons joining other protons to form nuclei; nuclei joining electron charges to form neutral atomic, atoms joining other atoms to form molecules, etc.

The basis of the current, non-unified, mathematical based theories (quantum mechanics, quantum field, quantum chromodynamics and general relativity) started with the acquiescence of light wave-particle duality, almost 100 years ago. The result is that those theories are dis-jointed, with no continuity and no unified understanding of matter and forces. As a result, they can only be very narrowly applied in the real world and are rarely used or understood. The currently accepted Standard Model requires a particle zoo of massless bosons, virtual particles, anti-matter, dark matter and dark energy to explain the Universe. Such bizarre assumptions, massless duality thinking and added phantom particles have caused twisted interpretations of experimental results needing magic, mystery, ‘weirdness’ of subatomic physics, ‘matter appearing out of nothing’ or a ‘nebulous field’. Experimental physicists are laboring under theoretical physicists’ muddled interpretations of experimental results in Beta decays (both are emission/ absorptions of mono-charges), electron : positron particle production (vibrational induced emissions from neutrons), double slit experiments (kinetic induced charge saturations), all light

scattering (charge force interactions) and the God-awful conceived Higgs boson (just temporary, unstable detrital joinings from the high kinetic particle collisions). Such explanations immediately should remind everyone of the ‘rabbit in the hat magic trick’.....***the reality is that the rabbit was already in the hat!*** It is time to get real with subatomic physics.

MC Physics begins the process to get subatomic physics back to real physically grounded science to obtain a real understanding of the real physical mechanisms and processes seen in nature. MC Physics understands that mathematics is only a tool of all sciences and does not provide any understanding. Only measured properties of real physical entities are utilized in the formulation of MC Physics’ theories, which also requires that all real physical entities and all processes must have continuity from subatomic to cosmic expanses, across all charge strengths and both types, from beginning to current times, and across all dimensions of space.

This paper covers MC Physics’ theory of matter formation starting from the earliest Universe Quantization and Kinetic Energy events (collectively called the ‘Big Bang’) to the formed matter we know now in our current calm Universe, divided into chapters:

Mono-Charge Basics
Charge Force Laws and Rules
Properties of Existing Matter
F-SCoTt Process of Matter Formation
Initial Quantization and Kinetic Energy Events(s)
Universe Time Line of Matter Formation
New Standard Model of Matter

Separate viXra technical papers, Quora answers and Quora blog posts have and will report on MC Physics theories that provide better physical explanations of mono-charges impacts on: the Periodic Table’s atomic and element properties; ties into magnetic poles, pH in chemistry, electrical polarity, materials properties in metallurgy; force unification; and better explanations of the double-slit, pair (electrons : positrons) production and scattering experiments that are mistakenly used as the basis for quantum mechanics and later theories.

Mono-Charge Basics

From logical deductions of the scientific evidence of the matter and forces that we see and have measured around us, it is proposed that mono-charges exist and cause all force and formed all matter in the Universe. We have long known that we live in an overall charge neutral Universe with only limited charge imbalances to upset our calm world. We have also long known that charge neutralization comes from opposite type charges attracting and moving toward each other, and joining together using attraction charge forces. MC Physics suggests that basic understanding must be expanded and extended down into the most basic subatomic realm, the basic building blocks of matter called ‘mono-charges’.

The strongest evidence of the existence of mono-charges comes from the simplest elemental particle known, photons, as modelled by MC Physics [3] with real mass and a substructure of mono-charges, which provides a better understanding of all the properties of photons and radiation, including electromagnetic forces (EMF). Other evidence comes from the repeatable alternating charge type structures the only real physical model of forces keeping protons together in the nuclei.

MC Physics theorizes that the basic ***Mono-Charge properties*** include:

- ***Each individual mono-charge is most likely a single point charge*** of fixed intrinsic energy potential, with no further sub-constituents as they are the most basic entities in the Universe;
- ***Each individual mono-charge has a charge type*** (conventionally as positive + or negative -), per the Quantization event B in Figure 4 and the F-SCoTt processes, described later, that follows through and affects all matter and force properties including- magnetic poles, subatomic and atomic properties, electrical polarity and pH in chemistry [3,4, 8, 9];
- ***Each mono-charge also has a given charge strength*** within a very wide range of strengths, measured as Charge-Volts, described as Quantization event C and in Figure 4. Note that 'electric' or 'electrostatic' terms are not used as that would unduly limit the range of charge strengths. The exact value and range of charge strengths is not known, but it is known to vary from those immensely strong mono-charges that seeded black holes down to those weaker than photonic mono-charges [8,9,14];
- That ***charge strength is not diluted*** nor diminished by multiple, simultaneous charge interactions or time. This gives rise to the ***conservation of charge strength*** when at rest or static, as they are only modified by relativity;
- Each ***mono-charge always projects or emanates charge FORCE (potentials) through relativistic impacted space***. Those potential forces' vectored strengths are spatially mapped to a known unit charge called 'fields' that we often confuse as 'waves' (*See separate viXra papers and essay on MC Physics: Force Unification [5, 6]*). Due to those projected charge forces, there is an apparent sphere of influence or volume of SPACE around each mono-charge;

Mono-charges cause all forces (as all are charge derived) and formed (and still forms/modifies) all matter in the Universe using those charge force interactions and reactions, following an F-SCoTt Universe cooling and matter formation processes.

- ***Mono-charges can only nearly 'touch' other mono-charges through kinetic energy movements and attraction charge forces, but cannot merge in the normal Universe*** to form a new net charge entity. To cause that required 'non-merger barrier', it is theorized that a '***near-charge force inversion***', discussed in the later Charge Force and F-SCoTt sections, must exist for each mono-charge. This non-merge requirement is deduced from the evidence of matter we see today and the fact that very strong gravity forces (*see separate MC Physics: Force Unification [5,6]*) come from massive black holes;
- Only ***potential and kinetic energies exist and they are strictly properties of the mono-charge*** constituents of matter. Such energies cannot be exchanged with matter.
- ***Inertial mass is derived directly from the mono-charge strength/ potential of each mono-charge*** constituent in all matter, as modified by relativity [4,9,11,16]. In this theory, the CERN Higgs boson is just a temporary, unstable charge force joined collection of mono-charges and charged particles which should be more correctly be called 'detrital'. Those charges were released/ freed in those CERN high kinetic energy collision of composite particles that also disrupted surrounding matter;
- ***Each mono-charge also has an associated, relativistically induced, magnetic mono-pole that is directly related to the mono-charge's charge strength [5,6]***. Magnetic mono-pole types (North or South, by convention) are directly related to the associated mono-charge's charge types (positive and negative, by convention). The strength of that mono-pole comes from its mono-charge strength and relativistic effects. Such mono-poles may be only pseudo and not real, since

they are relativistically induced from the mono-charge itself, but that concept maybe useful for understanding magnetic forces; and

- **Relativity effects and impacts occur due to mono-charge movements**, which are caused by prior interactions and reactions. In MC Physics, **relativity is considered a braking mechanism of all mono-charges or matter in the Universe**. The degree of relativistic impact maybe related to the charge's strength and vectored velocity, but that exact relationship is unknown. It is theorized by MC Physics that total relativity effects are not based only on c , but most likely on kinetic energy (mono-charge with vectored velocity). Perhaps the effects due to charge strength and velocity can be separated later, but they are combined at this point.

Relativity takes generated and applied vectored forces that would normally accelerate a mono-charge or mono-charge containing mass body and partly diverts that generated/ applied force into-

- 1) increased mono-charge strength, but not impacting charge type,
- 2) increased associated magnetic mono-pole strength, but not impacting pole type,
- 3) associated inertial mass and
- 4) spatial distortions affecting force projection (surfaces and dilutions).

Any reverse force actions causing deceleration of mono-charges reverses those effects causing decreased charge strength and associated properties.

Charge Force Laws

In MC Physics theory the natural laws relationships of the physical Universe and, including those relating SPACE, TIME, CHARGE (intrinsic potential energy) and FORCE (i.e. collectively called 'STEF Universe architecture'), were in place at the time of the initial Quantization and Kinetic Energy events, collectively called the 'Big Bang' (?). In MC Physics theory, all forces are unified as they are all derived from Charge Forces [1,2,5,6]. The basic properties of CHARGE FORCE in MC Physics theory are:

- **All knowledge and understanding of CHARGES and mono-charges comes from charge forces;**
- **All generated forces in nature, each with a strength and vector, comes from charge force interactions between 2 mono-charges;**
- Those interactions and generated forces cause an equal applied force on both mono-charges;
- That applied force causes resultant acceleration reactions only on those 2 mono-charges;
- Those generated and applied forces are modified by relativistic effects on the mono-charges at the time of interaction;
- **All force interactions should be considered instantly applied across space**, until proven otherwise. There is no evidence that applied force is limited to the speed of any given matter (not even photons);
- All concurrent generated forces between more than 2 individual mono-charges must be super-positioned (countering and not cancelling) into **one Net applied force with one NET reaction** on any given mono-charge. **All interactions above direct singular mono-charges results in NET charge forces;**
- The outward vectored **repel charge force** is generated by charge force interactions between 2 like-type mono-charges (both + : + and - : - interaction combinations) that is equally applied on both mono-charges. The resulting physical reaction on both mono-charges causes opposite or outward vectored accelerations on each through space;
- Repel forces between mono-charges that are charge force bound within matter give that matter volume;

- The inward vectored **attraction charge force** is generated by charge force interactions between 2 opposite-type mono-charges (only + : - interaction combination) that is equally applied on both mono-charges. The resulting physical reaction on both mono-charges caused inward vectored accelerations on each through space;
- **Attraction charge forces cause mono-charge joinings and matter formation;**
- **The mechanisms and resultant charge forces of attraction and repulsion are assumed to be exactly equal;**
- It is the **attraction charge force that causes all charges in the Universe to be 'driven' to attract, move towards and join opposite charge types to form matter. This same process also causes all charges to become overall charge neutral** (even if only temporarily and not uniform in all locations around that mono-charge). That is why we live in an (overall) charge neutral Universe with gravity force dominating the large scale, and with only temporary, localized and relatively minimal charge force imbalances;
- A '**near-charge force inversion**', seen as a barrier/ boundary/ surface, is required to prevent merging of joined mono-charges. This can be seen as an attraction charge force that inverts into a repel charge force near its sourced mono-charge, that prevents merging. Note that like-type charges with repel forces would prevent actual contact anyway, but even those repel force would convert to attraction force, if those mono-charges became sufficiently close;
- Both attraction and repulsion generated **charge forces are strength diluted or reduced with distance between the mono-charges** following a proposed **modified Newton-Coulomb Force Law**, simplified in Equations 1 and more exactly represented in Equation 2. Those 2 base relationships for mono-charges can be utilized in Equation 3 for all matter. This force dilution effect can be conceptualized as a force projection through a relativistically impacted (due to source velocity and charge strength) ever-expanding surface with distance from each mono-charge source. Since force (charge strength and vector) is only generated by interactions and applied between only 2 mono-charges, that simplified force strength can be represented as-

$$\text{generated and applied Charge Force strength, } F = C1 * C2 / R^Z \quad \text{Equation 1}$$

$$\text{generated and applied Charge Force strength, } F = C1/R^{z1} * C2 / R^{z2} \quad \text{Equation 2}$$

where, C1 and C2 are the individual mono-charge strengths that together determine the strength of the mutually generated and applied force. The normal measured distance the mono-charges are apart, R, is the same for both mono-charges. Any required conversion constant is not shown.

Equation 1 is valid only when both mono-charges possess the same charge strength and kinetic energy, so that their individual z exponents are the same. However, when the charge strengths and/ or their kinetic energy are different, then their specific **z1** and **z2** exponent must be individually applied on each mono-charge, C1 and C2, requiring the more complex Equation 2 [see 5, 6].

Equations 1 and 2 reflects the z exponent that includes combined charge strength effects and relativistic effects. The understanding of the z relativistic exponent is that it is specific for each mono-charge at the time of the force generating interaction and it is to reflect the relativistic effects (on charge strength and associated properties of SPACE around it) and the charge strength of that mono-charge, all of which impacts its force projection surface. That relationship is evidenced by actual measured forces in EMF (Z=1, reference point A below), gravity (Z=2,

reference point B below) and strong nuclei or nuclear force ($Z > 3$, extrapolated reference point C below), as:

- A. $Z=1$ for highly compressed 2D space around very weak to weak strength, relativistic mono-charges (e.g. photonic, neutrino, electron). Both charge/ electric and magnetic forces have been measured with a 2 dimensional circular projection (known $1/R^1$ relationship) that appears cylindrical with linear mono-charge relativistic movements. Force projections perpendicular to the direction of travel that are much stronger with further reach than static mono-charges. But forward and reverse direction force projections from such mono-charges are theorized to be proportionally reduced [3,4,5,6], possibly indicating applied force conservation;
- B. $Z=2$ for normal space around mixed charge strengths and mostly static mono-charge strengths of (e.g. most large mass bodies, resulting net charge or gravity forces). Mixed forces between such mixed mono-charge strength joined matter are uniformly projected across a 3 dimensional expanding sphere (known $1/R^2$ relationship); and
- C. $Z > 3$ up to? that is extrapolated for mostly static, very strong mono-charges (e.g. baryon type quarks), now called strong nuclear force, with strong, mostly 3 dimensional force projections that are force focused inward to the mono-charge and not outward. The result of such high z exponents is that its causes extremely strong but short ranged propagation force strengths. This high z exponent enhances the formation of the alternating charge type structure of matter.

For forces between large mass objects or particles that contain many mono-charges of various strengths and kinetic energies, Equations 1 and 2 can be incorporated into Equation 3-

$$\begin{aligned} \text{NET applied force strength, } F = & \text{Equation 3} \\ & \sum F \text{ attraction } (M1 \sum C+ : M2 \sum C- \text{ plus } M1 \sum C- : M2 \sum C+) \\ & \text{less } \sum F \text{ repulsion } (M1 \sum C+ : M2 \sum C+ \text{ plus } M1 \sum C- : M2 \sum C-) \end{aligned}$$

between two mass bodies, M1 and M2, each with its individual constituent mono-charge strengths and types generalized as C+ and C-. Both R and z are for each specific interaction, but are most easily weighted and averaged as M1: M2 center distance for R and as the known overall $Z=2$.

- All mono-charges interact to generate charge forces that are then equally applied on each mono-charge to cause physical reactions (vectored accelerations modifying movements, kinetic energy and relativistic effects) following a **modified Newton's Law [5,6]** of-

$$\text{acceleration, } a = \text{applied Force Strength, } F / \text{Charge Strength, } C \quad \text{Equation 4}$$

as **inertial mass directly comes from charge strength, C (1,2,4)** of both charge types. The exact conversion value of charge strength to inertial mass is unknown at this time, but they must be directly proportional to each other. For a composite particle or mass object, with many joined mono-charges, Equation 4 reaction relationship can be expressed as-

$$\text{acceleration, } a = \text{Net applied Force Strength, } F / \sum C, \text{ sum of Charge Strengths} \quad \text{Equation 5}$$

Where $\sum C$ is the sum total of all joined mono-charges' strengths in that body and acceleration, a, of each mono-charge or, collectively, all joined mono-charges in that mass body. Note that no conversion factor for charge \leftrightarrow mass is given, as it is not yet known.

Properties of Existing Matter

In understanding why matter is structured as it is and the properties that matter possesses, we need to examine the base existing subatomic particles that make up our known matter. Therefore, what is known about those subatomic particles leading up to all matter {notes giving MC Physics theory} is:

- 1) Large, strongly gravitational massive black holes exist across the Universe, surrounded by large and small stars and planets;
- 2) Positive charge type {domination} strong elementary {early formed} Up **quark particles**;
- 3) Negative charge type {domination} strong elementary {later formed} Down **quark particles**;
- 4) Positive charge type {domination} **composite proton particles** {net positive from direct positive and negative quark joinings in alternating mono-charge type arrangements};
- 5) Positive charge type {domination} of all **nuclei** {net positive from direct proton : proton joinings in alternating mono-charge type arrangements, making most matter positive dominated};
- 6) Negative charge type {domination} of weaker net negative **elementary electron particles**;
- 7) Positive charge type {domination} of overall charge neutral **elementary neutrino particles**, as evidenced by their absorption avoidance {via like-like generated repel charge force} capabilities through {mostly positive dominated} matter;
- 8) {Negative charge type domination} of overall charge neutral **elementary photon particles**, as evidenced by their high statistical absorption {via opposite type generated attraction charge force} properties in interactions with {mostly positive dominated} matter;
- 9) Overall neutral **atoms** formed by net positive nuclei joinings with negative electrons charges. {Note that atomic properties are still dominated by the much stronger internal positive charge types}. Specifically the high mass positive nucleus is internal and the multiple negative lower mass electrons are external to the atom; and
- 10) Overall neutral **molecules** formed or modified by induction charge force processes between overall neutral atoms {due to charge force interactions between their internal strong charges}.

From these descriptions a general trend of {net} positive charged higher mass elemental particles to {net} negative lower mass elemental particles is evident. That trend then transitions into {overall net} neutrally charged, very low mass elemental (lepton) particles and higher order neutrally charged matter. Perturbations of that general trend can then provide an understanding of how our known particles and matter were formed.

F-SCoTt {Force-Space-Charge (intrinsic potential Energy)-over-Time-and-time again}

Process for Matter Formation

The **implications and consequences** of the previously discussed initial uneven Quantization and Kinetic Energy events (Big Bang?) and Charge Force Laws culminates in the F-SCoTt joining processes that will be shown to provide the formation of all matter as the Universe kinetically cooled over time (further described in the later Quantization and Universe Timeline sections). Those referenced implications and complications include:

- The **dominant or strongest charge strength mono-charge in any joining determines the primary properties and behavior of a given particle or upper matter**. Note that specific mono-charge domination (both strength and type) may change over time. At best, the charge

domination can be equal. That was highly expected in the early Universe, but less in the current Universe, as only the very weakest charge force joined particles are impacted now via induction processes;

- **Multiple weaker mono-charges can replace one much stronger mono-charge (of the same type and strength) to neutralize a strong opposite type mono-charges**, if the ambient Universe environment allows. Those weaker replacement mono-charges would have higher KE due to individually weaker force joinings to the primary stronger opposite charge type. In addition, they would each repel interact with other like-type weak charges causing more dispersion around the main opposite charge type. Together that may:
 - **require more weaker charges to effectively charge neutralize an opposite charge as one main strong charge type.**
 - **high KE multiple like-type mono-charges would have less focused charge force spatial position, as would a singular stronger mono-charge;**
- **Each formed particle/ matter will continue to evolve over time to obtain the strongest charge force joining possible at any given time, kinetic energy environment and spatial location in the Universe.** This occurs because any nearby, but still external, high kinetic energy mono-charges can 'charge force induct' other type weaker mono-charges (either type) that are joined to another dominant strong opposite mono-charge. That charge induction interaction can cause movement, displacement or emission of weaker mono-charges AND allow the joining of that external stronger strength mono-charge. That occurs even if the dominant charge type changes;
- **Attraction charge force causes all charges to attract, move towards and join with opposite charges to become overall (not permanently, not exactly in all positions surrounding it) charge neutral.** Note that this takes progressively weaker strength opposite type charges (mono-charges or net charged particles) to refine that neutralization process. From that process, it should be clear that **full neutralization of matter could not occur in that earliest high KE environment Universe.** This stepped process is similar to a machinist machining metals or a carpenter wood working- where you start with a coarse saw or torch for rough cuts, then use a coarse grit sandpaper for an initial smoothing, then finer grit sandpaper for smoother surfaces, then very fine grit for very smooth surfaces, and lastly an abrasive oil for finishing the piece;
- Repel charge forces within multiple adjacent joinings play an important part in matter formation by providing volume to a joined structure. Those joined components with internal separation can also play an important part in structural stability of higher matter and elements (possible cause of radioactivity);
- Any distance separation between 2 joined mono-charges forming a (known as di-charge or bi-charge) particle or in a higher matter when interacting with an external mono-charge or charged particle will cause a force imbalance reaction on that di-charge/bi-charge particle causing a torque, spin, vibration and possibly linear movement. That distance separation can be caused by forces between 2 like-type mono-charges pushing/ repelling each other apart when co-joined within a composite particle. It can also be between 2 directly joined opposite type mono-charges due to a theorized near-charge-force-inversion barrier;
- The joining of any 2 free (i.e. unbound to matter) mono-charges with their individual masses, velocities and vectors will cause the resultant particle to have a real spin/ rotation, combined mass, new velocity and new vector;
- **Over the life of the Universe, as singular mono-charges join together, singular charge forces had less impact and reactions, and net gravity forces became dominant.** After mono-charges joined together to form a neutral mass or body, a given external singular charge force will cause only a minimal linear reaction, but may cause spin or rotation due to separation distances; and

- Any temporary imbalance in the dominant stronger charge strengths for either type will cause a ***disproportionate consumption of weaker mono-charges with the opposite charge type*** that are 'driven' by attraction charge forces in the neutralization process. Resolving this imbalance causes shifts in the dominant charge type over time, which impacts matter formation and their resultant properties.

Initial Quantization and Kinetic Energy Event(s)

To form those known elementary particles and higher matter and their properties that were identified earlier, MC Physics proposes an earliest set of Universe events (collectively possibly the 'Big Bang'?) that quantized CHARGE into mono-charges and gave those newly created mono-charges very high kinetic energy. That initial event(s) was followed by sequential kinetic energy cooling trends over the life of the Universe (by space expansion and mono-charge joinings) to our current, calm and cool time. All matter formation followed, and still follows, the F-SCoTt processes over the cooling life of the Universe.

The earliest (initial or Time=0) physical Universe structure or architecture consisted of SPACE, TIME, CHARGE (intrinsic potential ENERGY), and FORCE (collectively called the 'STEF Universe Architecture') [1,2,4]. All relationships between those most basic Universe Elements were already in place. From that point in time on, the theorized order of events and results required to get our known matter were:

- 1) ***The existing, most basic, unified and static CHARGE was quantized or split into two charge types (positive and negative, by convention) of equal charge strengths.*** This assumes that the Universe and its CHARGE were originally charge neutral and that type quantization or split was exactly equal;
- 2) ***The total charge strength of each charge type was then unevenly quantized into individual 'mono-charges', each with a singular given charge strength of its charge type (positive or negative).*** Note that the term 'electrostatic' or 'electric charge' is not utilized, as that suggests a specific narrow range of charge strengths, when a broader range of strengths is needed to fit all matter and forces known. The range of mono-charge strengths ranged from those seeding black holes to below photonic. This uneven or statistically skewed quantization event resulted in those general distribution trends mentioned in the earlier existing matter properties section. Further that they were more specifically statistically quantized with perturbations as - ***discrete (narrow bands of strengths,*** described in [4]) and/or unevenly ***continuous,*** as described in this paper.
- 3) Those newly quantized mono-charges were then ***caused to have very high, even relativistic, velocities, causing a very high kinetic energy earliest Universe.*** The force causing those very high mono-charge accelerations and velocities is theorized to have been repel charge forces caused by an initial and temporarily over-compressing of the space between mono-charges past their 'near-charge force inversion' barrier (attraction converted into repulsion force point), since event 2 immediately preceded this event. That is events 2 and 3 are probably intertwined.

To fit the known properties of matter discussed earlier, that initial uneven or statistically skewed distribution of mono-charge strengths within each charge type caused general mono-charge strength distribution trends of:

- ***negative charge types*** having a slightly more predominantly weaker charge strength distribution of more weak and fewer strong mono-charges;

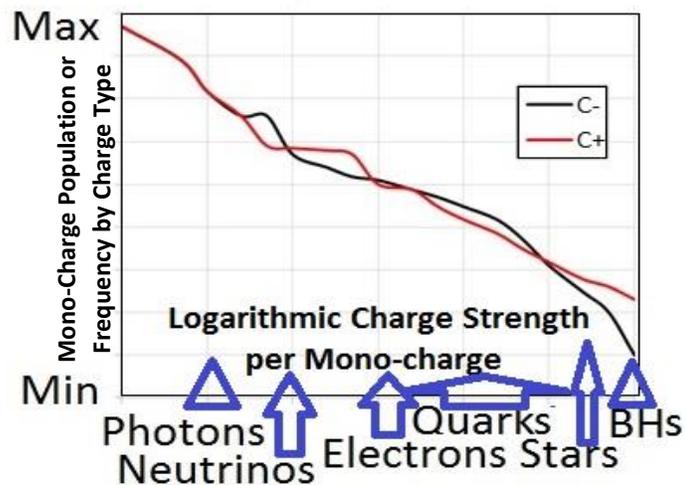
- **positive charge types** having a slightly more predominately stronger charge strength distribution of more strong and fewer weak mono-charges.

More refined perturbations of those uneven charge strength general distributions from the quantization process may have been due to coupling with a resonance vibration effect causing patterned interferences of discrete charge strengths. The uneven continuous charge strength distribution may be similar to the impact of a hammer on a high tensile metal or glass plate- highly fractured smaller pieces (weaker charge strengths) near the point of impact, but wider and larger (i.e. stronger charge strength) pieces further away from the point of impact.

Also, both the uneven discrete band and the uneven continuous strength outcomes are ‘driven’ by attraction-charge force neutralization to require an inordinate large number of weaker opposite-type charge strengths, called ‘consumption’ in MC Physics F-SCoTt process terms. That neutralization process is required to make the recognized elemental particles and matter as the Universe aged and cooled in stages. Therefore ‘consumption’ must be taken into account in the original uneven distribution in the Universe aging and cooling process to obtain the existing matter properties identified previously.

Figures 1 and 2 show one possible continuous, but uneven or skewed, distribution or population of those initial quantized mono-charges, specifically to meet the listed properties of the sub-atomic particles and matter we see around us today. It also accounts for the ‘consumption’ of weaker charges, as discussed earlier. Figure 1 shows a specific population or frequency of the mono-charges of each charge type holding a given charge strength, as a part of the full Universe’s total charge strengths. Figure 2, also with the vertical axis unscaled, shows the strength distribution of mono-charges within each charge type of the total charge with each type, which makes the variations required to get the desired particle properties more evident.

Figure 1. Mono-Charge Distribution over the Full Range of Charge Strengths for their Charge Type

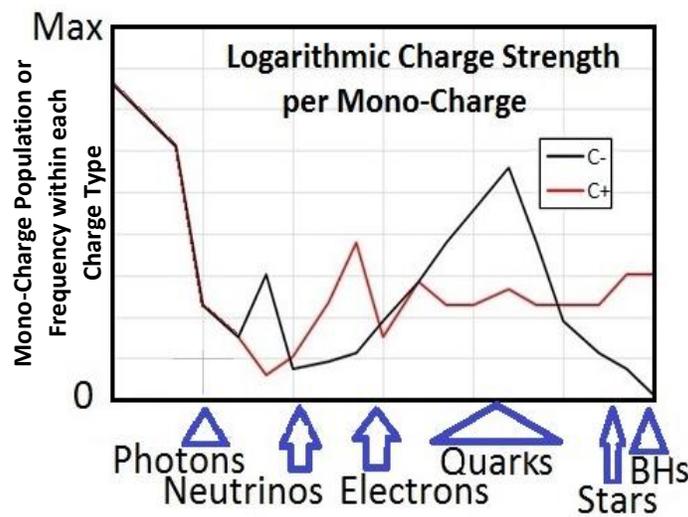


Due to that last high kinetic energy impulse stage in the earliest Universe, the earliest Universe contained only a ‘soup’ of very high kinetic energy mono-charges of those various unevenly distributed charge strengths of their charge type, where **no charges of any strength could stably join together**. As that earliest high KE Universe slowly cooled, it allowed only the most stable joinings of opposite charge type mono-charges to occur in each progressive step. Any weaker joinings were destroyed by the other high kinetic energy mono-charges and charged particles at each KE step as the Universe aged and cooled, until we obtain the matter we see today. That means that matter formation started on the far right side in both Figures 1 and 2 with the strongest mono-charge strengths of both types. As the

Universe aged and cooled, the possible joinings moved leftward in the figures toward weaker charge strengths and subsequent weaker joined particles and matter. The current cool and calm Universe age we are in now is at the far left on those figures.

The slight variations shown in Figure 1 for population in the total CHARGE strength and amplified in Figure 2 over just each charge type, are required to obtain the dominant charge type and strengths needed for the elemental particles and their properties listed previously, utilizing the disproportionate “*consumption*” theory of weaker opposite mono-charges required to make dominant strong charges become overall charge neutralized. The strongest positive mono-charges (far right in both Figures 1 and 2) dominated the early Universe joinings after some cooling, allowing their stable joinings with many, many strong, but still weaker, negative type mono-charges. Those earliest joinings formed immensely strong and still highly charged particles are theorized to have seeded the formation of **black holes (BHs)**, and then large dense **Stars**.

Figure 2. Mono-Charge Distribution or Population within Each Charge Type over the Full Known Range of Charge Strengths



That early Universe’s disproportionate consumption of many weaker negative mono-charges for those fewer, very strong positive mono-charges caused a large gap in the available strong negative mono-charges, down into **the early quark particle** strength level. At cooler KE and lower required charge strength levels, no strong positive charges remained and **negative charge domination** began in that cooler Universe forming **weaker late quark particles** down through the **elemental electron particle** strength level. Then that consumption required another switch back to **positive domination** for very weak and overall charge neutral **elemental neutrino particles**, and back again to form **negative dominated**, very weak, but overall charge neutral **elemental photon particles**. Mono-charge strengths much lower than our known photonic mono-charges are also most likely to exist and play a part of our physical Universe, as seen in refined charge neutralization of matter and heat transfer effects.

Universe Timeline of Matter Formation

The Universe formed all matter through a sorted and sifted set of mono-charge joinings that allowed only the strongest mono-charges joinings to occur at each sequential cooling step. It did this by incorporating:

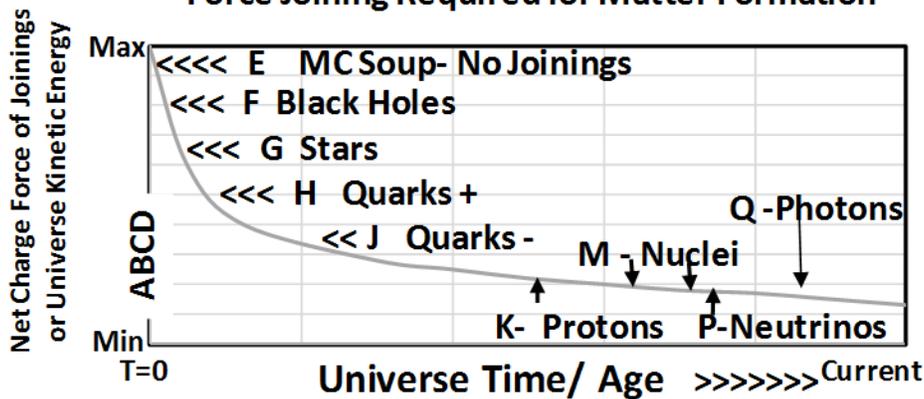
- all basic Charge Force Laws and Rules;

- the initial Quantization Event(s) resulting in high KE mono-charges;
- all F-SCoTt processes including-
 - a cooling kinetic energy Universe environment with time,
 - imbalanced consumption of weaker opposite charges for neutralization, and
 - the growing importance of net gravity forces over singular charge forces over time

That Universe Timeline of matter formation is shown in Figures 3-8 and described below by the A-R codes (center left of Figure 4):

- Basic, static, neutral CHARGE with no type and all charge strength existed at TIME zero. All physical STEF Universe (**SPACE : TIME : CHARGE : FORCE**) relationships were in place at this time;
- Basic earliest Universe static **CHARGE was first quantized or split into two charge types of equal charge strengths**. Those 2 charge types are called positive (+) and negative (-), by convention. It is important to note that this type differential follows into magnetic poles, chemical pH, and properties of all matter. Step 1 in the Big Bang;
- That original basic static and neutral CHARGE, now with 2 charge types, was then **unevenly or statically skewed quantized by charge strength into mono-charges** within each charge type in that earliest Universe. Those resultant quantized mono-charge strengths ranged from those that seeded black holes down to sub-photonic mono-charges. That uneven quantization event was- 1) discrete narrow bands of charge strengths (due to resonance effects?) and/ or 2) continuous distributions with perturbations. Step 2 in the Big Bang;

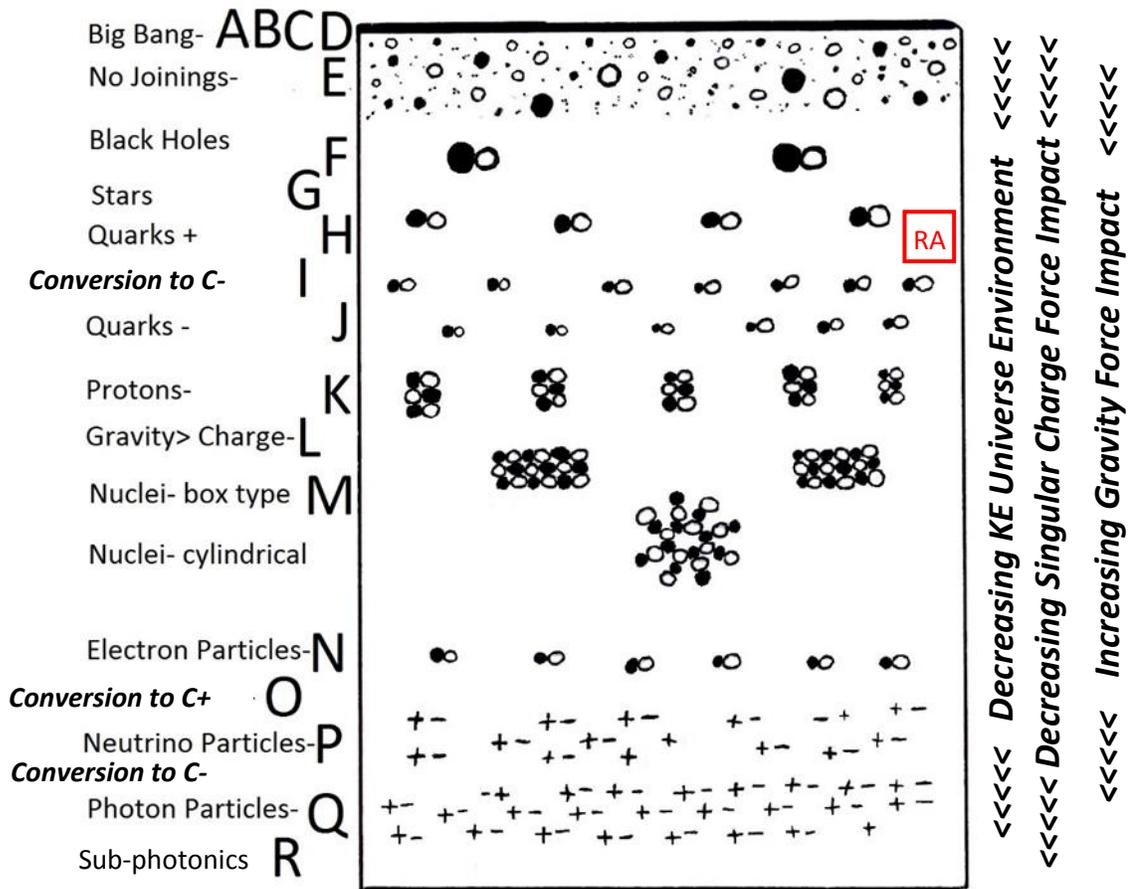
Figure 3. Hypothetical Mimimum Net Charge Force Joining Required for Matter Formation



- Due the previous Event C and a proposed temporary diminishment or reduction of attraction charge force OR enhancement of repulsion charge force (theorized 'near-charge force inversion'), **all tightly packed newly quantized mono-charges were given high velocities, creating an extremely high kinetic earliest Universe environment**. Step 3 in the Big, Bang, where all 3 B-C-D stages are possibly and collectively called the 'Big Bang Event';
- In that very high kinetic energy earliest Universe environment, **NO mono-charges could stably join together**. That extreme condition forced all mono-charges to become fully dispersed within the confines of SPACE, as shown in Figure 5;
- With TIME, the early Universe kinetically cooled (possibly, initially only by SPACE expansion) sufficient such that only the most immensely strongest mono-charges could stably join together using singular attraction charge force. Those earliest joinings were dominated by positive charge types (note uneven charge strength distribution by charge type in Figure 2) that were many 1000 times stronger than theorized as now existing on earth. Those joined immensely heavy elemental

charged particles are theorized to have *seeded the formation of Black Holes (BHs)*, as shown as the right di-charge/ bi-charge particle joining in Figure 6.

Figure 4. Universe Time and Kinetic Energy Sequences Forming Matter



G. With more TIME and Universe cooling, but now partially caused by strong mono-charge joinings and some SPACE expansion, any remaining weaker, but still immensely strong charge strength mono-charges could *stably join together to seed Stars*, following those same F-SCoTt processes;

Figure 5- Independent Mono-Charges in the Earliest Universe
(Colors represent different Charge Types and Charge Strengths)



H. With much more TIME and Universe cooling (joinings and expansion) weaker earthly quark strength level mono-charges could stably form *ELEMENTAL QUARK PARTICLES with net positive charges*,

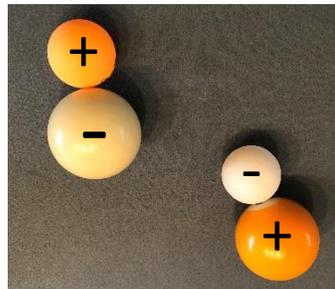
seeding the heavier baryons, seen as the right di-charge / bi-charge particle joining in Figure 6. In this segment of time some unidentified charges (**RA**) are theorized to have existed that later caused structural instability in higher joinings (quarks>protons>heavier nuclei) seen as radioactivity instabilities;

As a note in looking ahead in time - it took further cooling and much more TIME for those joined immensely strong positively charged particles (i.e. possessing a strong positive net charge) to attract and join with many more weaker negative mono-charges to become overall charge neutral, due to an 'inordinate consumption of weaker charges'. This neutralization process increased net gravity forces while decreasing singular net positive charge forces coming from such growing black holes.

- I. Due to the uneven distribution of charge strengths for both charge types, and now a relative increase in the remaining population of weaker negative mono-charges, later charge joinings **converted to negative charge domination**;
- J. With much more TIME and Universe cooling (joinings and expansion), the remaining weaker quark level mono-charges could stably form later **ELEMENTAL QUARK PARTICLES** with net negative charges, seeding some later baryons causing them to have higher electron (and other negative charge) conductivity. This is seen as the left di-charge/bi-charge particle in Figure 6;

Quark particles possess too high a NET charge to exist in a free state in the current Universe. If freed, such strong charges would charge force disrupt all nearby atomic and molecular joinings, as seen in the CERN Higgs boson/ field result, better described as 'detrital' (i.e. a temporary unstable random charge joinings from such high Kinetic Energy collisions). MC Physics further suggests that in the current Universe, quarks and even protons are irrelevant, as their higher charged constituent mono-charges actually determine the nature of all matter.

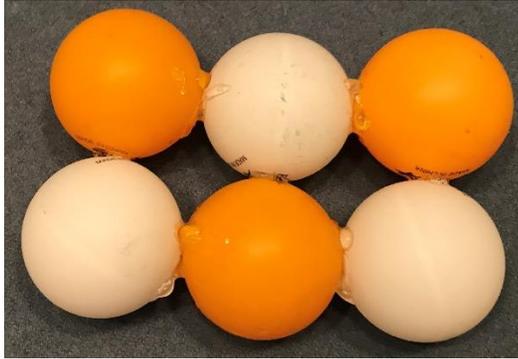
Figure 6. Elemental Particles
(Color = Charge Type, Size = Charge Strength)



- K. At this Universe age in TIME and with a much KE cooler environment, composite or poly-mono-charge particles could stably form by joinings of strong elemental particles. Specifically, **net positive quark particles could 'flip' (or just rotate) to directly join with net negative quark particles forming COMPOSITE PROTON PARTICLES** with an overall net positive charge. A net positive proton composite particle formed by that process is shown in Figure 7. Note- protons have a much higher mass (from their quark mono-charges) but a much lower net charge strength than possessed by their individual quark level mono-charges and quark particles;
- L. At this later Universe age, with passing TIME, a much cooler Universe existed due to increased joinings of strong charges (and possibly continued SPACE expansion), causing **net gravity forces to become dominant over singular charge forces in matter formation**.

The flipping/ rotating step for particles to directly join other particles in an alternating internal mono-charge type arrangement or structure, allows opposite-charge type mono-charges from each particle to 'touch' and like-type mono-charges from the other particle to be kept further apart, therefore forming net strong charge force joined composite particles. This high z exponent matter forming process is repeated throughout all matter formation levels. This F-SCoTt process is further evidence supporting the existence of mono-charges.

Figure 7. Composite Proton Particle, Hydrogen Nuclei
(Colors represent Charge Type, various Charge Strengths possible)



- M. With even more TIME and a much, much cooler Universe, **protons could 'flip' (or even rotate) and directly join other protons so that opposite-type mono-charges from each proton could 'touch' and like-type mono-charges from each proton were kept further apart, providing a strong net attraction charge force for the joined NUCLEI COMPOSITE PARTICLES**, still with a positive charge.

With even more cooling, even weaker electronic, neutrino and photonic individual mono-charges (both charge types) could join strong net positive charged quarks and composite proton particles leading up to simple box or rectangular type **nuclei** in Figure 8A and B. Note that **'neutrons' are not needed, as they are just joinings of weaker charges to a proton** to cause overall charge neutralization.

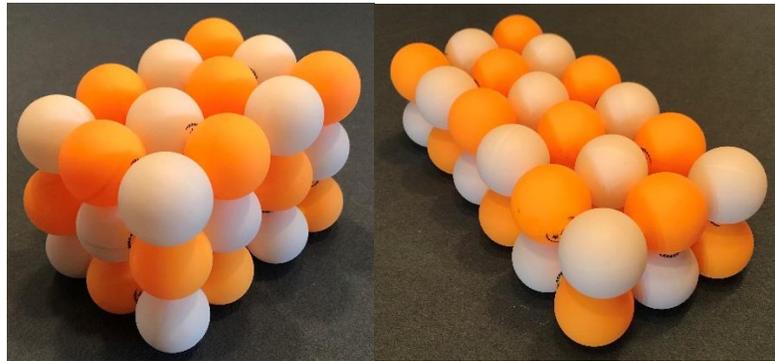
Later and with more KE cooling, weaker force joined long-linear, more reactive cylindrical and spine nuclei structures could form, examples shown in Figure 8 C and D. Low atomic mass nuclei with high KE that were more isolated by distance could have avoided black holes and even higher joinings to remain as simple nuclei, e.g. Hydrogen (6 MCs) shown in Figure 7 and Helium (24 MCs) shown in Figures 8-A and B. The weaker mono-charges needed for neutralization or stability are not shown for simplicity.

- N. With much more TIME and Universe cooling (now mostly from SPACE expansion, if any) even weaker electron level strength mono-charges could stably form free (non-atomically bound) **ELEMENTAL ELECTRON PARTICLES with a negative charge domination**. Note that those electron strength negative mono-charges were already joining higher order particles/nuclei for charge neutralizations (e.g. negative mono-charges joining positive charged nuclei to form neutral atoms);
- O. Again, due to the uneven distribution of charge strengths by charge type, and at this point in the age of the Universe, the consumption of weaker positive mono-charges the matter forming process was **converted back to positive domination**;

Figure 8-ABCD Simple (Helium @ 24 MC+) Nuclei in various possible Configurations

(Colors represent Charge Type only, not Charge Strengths)

A. 3X3X4 MC - Block Nuclei B. 2X3X6 MC- Rectangular Nuclei



C. 6X3 MC Cylindrical Nuclei, top D: 6X3 Cylindrical Nuclei, ortho



- P. With much more TIME and Universe cooling (mostly only SPACE expansion, if any) even weaker strength mono-charges could stably form **ELEMENTAL NEUTRINO particles with positive dominated charges**, but still with an overall neutral charge. This positive charge domination feature of neutrinos, even if the particle is overall charge neutral, provides a strong reason (like-type repel charge forces) that they can pass through positive dominated baryon matter mostly unhindered;
- Q. With much more TIME and Universe cooling (mostly only SPACE expansion, if any) to near our current TIME, another **charge domination reversal occurred to negative charge types**. This allowed even the weakest known strength mono-charges to stably form **ELEMENTAL PHOTON PARTICLES with negative dominated charges**, but still with an overall neutral charge. This negative charge domination feature, even if overall neutral, provides a strong reason that photons easily interact with, are affected by and are absorbed by (mostly) positive dominated baryon matter; and

The strongest evidence of mono-charge existence can be seen in the simplest elemental photon particles with a substructure of two (or more) opposite type mono-charges that are relativistically rotating at frequency while the particle is relativistically travelling at c. A real physical model of photons is provided in references [1, 2, 3]. No other physical model of real photons is known to exist in the scientific community.

- R. Not even in the current TIME and cool Universe can the remaining weaker mono-charges, that are even weaker than photons, stably join together to form free particles. If they did, these may be called the tachyons of Star Trek fame or the 'gravitons' recently (2015-2016) measured at LIGO.

However, even then, these very weak charges do play a critical role in final charge neutralization of all matter and in heat transfer (via mass and Kinetic Energy transfers).

New Standard Model of Matter

- 1) **Basic Building Blocks** - Mono-Charges of both charge types (+ and -, by convention) with each possessing a wide, but uneven, range of charge strengths (those seeding black holes down to weaker than photonic).
- 2) **Elemental Particles**- simplest joinings of 2 opposite charge type mono-charges to form the most basic form of matter (listed strongest to weakest, in order of formation in the Universe).
 - a. Immensely strong particles seeding Black holes, assumed positive charge dominated
 - b. Very strong particles seeding Stars, assumed positive charge dominated
 - c. Various Quarks, positive dominated (seeding protons> nuclei> atoms> molecules)
 - d. Various Quarks, negative dominated (seeding protons>nuclei> atoms> molecules)
 - e. Electrons, negative charge type dominated
 - f. Neutrinos, positive charge type dominated
 - g. Photons, negative charge type dominated
- 3) **Composite Particles**- poly-mono-charge joinings (listed strongest to weakest, in order of formation in the Universe) with alternating charge type structures. Poly joined particles imitating elemental particles do exist, but are not listed herein.
 - a. Protons- various strengths and domination, positive charge dominated, overall net positive charged
 - b. Nuclei- various strengths, positive charge dominated, overall net positive charged
 - c. Atoms- overall neutral, formed mostly by direct charge forces, positive charge dominated
 - d. Molecules- overall neutral, currently mostly modified by induction, positive charge dominated.

Later papers, essays and blogs will extend MC Physics' matter formation theories from this subatomic level into the Periodic Table atomic elements and their properties, chemistry and materials/ metallurgy properties. A separate viXra paper [5, 6], the website, new papers, essays and blogs cover MC Physics theory on Force Unification.

References

- 1) MC Physics website: <https://www.mcphysics.org>
- 2) MC Physics General Universe Theory, Quora Post: <https://mcphysics-gut.quora.com/>
- 3) Kenneth D. Oglesby, "MC Physics- Model of a Real Photon with Structure and Mass", a viXra High Energy Particle Physics category paper, <http://vixra.org/pdf/1609.0359v1.pdf> and <http://vixra.org/abs/1609.0359>
- 4) Kenneth D. Oglesby, "MC Physics Model of Sub-Atomic Particles using Mono-Charges", <http://viXra.org/pdf/1611.0080v1.pdf> and <http://viXra.org/abs/1611.0080>
- 5) Kenneth D. Oglesby, "MC Physics- Fundamental Force Unification using Mono-Charges", a viXra Nuclear and Atomic Physics category paper, <http://vixra.org/pdf/1701.0002v1.pdf> and as an abstract in <http://viXra.org/abs/1701.0002>
- 6) Kenneth D. Oglesby, "MC Physics - Force Unification Using Mono-Charges - Supplemental", a viXra Nuclear and Atomic Physics category paper, <http://viXra.org/pdf/1701.0681v1.pdf> and as an abstract in <http://viXra.org/abs/1701.0681>
- 7) Kenneth D. Oglesby, YouTube video (with old website),

- <https://www.youtube.com/watch?v=xPmNDQuufqY>
- 8) Hans W Giertz, "The Photon consists of a Positive and a Negative Charge, Measuring Gravity Waves reveals the Nature of Photons", Uppsala Research, Miklagard, SE-646 93 Gnesta, Sweden, <http://vixra.org/pdf/1302.0127v1.pdf>
 - 9) Mass and Charge of a photon: <http://pdg.lbl.gov/2017/listings/rpp2017-list-photon.pdf>
 - 10) Photon Particle : Wave Discussion: <https://the-educational-blog.quora.com/The-History-of-Light's-Wave-Particle-flip-flop>
 - 11) Light vane showing photons delivering kinetic energy/ momentum: <https://youtu.be/-ckVSO-SE10>
 - 12) Light particles or waves: <http://www.olympusmicro.com/primer/lightandcolor/particleorwave.html>
 - 13) Julian Heck, "How Stable is the Photon?", Phys. Rev. Lett. 111, 021801, Published 11 July 2013 at <https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.111.021801>.
 - 14) Giuseppe Cocconi, "Upper limit for the electric charge of the photons from the millisecond pulsar 1937+21 observations", 2 June 1988, Physics Letters B Volume 206 Issue 4 Pages 705-706, at <http://www.sciencedirect.com/science/article/pii/037026938890723X>.
 - 15) CERN COURIER, "Physicists study photon structure", 31 Aug 1999, <http://cerncourier.com/cws/article/cern/28060>.
 - 16) Matt Austern, Scott Chase, Phil Gibbs and Don Koks, "What is the mass of a photon?", 2008, http://math.ucr.edu/home/baez/physics/ParticleAndNuclear/photon_mass.htm