MC Physics- Fundamental Force Unification using Mono-Charges

by

Kenneth D. Oglesby

31 December 2016

Abstract

MC Physics postulates that all fundamental forces are electro-static in nature and are only between quantized mono-charges that exists in all matter. Furthermore, that mono-charges form all matter and cause all force in the Universe. Also, that mono-charges obtain inertial mass from and in proportion to their electro-static charge strength. Force is continuously generated, propagated and instantly (until proven otherwise) applied between mono-charges following a modified Coulomb's Law of charge force and modified Newtonian Laws. Force is infinitely divisible by dilution during propagation, as it is only quantized by the two mono-charge sources.

Due to the MC subatomic dimensions below real photons, bosons (photons, gluons, etc.) are not considered valid concepts for force interactions. Force is modified by the initial and current mono-charge distribution, structure (i.e. distance apart), external interferences and relativity effects on mass/ charge/ space. The steps for force consist of: generation (via charge strength between 2 sources); information transfer of instant charge strength and type, distance and vector; determination of force strength and vector considering spatial propagation (static to relativistic space compression for $1/R^{z}$); then instant application via Newton's Laws.

Magnetic force is induced from moving (linear, rotating and/ or vibrating) mono-charges and can, therefore, only be applied to moving mono-charges. The strong nuclear force occurs between very close, even (surface) touching, strongest known electro-static charge strength mono-charges existing within quarks (Q1+:Q2-), and with no external charge interferences in their bonds. Weak nuclear force bondings come from weaker quantized mono-charge strengths, at further distances apart and with nearby charge interferences. Gravitational force is the net attraction force resulting from an imbalance between attract and repel electro-static charge forces between mono-charges in different particles/ masses / celestial bodies across space. Therefore gravity is caused by a combination of the initial and current mono-charge distributions, structural positioning of mono-charges in the masses and the possibility of a natural inefficiency of the repel force.

Keywords: photon, sub-atomic particles, atomic substructure, mono-charge, monocharge, electro-static charge force, atoms, elements, nuclei, electrons, force, kinetic energy, strong nuclear force, weak nuclear force, gravity, magnetic force, electro-static force, force unification

History of Force Understanding

Our understanding of force has changed significantly over time. It is important to follow this development of the various force concepts:

In his lifetime (384-322 BCE), Aristotle was a student of Plato (who was himself a student of Socrates) and a tutor to Alexander the Great. Aristotle believed that the best way to understand nature is through reasoning and observation, and that knowledge is subject to examination. Aristotle set the basic standard for the modern scientific method: that all observations must include the composition, the shape or form, the motion or change, and the end result/purpose of the examination. He incorrectly hypothesized that objects of different masses fall at different rates- this was the first study of gravity.[8]

In 1269 French scholar Petrus Peregrinus de Maricourt mapped out the magnetic field on the surface of a spherical magnet using iron needles. He noted that the resulting field lines crossed at two points that he named 'poles' in analogy to Earth's poles. He also articulated the principle that magnets always have both a north and south pole, no matter how finely one sliced them- in his dual or bi-pole world. [15]

In about 1560 William Gilbert of Colchester replicated Petrus Peregrinus' work to state explicitly that Earth is a magnet. Gilbert's work, De Magnete, was published in 1600 and established magnetism as a science. [15]

During the Scientific Revolution, Galileo Galilei (1564-1642) utilized his modified telescope to propose the heliocentric universe. He also experimentally determined that, neglecting the friction due to air resistance and buoyancy forces, all objects accelerate toward the Earth at the same rate- an early understanding of gravity. [5]

In 1637 Rene Descartes (1596 – 1650) published his ideas that included: skepticism as an essential part of the Scientific Method; analytical geometry linking geometry with algebra and cartesian coordinates; philosophy for modern rationalism that discounted action at a distance; proposed a law of light reflection; supported the idea of conservation of momentum; and laid out the principle of inertia. [9]

In 1687, Sir Isaac Newton's theories and mathematics (introduced calculus) on motion from a central force and Universal Gravitation were documented and published in his "Philosophiæ Naturalis Principia Mathematica (The Mathematical Principles of Natural Philosophy)". [3][5] His specific laws were:

First Law: "Every body perseveres in its state of rest, or of uniform motion in a right line, unless it is compelled to change that state by forces impressed thereon."
Second Law: "The alteration of motion is ever proportional to the motive force impressed; and is made in the direction of the right line in which that force is impressed. If any force generates a motion, a double force will generate double the motion, a triple force triple the motion, whether that force be impressed altogether and at once, or gradually and successively. And this motion being always directed the same way with the generating force, if the body moved before, is added to or subtracted from the former motion, according as they directly conspire with or are directly contrary to each other; or obliquely joined, when they are oblique, so as to produce a new motion compounded from the determination of both."

Third Law: "To every action there is always opposed an equal reaction: or the mutual actions of two bodies upon each other are always equal, and directed to contrary parts." [6]

In those laws, Newton postulated that space and time were absolute. Space was an infinite and unalterable physical structure around all objects. Those objects' states and relations unfold at a constant pace everywhere. Objects collided by impact that was proportional to their masses. He inferred that matter exhibits an attractive force. His law of universal gravitation stated it to span the entire universe instantly, or to be instant interaction among all objects. Mathematically, gravity can be described to act as:

$$F_{gravity} = G * M_1 * M_2 / R^2 \qquad \text{Equation \#1}$$

where, G is the gravitational constant, M is the mass of each object (1 and 2) at R distance apart. Newton was very skeptical of 'force action at a distance' and that may have been the reason for the delay in his famous publication. [6]

In 1750, John Michell stated that static magnetic poles attract and repel each other in accordance with an inverse square law, similar to gravity. [15]

In 1784 French physicist Charles Augustin de Coulomb published his mathematical formulation of the natural law of electro-static charge forces, shown as Equation #2, that was essential to the development of electro-magnetism. It is analogous to Sir Isaac Newton's prior inverse-square law of gravitation, shown in Equation #1. Coulomb's law can be used to derive Gauss's law, and vice versa. Coulomb experimentally verified Michell's theory and stated explicitly that the north and south poles cannot be separated in the dual, binary world. [14]. Coulomb's Law has been tested extensively, and all observations of charge forces (charge strength, charge type, distance apart, causing attract and repel forces) have upheld the charge law's principle for binary charged systems.

$$F_{charge} = C_1 * C_2 / R^2 \qquad \text{Equation \#2}$$

Three discoveries rapidly challenged the earlier foundations of magnetism [15]:
In 1819, Hans Christian Ørsted, published Der Geist in der Natur in 1854, discovered that an electric current generates a magnetic field encircling it.
In 1820, André-Marie Ampère showed that parallel wires having currents in the same direction attract one another.
Also in 1820, Jean-Baptiste Biot and Félix Savart discovered the Biot–Savart law which predicted the magnetic field around any current-carrying wire.

In 1824, building on the prior efforts on the magnetic force relationship between poles, Siméon Denis Poisson (1781–1840) created and presented the first successful model of the magnetic field. In this model, a magnetic H-field is produced by 'magnetic poles' and magnetism is due to small pairs of north/south magnetic poles. [15]

In 1825, extending the Poisson experiments, Ampère published her own successful model of magnetism. That showed the equivalence of electrical currents to magnets and proposed that magnetism is due to perpetually flowing loops of current instead of the dipoles of magnetic charge in Poisson's model. This was thought to explain why magnetic charge cannot be isolated. Further, Ampère derived both Ampère's force law describing the force between two currents and Ampère's law, which, like the Biot–Savart law, correctly described the magnetic field generated by a steady current. Also in this work, Ampère introduced the term electrodynamics to describe the relationship between electricity and magnetism. [15]

During the 1820s, Michael Faraday thought that a field filled space and transmitted magnetic force. Faraday also thought that, ultimately, all forces can be unified [5]. In 1831 he discovered electromagnetic induction when he found that a changing magnetic field generates an encircling electric field on a charged particle. He described this phenomenon in what is known as Faraday's law of induction. Later, Franz Ernst Neumann proved that, for a moving conductor in a magnetic field, induction is a consequence of Ampère's force law. In the process he introduced the magnetic vector potential, which was later shown to be equivalent to the underlying mechanism proposed by Faraday. [15]

In 1850, Scottish engineer and physicist Lord Kelvin, then known as William Thomson, distinguished between two magnetic force fields, now denoted H (magnetic field) and B (later called “Lorentz force”, force exerted by a magnet on a moving charge). The former applied to Poisson's model and the latter to Ampère's model and induction. Further, he derived how H and B are related to each other. [15]

In the early 1870s, James Clerk Maxwell improved the understanding of the relationship between electricity and magnetism, which travel at a constant speed in a vacuum. He then mathematically unified them into electromagnetic field theory with a set of equations. [5]

In 1892, Dutch physicist Hendrik Antoon Lorentz derived the modern form of the Maxwell formula for the electromagnetic force. Lorentz also determined the correct and complete form magnetic force law, known now by his name. [13]

In 1866-1906, Austrian physicist and mathematician Ludwig Boltzmann proposed the statistical theory of the kinetic energy of gases, which suggested the existence of real atomic matter. [5]

In 1905 Albert Einstein published a paper that explained experimental data from the photoelectric effect as the result of light energy being carried in discrete quantized packets, later called photons. According to classical electromagnetic theory, this effect can be attributed to the transfer of energy from the light to an electron. Electrons are dislodged only by the impingement of photons when those photons reach or exceed a threshold frequency (energy). [4][12]

In 1915 Albert Einstein's published his Special Relativity theory that stated:

1) the laws of physics are the same (i.e. identical or invariant) for all non-accelerating observers, and
2) the speed of light in a vacuum was independent of the motion of all observers and of the light source. [4][11]

In 1916 Einstein's General Relativity was published in which the mathematics related to space-time curvature causing gravity as an extension to Maxwell's equations for electro-magnetic force. In general, it was postulated that the Laws of Nature are expressed by means of equations which are valid for all co-ordinate systems, i.e. covariant for all possible transformations. [4][10]

By about mid-1920s theoretical physics had taken a distinctive change from being driven by science to being driven by mathematics, although that path was set long before that time. Newton invented calculus to model the measured universe, but it was still strongly tied to science. Maxwell invented a new math to model the electro-magnetic behavior of radiation and causing confusion on the status of photons. Einstein incorporated mathematical transformations to model relativity, light and gravity. But since Faraday no attempt has been successful in fully understanding the scientific phenomenon underlying the mathematical models developed.

In 1929 Edwin Hubble discovered that the light coming from distant stars and galaxies were red-shifted toward lower frequencies, i.e. lower kinetic energy of the photons. In fact, the further the distance, the stronger the red-shift of light frequency. This finding combined with the unproven requirement of limiting everything, even force, to the speed of light evolved into the current theory of the 'ever expanding and accelerating Universe, in all directions from the Earth'. Even a casual review of that current theory and resulting conclusion would suggest removal of the speed-of-light limitation on the force of gravity. [16]

A series of theories and experiments then began to form the Standard Model, which now has four fundamental forces (five, if you separate electric from magnetic forces) that are intermediated by bosons between mass particles, as shown in Table 1, with their relative force strengths given. Photon are considered massless (even while possessing momentum, affected by gravity, deflected by charges, and other attributes of mass particles) and a boson (force carrying massless particle). It also became dogmatic that nothing, even force, can ever travel faster than the speed of light in a vacuum. [4] [5] [7]

It is important to note the extreme relative strength difference between gravity ($10^{\mathbf{0}}$) and all the other listed forces ($10^{\mathbf{25}}$ to $10^{\mathbf{38}}$) in that Standard Model Table. Also note the relative narrower strength difference between the other 3 (non-gravity) forces – all within $10^{\mathbf{13}}$ of each other in strength. Also note the extreme range of force application- both gravity and EMF with infinite force range and the Strong - Weak Nuclear forces limited to sub-atomic distances. No

reasons for these extreme range or strength differences are given, but the similarities indicate some direct relationships that will be further discussed. [4] [5] [7]

Note that the theory establishing each boson classification has a very narrow range of applicability, which is not consistent with nature and the Universe, as a whole.

Table 1 – Standard Model of the 4 Fundamental Forces [7]

Interaction Force	Current theory	Mediators	Relative strength to gravity		Range (m)
Strong	Quantum chromodynamics (QCD)	gluons	10^{38}		10^{-15}
Electromagnetic	Quantum electrodynamics (QED)	photons	10^{36}		∞
Weak	Electro-weak Theory (EWT)	W and Z bosons	10^{25}		10^{-18}
Gravitation	General Relativity (GR)	gravitons (hypothetical)	1		∞

MC Physics Force from Mono-Charges

Mono-Charges Postulated from the Real Photon Model [1]

A physical model of a real photon with mass and structure was earlier postulated in the first MC Physics paper to cause all the measured properties and characteristics of photons: affected by gravity, having momentum and therefore kinetic energy, emitting electro-magnetic forces while travelling at 1/R strength dilution, an overall neutral charge, scattering for Compton effects and the famous Young double slit experiment, and more. The MC Physics Photonic Model postulated that:

1. Fully joined photons travel at the ***average*** velocity of 'the speed of light', c;
2. Postulated the existence of mono-charges, singular electro-static charges with a type (+ or -) and with a given electro-static charge strength or potential:

3. Mono-charges are true and real 3 dimensional particles (not point-like or dimensionless entities) with a strong physical barrier or 'surface' that does not allow MC merging under enormous force;
4. Charge strength provides inertia to each MC, which is seen as 'mass';
5. Electro-static mono-charges emanate single charge electric forces that follow the same basic Coulomb's Law of charge forces as for binary or dual-charged systems (but modified for relativity);
6. Mono-pole magnetic field/ forces are perpendicularly induced by mono-charges moving through space and follow the same natural Coulomb Law and rules as for binary systems, i.e. magnetic force is a function of the charge's type (induced pole type), strength, velocity, distance apart and relativistic effects;
7. Joined photonic MCs rotate in a rotational (polarization) plane that includes the linear velocity vector. The polarization plane can be rotated and shifted by external forces;
8. The relativistic inflection point (Vt) must be greater than c for mass particles and mono-charges. This may also apply to the mass-energy conversion equation;
9. As the full photon travels at the relativistic average linear velocity of c, its rotating mono-charges are further modified by relativity-
    - rotational forward direction - adding velocity to the mono-charge- relativistic increasing charge strength, inertia (mass) and causing decreased forward velocity;
    - rotational reverse direction - decreasing forward velocity of the mono-charge- relativistic lowering charge strength and inertia (mass) and causing increased reverse velocity.
    - These are both seen as kinetic energy of the overall photon particle;
10. Both electro-static charge and (induced) magnetic force that are generated by relativistic moving mono-charges and are propagated from relativistic compressed geometric space (3D to 2D) at/ from the source MC;
11. Bosonic interactions of the Standard Model were considered impossible for the interactions of force as the photon is a mass particle, therefore force must travel faster than the speed of light, even instantly;
12. Photons exist from the joining of 2 photonic MCs emitted from an atom and cease existence when they are absorbed by an atom; and
13. Upon emission and joining, photons are first accelerated to terminal velocity, c by external forces, with any excess force causing rotation to frequency, f.

Mono-Charge Sub-Atomic Particle Model [2]

A second MC Physics paper postulated that all matter was built out of an initial quantization and distribution of basic elemental electro-static charge into mono-charges in the very early Universe. It is assumed that the Universe is neutral in electro-static charge, but localized conditions can be different, if only temporarily. That an initial distribution of Mono-Charges (MC) in the early Universe was not evenly distributed by charge strength between positive

(fewer, but with a tilt toward stronger strength) and negative (tilt toward weaker strengths) charge types. This is evidenced by their presence in atomic nuclei, electrons, neutrinos and photons in a cooling Universe [1] [2]. That paper also expanded the natural laws that we measure and use in our normal binary charged systems down into sub-atomic levels, including the basic Coulomb's Law and rules and Newton's Laws.

Further, understanding of matter formation comes from consideration of the F*SCoTt process - Force (applied across) Space (by) Charge (over) Time and time again- that is covered in a separate paper. Joinings of MCs at all levels are categorized by the overall charge force strength bond that is created and those are always first formed by the strongest MCs. Charge strengths, formation sequence and timing are all important for determining the characteristics of the matter formed. Once formed, strong charges can still dominate other joinings if they get close enough with kinetic energy and/or relativistic effects. Structure of the formed particles and atoms is driven by the F*SCoTt process causing the quark formation into protons, into nuclei, into atoms and into molecules. These last points are important in considering the fundamental force of nature, including gravity.

Our everyday higher level atoms and molecular systems are composite systems of about equal both charge types for net charge neutralization and both charge forces causing internal interference and weaker bonds. But the MC types may have different counts/ amounts/ abundance of different individual charge strengths, since all higher level joinings have abundant amounts of the weaker neutrinic and photonic MCs required for final charge neutralization. This fact may interfere with past and current sub-atomic testing procedures, outcomes and interpretations. It can be assumed for a fully static neutral mass that it takes both MC types in equal charge amounts to make up Mass A, therefore:

$$Mass_{A} = \sum MC_{A+} + \sum MC_{A-} = 2*\sum|MC| \text{ (absolute value of either charge- type strength)}$$

Equation #3

But most masses are not fully static and have internal movement which causes attraction and joining of excess weak mono-charges, discussed in more detail later. Excess mono-charges of the non-needed charge type must be emitted from that mass for complete and full neutralization to occur, causing that emitted MC type to be pushed out and away from that atom/ mass and into space, if it is not joined by another MC. Further complicating the F-SCoTt process are that strong MCs generate single point force source vectors while multiple weaker MCs, with higher vibrations, generate a fuzzy, non-centralized source locale and force vector.

Electro-Static Charge Force

MC Physics postulates that all force is caused by elemental electro-static charge that was quantized in the early Universe by charge type and charge strength/ potential into various mono-charges silos or groups. Furthermore, and most importantly, those quantized elemental electro-static mono-charges exert a singular and instant electro-static charge force only on other mono-charges over spatial distances that follows Coulomb's Law and rules for charges and charge force and Newton's laws. Those Laws are hereby extended from what we have observed, measured and utilize in our everyday dual-charge or binary particle world down into the MC level. [2] The force between two MCs requires the following continuous steps:

1) Force Generation- between 2 source MCs from their respective charge strengths;
2) Information Transfer- instant exchange of charge types, location/distance R apart, and relativistic effects on charge/ mass and space. Possibly via the elemental electro-static charge's "affinity" or "entanglement" between MCs;
3) Force Determination- using that information, determine the strength, type and vector of force for both MCs in each object, per a modified Coulomb's law-

$$F_{charge} = MC_1 * MC_2 / R^z \qquad \text{Equation \#4}$$

where z can theoretically range from 3?>2>1>0 based on relativistic effects, charge strength, distance, etc.

4) Force Application- apply the determined force on each MC in each mass/ object per Newton's Laws, to obtain a reaction on each MC in each mass of

$$F = MC_1 * a_1 = MC_2 * a_2 \qquad \text{Equation \#5}$$

It should be strongly noted here that, where MC_1 is much stronger (e.g. quark strength) than MC_2 (e.g. photonic strength), and their respective proportional inertial masses, a_1 will be much less than a_2**.** In fact, the constant applied force between such MCs may cause MC_2 to be accelerated to relativistic velocities with high frequencies [1]. If it is a repel force that is applied, then MC_2 could be emitted into space.

From that modified Coulomb's law of charge force, Equation #4, it can also be seen that charge force is diluted by its application over an ever expanding surface of a 3 dimensional sphere with radius R (therefore z=2) distance apart, seen as a force density. It is noted that charge force is determined and applied for a reaction only between 2 MCs, but each and every MC in each and every mass. That projected force dilution surface can and is modified by relativity in EMF (far field only) requiring lower exponents due to spatial compression in the forward direction (i.e. z exponent reduction 2>>1 or lower) due to a spherical surface propagation reduced into a circular propagation surface that looks cylindrical with particle travel. Because of spatial contraction/ compression (3D to 2D) due to relativistic velocities noted for photons, it would seem reasonable for there to be further extensions to z required for extreme conditions.

Once generated between 2 MCs, force is to be considered infinitely divisible as it is propagated across space. Until proven otherwise, force is considered instantly applied across space between individual MCs, as previously determined in the first MC Physics paper [1]. Furthermore, the faster-than- light force application of gravity on photons better explains Edwin Hubble's redshift of light from distant galaxies and stars than the 'ever expanding and accelerating universe'. Gravity becomes even more clearly a FTL force when it was observed to 'move away from Earth in all directions' and from the stronger red-shift as distance (time allowed for gravity to act on the photons) increases.

If the bonding strength between MCs in an object is insufficient to hold the object together under acceleration from an external force, it will fall apart along the weakest bonds. This is

important for the F*SCoTt process of matter formation and for extreme gravity (e.g. black holes).

It was previously postulated [2] that joined mono-charges still project their individual electric forces and do not merge or mutate each other, as they stay distinct and distinguishable from each other at all times. Due to the joining process, most all such joined mono-charges in elemental particles rotate around an axis until joined into larger masses, as seen in Figure #1. Their individual projected force range will overlap with their differences in charge strength and distance apart, R, caused by rotation or vibration, and causing some volumes of single charge imbalance space. In this way they cause both attract and repel force imbalance with each and every external MC approach.

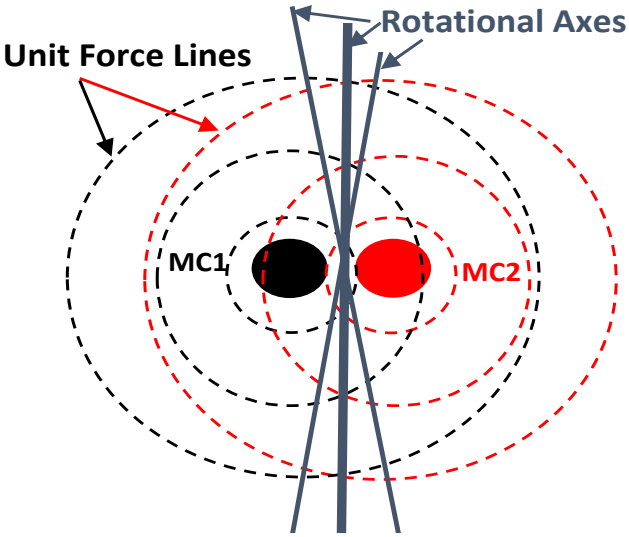

Figure 1. Unit Force Lines from Joined Equal Strength Mono-Charges

Figure 1 shows dashed unit force lines around two joined equal strength MCs that are separated by distance (R) due to 'surfaces', rotation and/ or vibrations. Most all such particles will have rotation and a wobble around an axis from the joining process. Even with equal strength charges, i.e. neutral overall charge, there are volumes around the MCs with imbalanced forces being projected outwards due to the separation distance, R. That net charge imbalance causes excess weak MCs to be attracted to and temporarily join that particle.

From that model it can be seen that vibration of multiple weaker mono-charges around a particle or matter causes a non-focused source for force determinations and lesser influence on the resultant vectored force applied on other MCs.

Electric force is relatively easy to insulate against, just by preventing movement of MCs. Insulation of electric force from alternating currents (AC), is also accomplished by a proposed opposite sympathetic charge response that can occur in some materials. In this process weaker MCs are displaced to temporarily expose the opposite strong charges' forces to offset that original charge force. Direct current (DC) is more difficult to insulate against as the singular charge force is constant and the displaced sympathetic charges cannot refresh.

Magnetic Force

From the photon model [1], it was theorized that magnetic mono-poles are induced from moving (linear, rotating, vibrating) mono-charges, from low vibrational to highly relativistic movements. This indicates a direct relationship between magnetism, inertia and relativity- all resistances to change of a mono-charge in space (dS/dT). Magnetic force occurs only between magnetic mono-poles, also following the modified Coulomb's Law, thus indirectly affecting their associated moving mono-charge. This is true in the binary upper level joinings and, most importantly, in the movement of mono-charges at the sub-atomic level (i.e. photons and electrons). It is of specific interest that magnetism may play a role in radiation modes of propagation within waveguides. Magnetic mono-poles and their resulting force are proportional to the charge strength, even relativistic, of their associated moving MCs. Relativistic effects (i.e. pole strength modification and spatial compression) affect magnetic force projection same as MCs, as seen in the $1/R^{z}$ ($z=2>1$) circular force projection for radiation EMF.

Magnetic forces can only be generated in static mass bodies with materials that have the correct internal structure to allow internal rotations and oscillations and alignment of many, many weak MCs. This 'static derived' magnetic force is propagated more at a $1/R^{2}$ spherical dilution than its linear derived cousin.

Magnetic force is difficult to insulate against because of their induced mono-pole nature that interacts only with other mono-poles, both of which require moving MCs. That, not normally found in the more static stronger mono-charges that exists in most matter, thus no sympathetic response can occur.

Strong – Weak Nuclear Forces

In the Standard Model, the interaction between subatomic particles with "color" (an abstract quantity that has nothing to do with human vision) are called the Strong Nuclear Force. This strong force holds protons and neutrons together in the nucleus and holds quarks together within the protons and neutrons. It cannot be felt outside of the nucleus (due to extremely short range) and is thought mediated between particles by gluon bosons.

In the Standard Model, the interaction between subatomic particles with "flavor" (another abstract quantity that has nothing to do with human taste) are called the Weak Nuclear Force. This force, which is many times weaker than the strong nuclear interaction, is involved in certain forms of radioactive decay, specifically Beta Decay of neutrons into protons. Note that in MC Physics terms, a neutron is just a proton disguised with additional weak MCs (electron and neutrino MCs plus others).

MC Physics theorizes that both those strong and weak forces (and all ranges in between) are simply electro-static charge forces with different MC strengths, structural arrangements and interferences. The stronger interactions are those between the strongest mono-charges within quarks (Q1+:Q2-), at the closest range (even touching) and with no/ minimal external

interferences. Lower strength mono-charges with further distances apart and more interferences would result in weaker bonding outcomes. In fact, with nearby charges, an increasing/decreasing apparent force strength may be measured, but is not actually occurring between the original charges.

As mentioned earlier, MC Physics also suggests that it is difficult to measure electro-static force from mono-charges due to nearby charge interferences that are inherent in our dual- or binary MC mass instrumented systems. Thus, all such prior testing should be re-evaluated in that light.

An example of this bonding force strength difference can be seen in the simplest composite particle, a proton. Based on current thinking, protons are made of 3 quarks. MC Physics says that each quark is made of two opposite charge type mono-charges possessing the maximum known strengths (Q1+ and Q2-). Therefore, within those individual quarks and between their MCs are the strongest known charge forces known. A composite proton particle is then an arrangement of 3 quarks as: three Q1+:Q2- (or two Q1+:Q2- / one Q2-:Q3+, with other combinations possible), all with a net +1 composite particle charge. Where Q1 is positive and has a stronger positive charge than the Q2 negative charge strength. And Q3 has a lower positive charge strength than Q2's negative charge strength.

Furthermore, it can be shown that, structurally, the maximum bonding force for a 3-quark proton is with a two-dimensional, linear alignment as shown in Figure 2. In that figure, unit force lines are shown for each MC. Multiple combinations of quarks (e.g. Q1:Q2 / Q1:Q2 / Q1:Q4) are possible to form protons with other properties, indicating the importance of the initial quantized MC distribution and F-SCoTt process in the cooling earliest Universe. Within each quark (see left most dashed box) there exists the highest known bonding charge forces. However in the full proton structure, there are significant differences in the distances between MCs: opposite type charges are driven to be at minimal R, even touching maximizing their attraction bonding force, versus like-type charges which are driven to repel and exist at a > 5X distance apart weakening their repel force. However formed, the net strength of all 6 MCs in that proton has a net overall positive charge of +1 to the external particle, except for vibrations and excess weak MC temporary joinings. This bonding strength also demonstrates why the quarks and protons are the basis of higher level joinings to make the elements and the lack of need of neutrons. Each proton is flipped and stacked with the next one to maintain the alternating sequences for maximum overall bonding strength. All weaker (charge strength and structure) bonding arrangements would not have survived the early Universe's high kinetic energy environment per the F*SCoTt process.

In addition and per earlier and later discussions, the relative efficiency of force application, i.e. Force $_{\textbf{attraction}}$/ Force $_{\textbf{repulsion}}$ ratio > 1.0, may also exist due to many variables mentioned and possibly as a natural law that causes such an imbalance. That force application inefficiency may be a function of distance and the slight net force difference between the attraction forces (from opposite type MCs of *only one type,* + : -) and the repel forces (from the two like-type MCs of *two types,* +:+ and - : -). But such a charge force differential should have been seen in the

decades of earlier binary charge measurements verifying Coulomb's Law, if mono-charge interferences are properly considered.

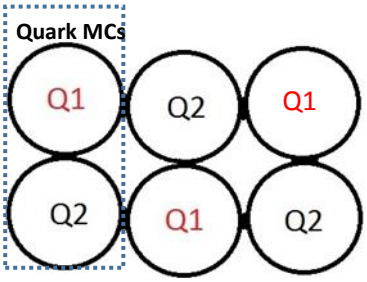

Figure 2. 2D Linear Structure of a 3 Quark Composite Proton Particle Showing Maximum Bonding Force Arrangement

Gravitational Force

Gravitation is the weakest and subtlest of the four Standard Model fundamental force interactions, as shown in Table 1. Gravitation is very important for macroscopic objects and over macroscopic distances. Only gravitation matters on the near scale every-day experiences up to the large-scale structure of the universe, including planets, galaxies and black holes. The special nature of gravity comes from [5][7]:

- The only interaction that acts on all mass (some theories on energy and/or momentum);
- An infinite range, like electric and magnetic forces, but unlike strong and weak interactions;
- Cannot be absorbed, transformed, or shielded against, similar to magnetic force; and
- Always attracts and never repels

Per Table 1, charge, magnetic and gravity forces all have infinite spatial range and follow the same basic $1/R^z$ (z=2 constant source, but expanding surface dilution) relationship with spatial distances. Gravity, like static charge and static derived magnets, propagate with z=2 (3 dimensional spherical). Electro-magnetism (EMF) are relativistic propagations of moving electric charges with a z>1 (i.e., 2 dimensional circular that is seen as cylindrical due to movement). But gravity differs significantly from the other forces on relative strength, as if gravity is a net of multiple forces resulting in a subtle attraction force advantage.

Gravity works on all masses, which in MC Physics terms means that electro-static charge forces are applied between each and every MC within and between both masses, of both charge types, to continuously cause both attraction and repulsion forces, but with a net $F_{attract}>F_{repel}$ overall due to a number of reasons or causes:

1) Initial distribution of quantized charge types and strengths with slightly more stronger positive MCs than negative MCs. Negative MCs trending toward weaker charges; which causes-
2) Current /actual physical spatial distribution of those quantized MCs. Specifically, those MCs in masses, those MCs located near masses and/ or those MCs emitted out of masses; which causes-

3) Structure of the stronger MCs that are the basis of all masses that provide a point-like force projection focus versus multiple weaker charges having a cumulative fuzzy non-specific center for force projections; and / or a
4) Natural imbalance in attractive forces over repulsion forces, or $F_{attract} > F_{repel}$.

Matter and mass are made up of (mostly) equal total positive and negative charges for an overall neutral effective charge. To make that happen, MC Physic theorizes that all such masses are made up of both positive and negative MCs in roughly equal strength measures. It suggests that gravitational forces are electro-static in nature between each and every mono-charge within each mass and between each mass, but that gravity reflects the slight net force difference between the attraction forces (from opposite type MCs of *only one type* +:-) and the repel forces (from the 2 like-type MCs of *two types*, both +:+ and - : -).

The second MC Physics paper [2] covered the initial distribution, joining structure and the joining sequence from the F*SCoTt process in the cooling Universe, as important to matter formation and forces. The overall charge balance of the universe is assumed to be fully neutral, but localized imbalances can still occur. Stronger positive MCs dominate in quarks, protons and are the basis of most masses. They expel/ emit excess weaker positive and/ or even negative photonic, neutrinic and electronic MCs from the masses, when they are not needed for neutralization. Strong MCs may allow temporary excess multiple weaker and highly kinetic MCs due to their collective fuzzy non-focused force profile. Emitted positive MCs are displaced out of the mass, and away from the mass into space and even into deep space, if they do not join to form another particle.

Per the F*SCoTt process, strong quark MCs (possessing high inertial mass) propel (attract or repel) weaker photonic, neutrinic or electronic MCs (possessing low inertial mass) to high velocities via Newton's Second Law given in Equation #5, where $MC_{strong} >>>> MC_{weak}$ resulting in $a_{weak} >>>> a_{strong}$. This force caused acceleration can push weak positive charges out of particles, atoms, molecules, even out of all masses into space between atoms, even into deep space. The accumulation of large amounts of low MC strength positive charges off masses would provide a very small and diffuse push back onto the strong positive MCs in masses. This may be so disperse into deep space that it would not significantly grow as the height of an object increased off a given mass.

Combining those points into both modified Coulomb's Law charge force equations and rules and the modified Newton's Universal Gravitational Force Law can be instructive. Those Laws were based on higher level (binary) composite atoms and molecules, but are hereby extended down to mono-charge levels in equation #4, where z=3>>0 depending on relativistic spatial effects. Also,

$$F_{gravity} = (Mass_A * Mass_B) / R^z \quad \text{where } z=2 \qquad \text{Equation \#6}$$

$$F_{gravity} = \sum F_{attract} - \sum F_{repel} \qquad \text{Equation \#7}$$

for all MCs in both Mass A and Mass B. Following Equation #3 on mass and mono-charge strength equivalence, and combining with Equations #6 and #7 yields Equation #8 for each MC of both charge types (**+** and **-**), in each Mass (A and B) and into deep Space (S). Further simplification cannot be done because the focused vs fuzzy force point dilemma for calculating each force.

The last force imbalance possibility mentioned arises because of a possible natural inefficiency force application difference due to:

1) opposite-type charges (positive : negative) have **only one force option**: to attract each other together, join and form matter.
2) like-type charges (negative : negative AND positive : positive) have **two force options** to repel each other to not (directly) form matter.

Any such difference in force should have been measured over time in validating Coulomb's Law, however, such prior net binary charge testing probably did not consider MC level interferences. MC Physics suggests that improbable possible cause of gravity may be due to this imbalance in the application of attraction versus repel forces due to the relative inefficiency of each repel force determination by transaction, or a 'transactional fee' (T-Fee). The inefficiency T-Fee was earlier discussed as a possibility for strong nuclear force as the $F_{attract}/F_{repel}$ >1.0 ratio, that may also be a function of distance, as it may be applied to the distance between each MC in each mass. Such a separate T-Fee relative distance relationship can exist or such an inefficiency factor could be built into the z exponent for distance R apart. If true it would be an extremely small fee. Equation #8 also incorporates that T-Fee factor in the full relationship.

$$F_{gravity} = \{ (\sum MC_{A+} * \sum MC_{B-})/R_{A+B-}^{z} + (\sum MC_{A-} * \sum MC_{B+})/R_{A-B+}^{z} + (\sum MC_{A-} * \sum MC_{S+})/R_{A-S+}^{z} + (\sum MC_{B-} * \sum MC_{S+})/R_{B-S+}^{z} \}_{attract} - \{ [(\sum MC_{A+} * \sum MC_{B+})/R_{A+B+}^{z} + (\sum MC_{A-} * \sum MC_{B-})/R_{A-B-}^{z} + (\sum MC_{A+} * \sum MC_{S+})/R_{A+S+}^{z} + (\sum MC_{B+} * \sum MC_{S+})/R_{B+S+}^{z}] / \text{T-Fee} \}_{repel}$$

Equation #8

The inability of matter to shield electro-static gravity forces appears to come more from conflicting dual sympathetic responses of (mostly) static charges in all matter, since both charge types are involved in this force exchange.

Speed of Force Application

As postulated in the first MC Physics paper [1] for sub-atomic photonic elemental photon particles: no boson based interactions are possible due to size differences above MCs, therefore force is not bound by particles. Since there is no proof otherwise and faster-than-light

force is needed to keep real photons together, force should be considered applied instantly across space, until proved otherwise.

In that same MC Physics paper it was also theorized that photons were first accelerated to its terminal speed then any excess applied force caused rotation of the photonic MCs to its frequency. Therefore, the opposite process would be expected for a photon moving away from a dual MC gravity source. Note that an electro-static force of a singular charge type would not be effective on a photon due to its dual rotating nature. Only the imbalanced dual-charge effect of gravity would work on the photon's MCs to first reduce kinetic energy in rotation (seen as reducing frequency or a red-shift) and only then would it affect a photon's velocity (slowing it to a stop and even reversing direction).

In fact, it is strongly suggested that such a faster-than-light gravity effect was seen in Edwin Hubble's experimental findings of the red shift of light frequency coming from distant galaxies. In fact, the further distant from the Earth, the higher the red-shift. Such a finding can be better explained by a FTL gravity force that is acting on real photons during their full travel time. In effect, this allows the force of gravity to slowly take away kinetic energy from the photon, first on its frequency of rotation and lastly on its velocity. This better fits the real universe with no need for dark matter or dark energy. No need for an ever expanding, ever accelerating away from Earth in all directions type of Universe.

Thus faster-than-light force application fits the real universe from subatomic particles (photons, neutrinos, electrons), into matter (orbitals) and up to cosmos levels (Hubble's distant galaxies' red-shift findings).

Conclusions

MC Physics understanding of matter and force fits the real Universe in breadth and depth, from sub-atomic to the cosmos, continuously without interruption. Mono-charges are theorized to form all matter and cause all force [1] [2]. Mono-charges are not dimensionless as they have an impenetrable 'surface' or barrier to prevent merging under normal universe conditions, therefore they are to be considered permanent in nature. Electro-static forces are caused by and act only between two mono-charges anywhere in the Universe, and at all times, following a modified Coulomb's Law. All natural forces are only reactive in nature and between two individual mono-charges, but cumulate for individual masses.

All fundamental forces (electric charge, magnetic, nuclear strong, nuclear weak and gravity) are unified by utilizing quantized electro-static mono-charges as the source of all forces. Magnetic forces are caused by moving mono-charges (rotating or vibrating for static magnets; linear and rotational/ oscillating for EMF). Strong nuclear force is electro-static in nature (even relativistic enhanced by vibrations) between the very strongest MCs within quarks, at very close distances (even touching) and with no nearby charge interferences. The strongest force bondings occur between the strongest MCs in quarks. The full range of force bonding down to the weakest

nuclear force bonding is also electro-static in nature between weaker mono-charges, at extended distances and with nearby charge interferences.

Gravity is the subtle net force difference resulting from the opposing attract (from one version of opposite charge types) and repel (from two versions of like charge types) electro-static forces that ever so slightly favors the attract force due to an initial and current mono-charge distributions in/ near/ outside masses, the particle structure, fuzzy versus focused force source vectors, and, possibly, a natural inefficiency of repel force transactions.

MC Physics does not need bosons particles for force mediation between mono-charges, since real photons are made up of mono-charges, and therefore, force can act or be applied faster-than-light, even instantly, following Newtonian concepts.

Forces require the following continuous steps: 1) two mono-charge sources; 2) information transfer of their instant charge strengths, distance apart and vector; 3) determination/ calculation of force strength, type and vector; 4) instant (until proven otherwise) application of that vectored force on each mono-charge, but in opposite directions per Newton's Laws.

Therefore, MC Physics' unified faster-than-light force between each and every mono-charge provides a cleaner explanation for real photon particles, celestial orbits and Hubble's red-shift of light from distant galaxies and providing a seamless theory from sub-atomic particles, through and to all masses and up into the cosmos.

References

[1] Oglesby, K. D., "MC Physics Model of a Real Photon with Structure and Mass", https://fs23.formsite.com/viXra/files/f-1-2-9037551_RhNE84zB_MC_Physics-_Model_of_A_Real_Photon_With_Structure_and_Mass.pdf, vixra.org/pdf/1609.0359v1.pdf, dated 25 September 2016

[2] Oglesby, K. D., "MC Physics Model of Sub-Atomic Particles using Mono-Charges", http://viXra.org/abs/1611.0080, vixra.org/pdf/1611.0080v1.pdf, dated 31October 2016, and uploaded 6 November 2016.

[3] Newton, Sir Issac, " Philosophiæ Naturalis Principia Mathematica" (The Mathematical Principles of Natural Philosophy) published in 1687.

[4] Wikipedia on Albert Einstein

[5] Wikipedia https://en.wikipedia.org/wiki/Fundamental_interaction

[6] HyperPhysics on Sir Isaac Newton

[7] Figure on fermions and bosons from Wikipedia attributed to: By Headbomb - Own work, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=5609973

[8] http://www.sciography.com/aristotle.htm

[9] https://www.reference.com/math/were-contributions-rene-descartes

[10] www.space.com/17661-**theory**-general-**relativity**.html

[11] Wikipedia: Special Relativity at https://en.wikipedia.org/wiki/Special_relativity - original Albert Einstein (1905) *"Zur Elektrodynamik bewegter Körper", Annalen der Physik 17: 891; English translation On the Electrodynamics of Moving Bodies* by George Barker Jeffery and Wilfrid Perrett (1923); Another English translation *On the Electrodynamics of Moving Bodies* by Megh Nad Saha (1920).

[12] https://en.wikipedia.org/wiki/Photoelectric_effect

[13] Wikipedia on Lorentz force for magnetism

[14] https://en.wikipedia.org/wiki/Coulomb's_law

[15] Wikipedia on magnetism Ampere, Poisson, Biot-Savart, Hans Christian Orsted

[16] https://www.spacetelescope.org/about/history/the_man_behind_the_name/