TETRYONICS

The charged interactions of universal Gravitation

Foundational Quantum Cosmology

Abraham

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Laws of Force

$F = ma$

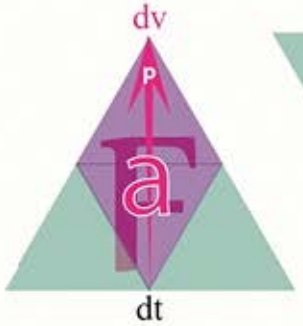
Sir Issac Newton

(25 December 1642 – 20 March 1727)

$w = mg$

Gravity

Newton's Principia formulated the laws of motion and of universal gravitation



changing Magnetic lines of Force

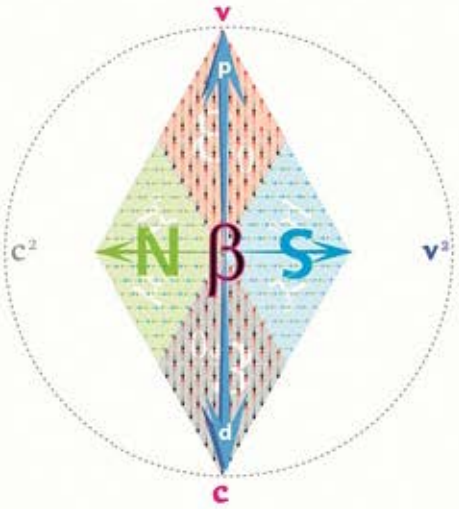
Michael Faraday

(22 September 1791 – 25 August 1867)

create changing Electric fields of Force

Faraday discovered the principles of electromagnetic induction, diamagnetism, and the laws of electromagnetism.

Electro-Magnetism



$$\oint \vec{E} \cdot d\vec{A} = \frac{q}{\varepsilon_0}$$

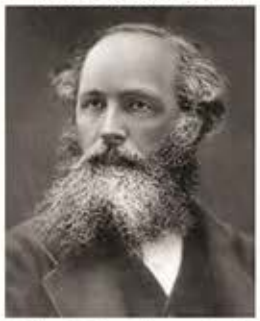
Gauss

Light is an electromagnetic wave

Faraday

$$\oint \vec{E} \cdot \vec{ds} = -\frac{d\Phi_B}{dt}$$

James Clerk Maxwell



(13 June 1831 – 5 November 1879)

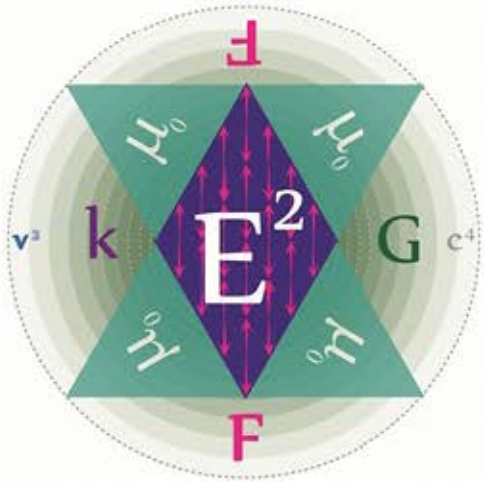
$$\oint \vec{B} \cdot d\vec{A} = 0$$

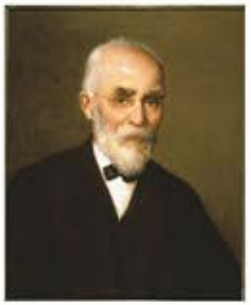
Gauss

The separate works of Gauss, Ampere & Faraday were unified to create an electromagnetic wave field theory

Ampere

$$\oint \vec{B} \cdot \vec{ds} = \mu_0 i + \frac{1}{c^2}\frac{\partial}{\partial t}\int \vec{E} \cdot d\vec{A}$$





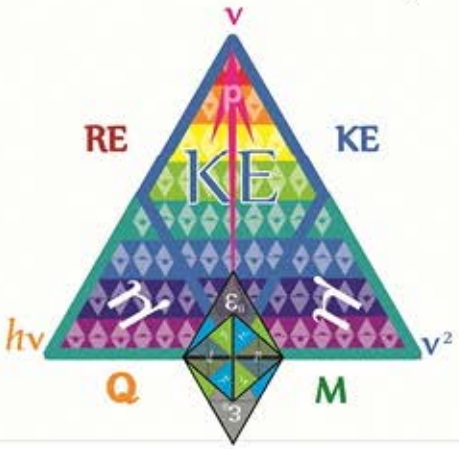
Lorentz Contraction

Lorentz proposed that moving bodies contract in the direction of motion (Lorentz–Fitzgerald contraction)

Hendrik Lorentz

(18 July 1853 – 4 February 1928)

Lorentz Transformations



Special Relativity

atiempted to explain the constant speed of Light using relative motion & Lorentz contractions

Albert Einstein

(14 March 1879 – 18 April 1955)

&

later attempted to explain gravity as a curvature of spacetime caused by Matter

General Relativity

Early physics of Motion

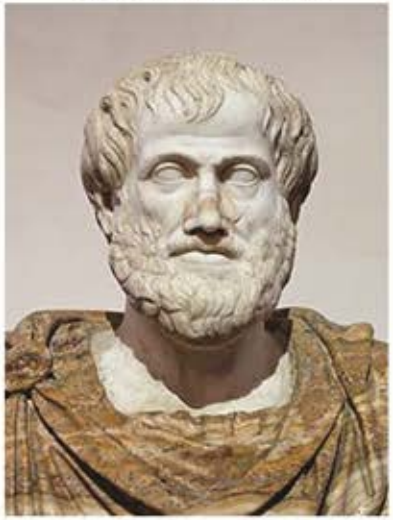
In the 4th century BC, the Greek philosopher Aristotle believed that there is no effect or motion without a cause

In Book VII of his De Architectura, the Roman engineer and architect Vitruvius contends that gravity is not dependent on a substance's "weight" but rather on its "nature".

The cause of the downward motion of heavy bodies, such as the element earth, was related to their nature, which caused them to move

In the 7th Century the Indian mathematician Brahmagupta stated "Bodies fall towards the earth as it is in the nature of the earth to attract bodies, just as it is in the nature of water to flow."

Greek philosopher Aristotle



(384 BC – 322 BC)

Aristotle defined space to be the boundary geometry of a body

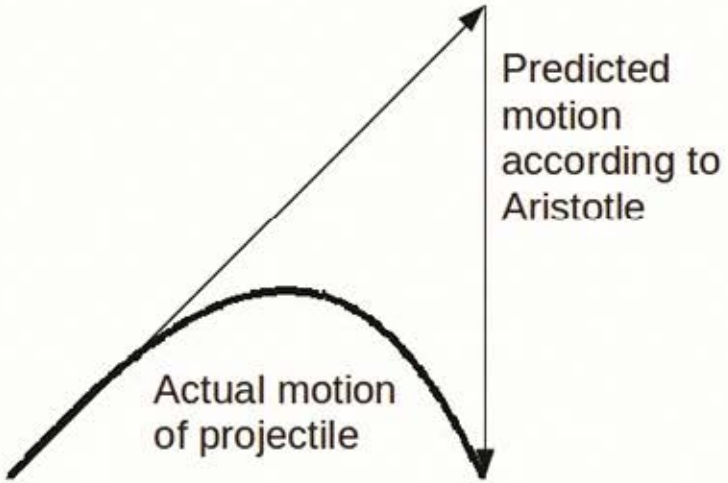
[x,y,z]

geometry, toplogy

Aristotle defined time to be a measure of movement

the past Δ the future

'Nature abhors a vacuum'



Heavier things fall faster, with speed being proportional to weight.

The speed with which a body falls is inversely proportional to the density of the medium it is falling through.

Indian Mathematician Brahmagupta

(597–668 AD)

Brahmagupta dedicated a substantial portion of his work to geometry

Brahmagupta is considered the first to formulate the concept of zero

negative numbers 0 positive numbers

Brahmagupta introduced new algebric methods for solving quadratic equations

Galilean Gravity

Galileo Galilei

(15 February 1564 – 8 January 1642)

Galileo claimed to have a Universal Law of Gravitation
covering both terrestrial gravity and the motion of planets
which he was afraid to discuss.

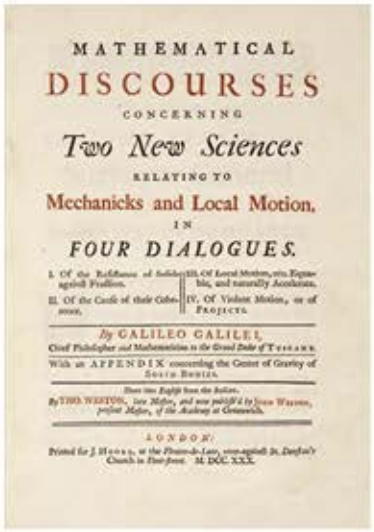
But this looks more an inspired aspiration than a reality,
as he seems not to have considered gravitational force as
decreasing with distance from its source.

He did however, definitively show that objects experience a uniform
acceleration in a gravitational field (irrespective of their masses)
which was central to Newton's later Universal Law of Gravitation

Galileo dismissed as a "useless fiction" the idea, held by his contemporary Johannes Kepler, that the moon caused the tides.

Galileo also refused to accept Kepler's elliptical orbits of the planets, considering the circle the "perfect" shape for planetary orbits.

The Motion of Falling Bodies



MATHEMATICAL
DISCOURSES
CONCERNING
Two New Sciences
RELATING TO
Mechanicks and Local Motion,
IN
FOUR DIALOGUES.

I. Of the Resistance of Solids. III. Of Local Motion, viz. Equable, and naturally Accelerate.
II. Of the Cause of their Cohesion. IV. Of Violent Motion, or of Projects.

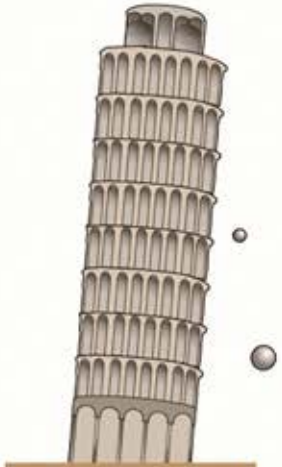
By GALILEO GALILEI,
Chief Philosopher and Mathematician to the Grand Duke of TUSCANY.
With an APPENDIX concerning the Center of Gravity of Solid Bodies.

Done into English from the Italian,
By THO. WESTON, *late Master, and now published by* JOHN WARNER, *present Master, of the Academy at Greenwich.*

LONDON:
Printed for J. Hooke, at the Flower-de-Luce, over against St. Dunstan's Church in Fleet-street. M. DCC. XXX.

(ca. 1590)

Galileo was the first to counter Aristotle's earlier idea's of motion by teaching that
All objects experience a uniform acceleration in a Gravitational field
(irrespective of their different mass-Matter contents)

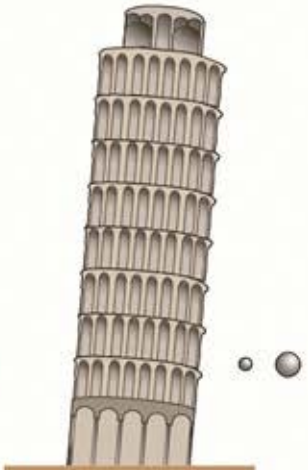


Aristotelian physics

In De motu Galileo proposed that in free fall bodies dropped with a characteristic uniform speed determined not by their weight but by their specific gravity.

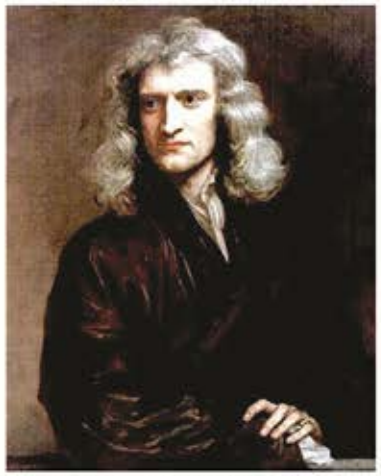
He put this theory to the test by dropping bodies from heights and found that his experiments did not confirm his theory.

It is quoted in 'Galileo's Daughter' that the lighter body (i.e. that of the lower specific gravity) will move ahead of the heavier body at the start of the fall, and that the heavier body then overtakes it and arrives at the bottom slightly earlier.



Newtonian physics

Sir Issac Newton



(25 December 1642 – 20 March 1727)

In the late 17th century, Robert Hooke's suggested
'that there is a gravitational force which depends on the inverse square of the distance'

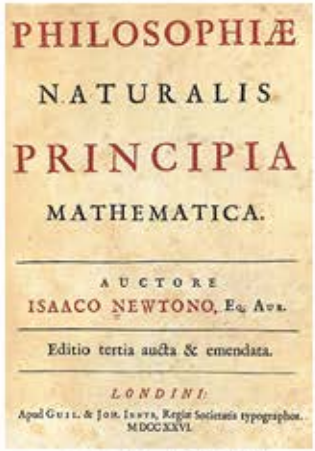
Newtonian Gravitation

Newton's monograph Philosophiæ Naturalis Principia Mathematica, published in 1687, lays the foundations for most of classical mechanics. In this work, Newton described Universal gravitation and the three laws of motion, which dominated the scientific view of the physical universe for the next three centuries.

Newton showed that the motions of objects on Earth and of celestial bodies are governed by the same set of natural laws, by demonstrating the consistency between Kepler's laws of planetary motion and his theory of gravitation, thus removing the last doubts about heliocentrism and advancing the Scientific Revolution.

The Principia is generally considered to be one of the most important scientific books ever written.

Principia Mathematica



first edition (1686/1687)

First Law of Motion

$$\sum \mathbf{F} = 0 \Rightarrow \frac{d\mathbf{v}}{dt} = 0$$

Bodies at rest - remain at rest unless acted upon by an outside Force

Second Law of Motion

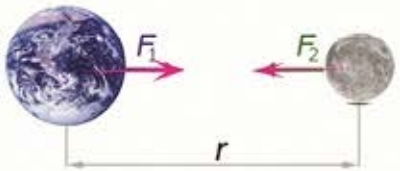
$$\sum \mathbf{F} = \frac{\mathrm{d}\mathbf{p}}{\mathrm{d}t} = m\frac{\mathrm{d}\mathbf{v}}{\mathrm{d}t} + \mathbf{v}\frac{\mathrm{d}m}{\mathrm{d}t}$$

The nett force on a particle is equal to the time rate of change of its linear momentum [p]

Third Law of Motion

$$\sum \mathbf{F}_{a,b} = -\sum \mathbf{F}_{b,a}$$

For every action there is an equal and opposite reaction



Newton's Law of universal Gravitation

"I deduced that the forces which keep the planets in their orbs must [be] reciprocally as the squares of their distances from the centers about which they revolve: and thereby compared the force requisite to keep the Moon in her Orb with the force of gravity at the surface of the Earth; and found them answer pretty neatly"

$$F = -G\frac{M_1 m_2}{r^2}$$

"hitherto I have not been able to discover the cause of those properties of gravity from the phenomena, and I frame no hypothesis"

According to Bošković's simple dynamistic atomism, Matter is not only endowed with forces (dynamic system), but it is composed of forces (dynamistic system), Forces flow out of the atom and permeate empty space.

This idea led to the concept of the field, much later formulated by M. Faraday (1844), who together with J.C. Maxwell introduced the idea of fields of force into science.

Boskovic is famous for his atomic theory and made many important contributions to astronomy, including the first geometric procedure for determining the equator of a rotating planet from three observations of a surface feature and for computing the orbit of a planet from three observations of its position.

In 1753 he also discovered the absence of atmosphere on the Moon.

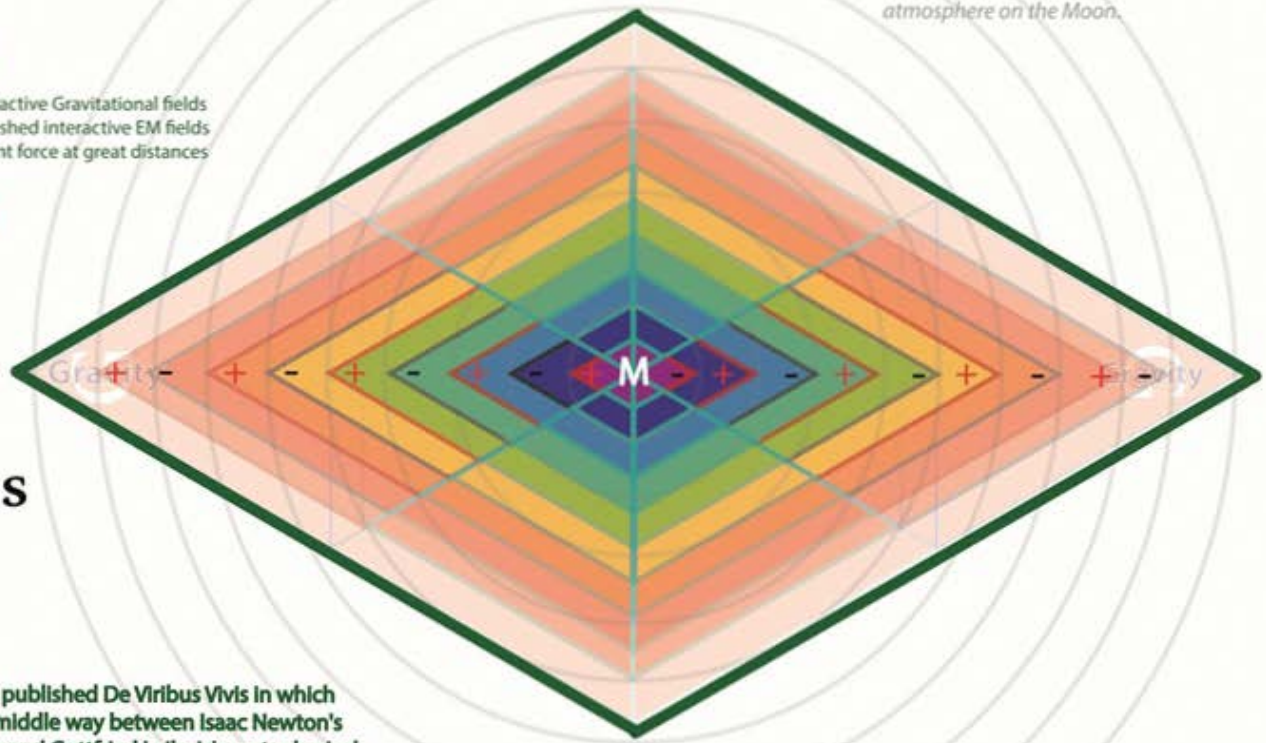
Rudjer Boskovic

(18 May 1711 – 13 February 1787)

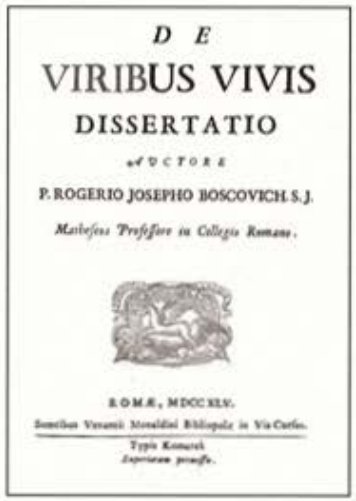
k

Boskovic proposed that attractive Gravitational fields could be explained as diminshed interactive EM fields that result in a nett converent force at great distances

G



Diminished EM waves



D E

VIRIBUS VIVIS

DISSERTATIO

AUCTORE

P. ROGERIO JOSEPHO BOSCOVICH S.J.

Matheseos Professore in Collegio Romano.

ROMÆ, MDCCXLV.

Sumptibus Venantii Monaldini Bibliopolæ in Via Curiæ.

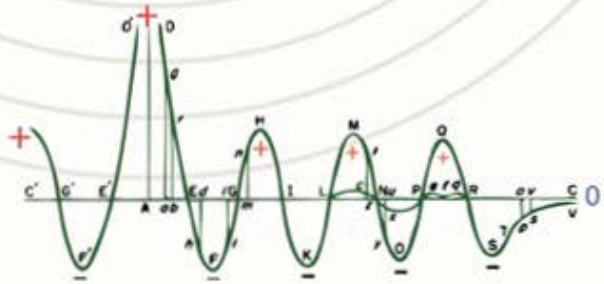
Typis Komarek

Superiorum permissu.

In 1745 Bošković published De Viribus Vivis in which he tried to find a middle way between Isaac Newton's gravitational theory and Gottfried Leibniz's metaphysical theory of monad-points

The force is repulsive when this curve lies above the line AC and attractive when it lies below it.

At very large distances (at and beyond V), it is attractive and approaches Newton's inverse-square law of force produced by gravity



nett attractive force at large distances

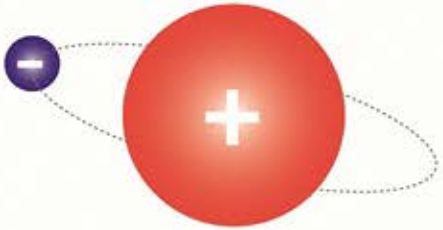
Gaussian Gravity

Gauss's law for gravity bears the same mathematical relation to Newton's law that Gauss's law for electricity bears to Coulomb's law.

G

Gauss's law for gravity is mathematically similar in form to Gauss's law for electrostatics.

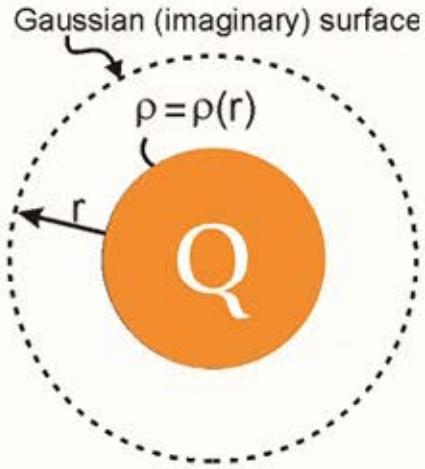
k



$$F_{elec} \propto k\frac{Q_1 Q_2}{r^2}$$

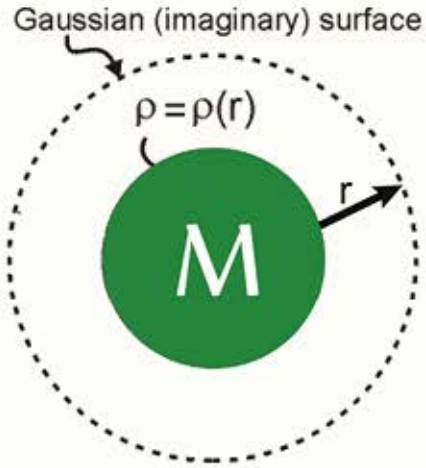
the striking mathematical similarity in the formulation of electrostatics and gravitation has puzzled science for centuries

$$F_{grav} \propto G\frac{M_1 m_2}{r^2}$$



Carl Friedrich Gauss

(30 April 1777 – 23 February 1855)



$$\oint \vec{E}\cdot d\vec{A} = \frac{q}{\varepsilon_0} = 4\pi kq$$

The electric flux through any closed surface is proportional to the enclosed electric charge.

$$\nabla \cdot E = \frac{\rho}{\varepsilon_0} = 4\pi k\rho$$

Gauss's law for gravity, also known as Gauss's flux theorem for gravity, is a law of physics which is essentially equivalent to Newton's law of universal gravitation.

Although Gauss's law for gravity is physically equivalent to Newton's law, there are many situations where Gauss' law for gravity offers a more convenient and simple way to do a calculation than Newton's law.

note: 4π spherical topologies are equivalent to 4π tetrahedral topologies [see Euler characteristics & Gauss-Bonnet topology theorem]

$$\oint_{\partial V} \mathbf{g}\cdot d\mathbf{A} = -4\pi GM$$

The gravitational flux through any closed surface is proportional to the enclosed Matter

$$\nabla \cdot \mathbf{g} = -4\pi G\rho$$

Poisson's Gravity fields

Charges are the sources and sinks of EM fields

Q

Matter is the source of Gravitational fields

M

Poisson recognised that charges are the sources and sinks of electrostatic fields: positive charges emanate electric field lines, and the field lines terminate at negative charges.

Similarly, in Newton's gravitation masses are the sources of the gravity field so that field lines terminate at objects that have mass.

Poisson formalised Gauss' Law for electric fields (using the more general divergence theorem)

$$\iint \vec{E} \cdot d\vec{S} = \frac{q_e}{\epsilon_0} \Rightarrow \vec{\nabla} \cdot \vec{E} = \frac{\rho_e}{\epsilon_0}$$

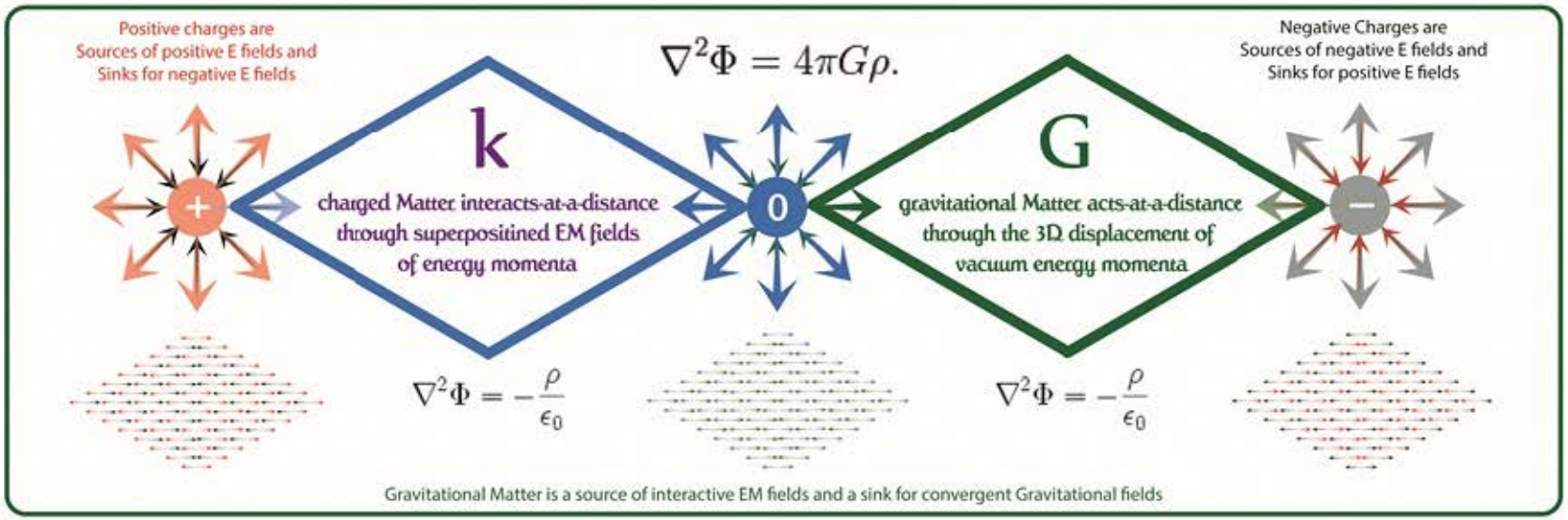
and then applied the same formulation to spherical Matter for gravitation

$$\iint \vec{g} \cdot d\vec{S} = -4\pi G_c m \Rightarrow \vec{\nabla} \cdot \vec{g} = -4\pi G_c \rho_m$$

Simeon Poisson

(21 June 1781 – 25 April 1840)

All EM field interactions are the result of superpositioned EM fields (comprising of convergent AND divergent energy momenta) whose quanta create differing field strengths, The inverse square forces of gravity can be modelled using the same field geometry thus illustrating the reason for the geometric & mathematical similarity between Newton's & Coulomb's constants

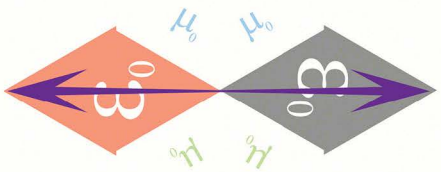


Tetryonic QM & QED clearly shows that both the sink and source fields are the result of bidirectional energy momenta

Poison's field equations shows that weak KEM field geometries can be used to model the convergent forces of Gravitational fields

Gravito-Electro-Magnetism

inverse squared law



nett divergent
Electric field forces

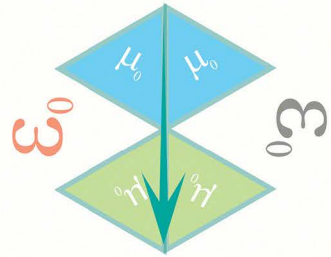
$1/r^2$

$$\oint \vec{E} \cdot d\vec{A} = \frac{q}{\varepsilon_0}$$

k

$$\oint \vec{B} \cdot d\vec{A} = 0$$

inverse cubed law



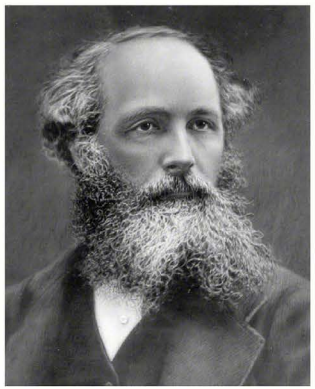
vector
Magnetic forces

$1/r^3$

Maxwell's 1864 achievements concerning electromagnetism have been called the "second great unification in physics", following on from the first one realised by Isaac Newton.

Maxwell's equations
$\nabla \cdot \mathbf{E} = \frac{\rho}{\epsilon_0}$
$\nabla \cdot \mathbf{B} = 0$
$\nabla \times \mathbf{E} = -\frac{\partial \mathbf{B}}{\partial t}$
$\nabla \times \mathbf{B} = \frac{1}{\epsilon_0 c^2}\mathbf{J} + \frac{1}{c^2}\frac{\partial \mathbf{E}}{\partial t}$

James Clerk Maxwell



(13 June 1831 – 5 November 1879)

Any opinion as to the form in which the energy of gravitation exists in space is of great importance, and whoever can make his opinion probable will have, made an enormous stride in physical speculation.

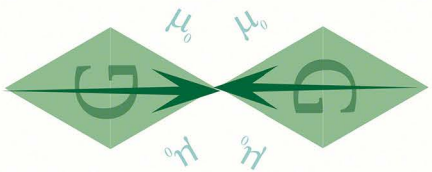
The apparent universality of gravitation, and the equality of its effects on matter of all kinds are most remarkable facts, hitherto without exception; but they are purely experimental facts, liable to be corrected by a single observed exception.

We cannot conceive of Matter with negative inertia or mass; but we see no way of accounting for the proportionality of gravitation to mass by any legitimate method of demonstration

GEM equations
$\nabla \cdot \mathbf{E}_g = -4\pi G \rho_g$
$\nabla \cdot \mathbf{B}_g = 0$
$\nabla \times \mathbf{E}_g = -\frac{\partial \mathbf{B}_g}{\partial t}$
$\nabla \times \mathbf{B}_g = 4\left(-\frac{4\pi G}{c^2}\mathbf{J}_g + \frac{1}{c^2}\frac{\partial \mathbf{E}_g}{\partial t}\right)$

$1/r^2$

strictly convergent vector force



Maxwell proposed a set of equations based on his EM field laws that created a Gravito-Electro-Magnetic field reflective of the similarities between Newton's & Coulomb's Laws

$$\nabla \times \mathbf{E}_g = -\frac{\partial \mathbf{B}_g}{\partial t}$$

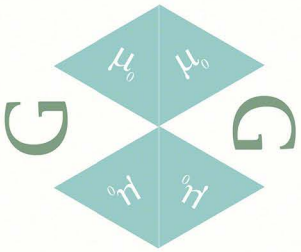
G

$$\nabla \cdot \mathbf{B}_g = 0$$

giving rise to spectulation about the existence of 'gravitons'
a theorised Gravitational 'charge' carrier

$1/r^3$

gravitomagnetic dipole



The General Theory of Relativity
In 1915, Einstein extended SR and proposed a new theory of gravitation to account for accelerating bodies

Einstein said that when he "was sitting in a chair in the patent office at Bern when all of a sudden a thought occurred to me: 'If a person falls freely he will not feel his own weight.' I was startled. This simple thought ... impelled me toward a theory of gravitation. ..."

$$R_{\mu\nu} - \tfrac{1}{2}R g_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu}$$

The EFE is a tensor equation relating a set of symmetric 4 x 4 tensors.

the scalar curvature — the cosmological constant — Newton's gravitational constant

Ricci curvature tensor $R_{\mu\nu} - \frac{1}{2}g_{\mu\nu}R + \Lambda g_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu}$ the stress-energy tensor

the metric tensor — the speed of light in vacuum

Each tensor has 10 independent components

Spacetime — Matter

$$G_{\mu\nu} + g_{\mu\nu}\Lambda = 8\pi T_{\mu\nu}$$

the cosmological constant

General Relativity describes gravity as a warping of space itself, not as a force.
Einstein pictured space as a three-dimensional version of a thin rubber sheet

Einstein's General Theory of Relativity, which was published in 1916 had as its foundation that the laws of nature in an accelerating frame are equivalent to the laws of a gravitational field.

This is known as the Equivalence Principle.

General Relativity

$$G_{ab} = 8\pi G T_{\mu\nu}$$

Albert Einstein

(14 March 1879 – 18 April 1955)

$$G_{ab} = \kappa T_{\mu\nu}$$

curved spacetime — *mass-energy tensor*

where

$$\kappa = -\frac{8\pi G}{c^4}$$

GEM fields & Gravity

Sir Issac Newton

(25 December 1642 – 20 March 1727)

Albert Einstein

(14 March 1879 – 18 April 1955)

Gravity is one of the four fundamental interactions of nature,
along with electromagnetism and the nuclear strong and weak forces

[for centuries scientific enquiry has been aimed squarely at discerning a physical mechanism for gravitation]

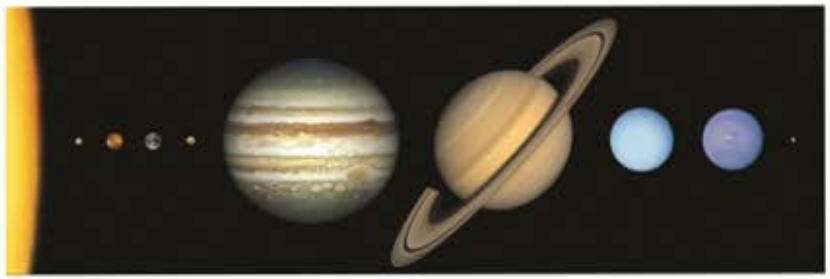
$$\frac{4n\pi}{c^4}\left[\left[m\Omega v^2\right]\right]$$

Matter; Planck quanta; mass; velocity

Tetryonics reveals Gravity to be the result of the displacement of vacuum energies by mass-Matter topologies which is accurately modelled using GEM field geometry

$$F = -G\frac{M_1 m_2}{r^2}$$

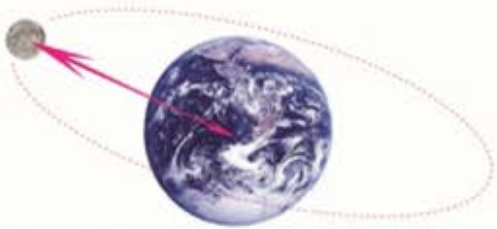
masses



$$G_{ab} = \frac{8\pi G}{c^4} T_{\mu\nu}$$

energies

Gravity is responsible for keeping the Earth and the other planets in their orbits around the Sun;
for keeping the Moon in its orbit around the Earth; for the formation of tides; for natural convection,
by which fluid flow occurs under the influence of a density gradient and gravity;
for heating the interiors of forming stars and planets to very high temperatures;
and for various other phenomena observed on Earth.



instantaneous
action-at-a-distance

Gravity is a natural phenomenon by which physical bodies attract each other with a force proportional to their mass-Matter content.

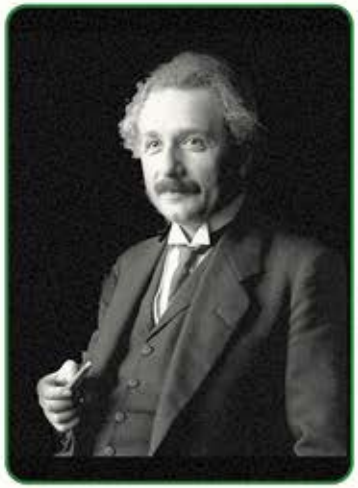
Gravity is most familiar as the agent that gives weight to objects with mass and causes them to fall to the ground when dropped.

Gravity causes dispersed Matter to coalesce, and coalesced Matter to remain intact, to the creation of the SUN, the Earth, and to source of energy in the stars that light our universe.

motion in
curved spacetime

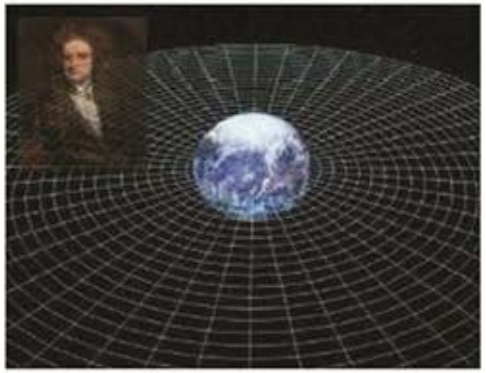
Separating Space & Time





(in the search for Gravity)

Instantaneous 'action-at-a-distance'



DOES

The Earth pull on the moon and
the moon pull proportionally back on the Earth

OR

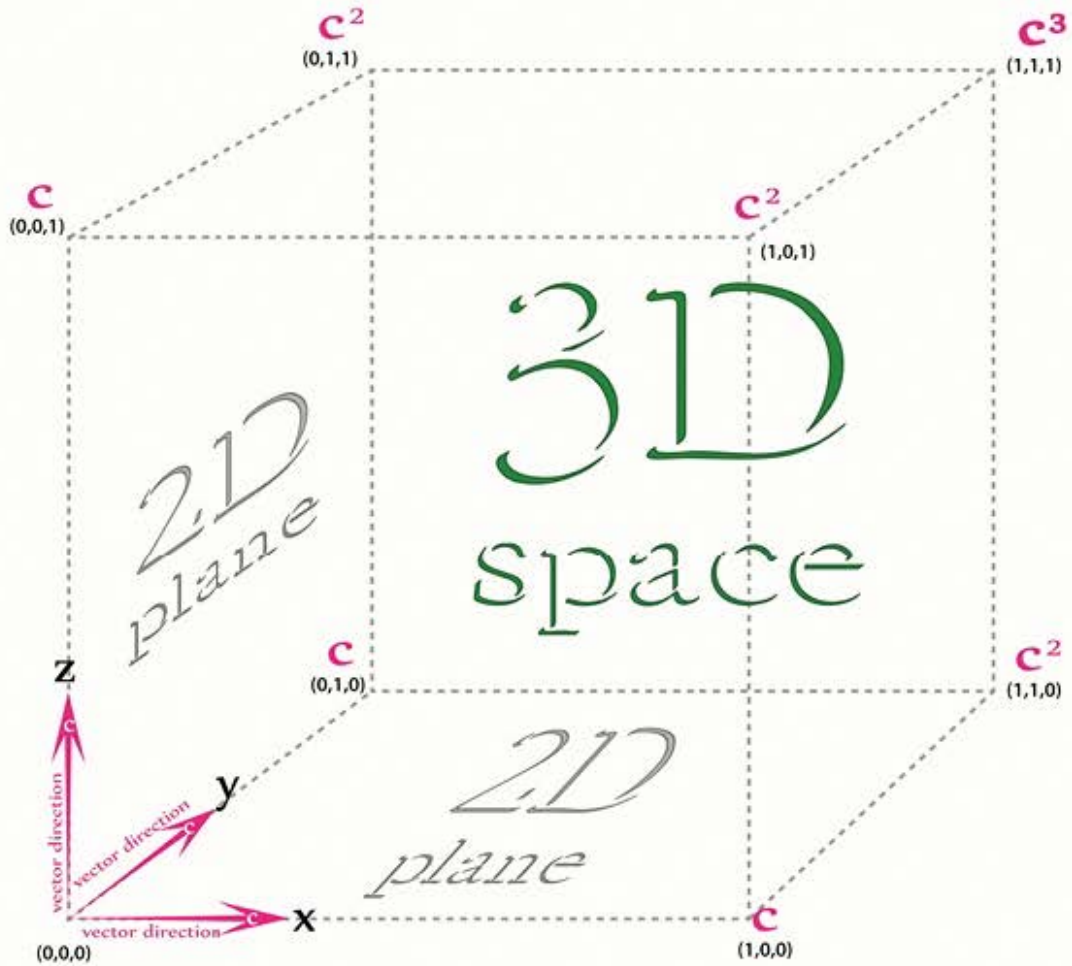
Does the Earth curve spacetime in its vicinity
with the moon following the geodesic path created

Relativistic spacetime 'curvature'

Tetryonic theory through its clear definitions of charged mass-ENERGY-Matter provides the long-sought answer to Gravitation

Empty Space

is defined in Tetryonic & relativistic theory
by the speed of light



Energy

content of free space is Zero

A Spatial region is defined
by a co-ordinate system so as to
measure the physics and motion
of mass-ENERGY-Matter
within its confines

mass

is Energy content per unit of time

EM mass-energies can
be found in (and move through)
empty Space in various forms:
radiant energies, Matter etc

Matter

is Energy content per unit of time squared

Space can be any regular geometry
[Cubic, Spherical or polyhedral]
limited by the spatial co-ordinates
used to define the region or volume

Empty Space is defined as a geometric volume devoid of any form of Energy

Spacetime co-ordinates

The linear force vectors of divergent Energy
can form various co-ordinate systems
based on their vector directions
per unit of time

Charge radiates unilaterally
in the direction of its
vector linear momentum

Vector forces

Euclidean
planar
space-time

EM Light radiates bi-laterally
in the 2 directions of its
linear momentum vectors

c
299,792,458
linear metres
per sec

c²
8.987551787 e16
radial square metres
per sec

c³
2.694400242 e25
cubic metres
per sec

c⁴
8.077608713 e33
spherical metres
per sec

Time in Physics is a measure
of how long it takes for light to
travel 299,792,458 metres
from its source in a vacuum

$$\frac{299{,}792{,}458 \text{ m}}{\text{second}}$$

$$\frac{\text{metre}}{299{,}792{,}458 \text{ sec}}$$

A metre in Physics is
the distance light travels in
1/ 299,792,458 of a second
from its source

Cartesian and Curvilinear
spatial co-ordinate systems
both measure 3D Matter

Energy entropy
of a system

mass-energy-Matter
content of a system

vector lines

1 Dimensional velocity

metres

Planar Circles

2 Dimensions

c^2

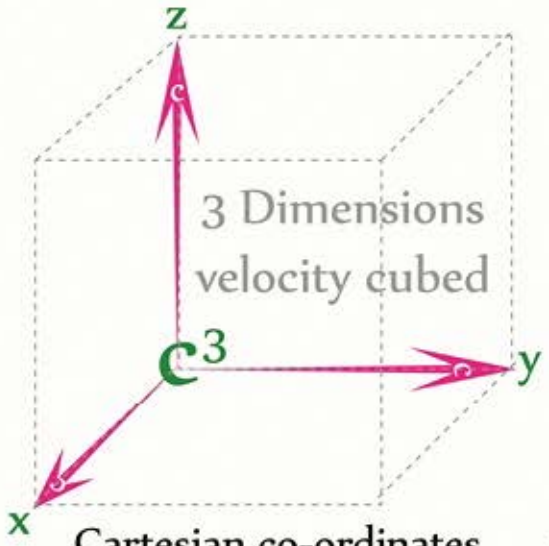
velocity squared

seconds

Spatial co-ordinate geometries

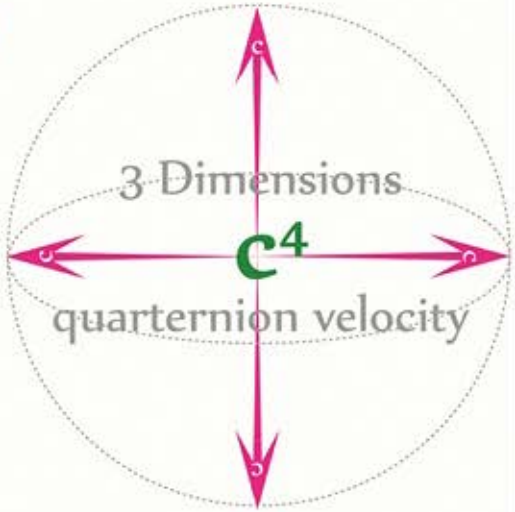
based on the vector speed of light
form distinct spatial co-ordinate systems
for the measurement of physics

Cubic volumes



Cartesian co-ordinates

Spherical volumes



seconds²

Forces

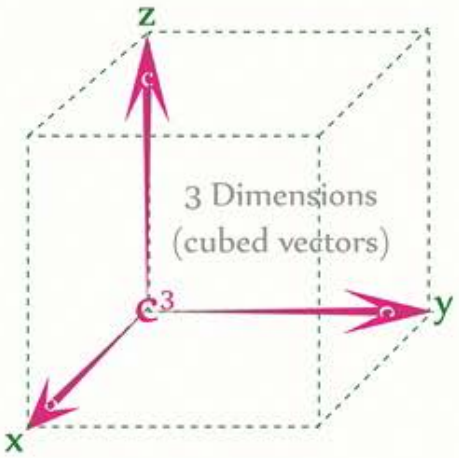
mass-energies

EM energy has an equilateral geometry
and forms Tetrahedral topologies
within regions of empty space

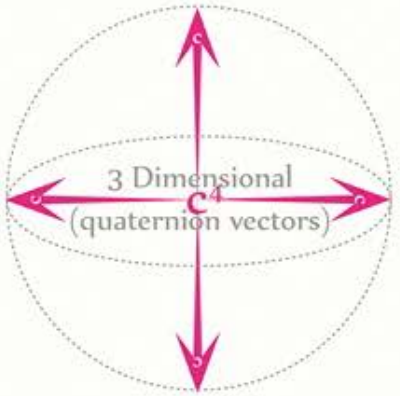
mass-Energy-Matter
and all forces

Spatial co-ordinate systems

Cubic



Spherical



seconds²

Spacetime (or space–time, or space time) is any mathematical model that combines space and time into a single continuum.

Spacetime is usually interpreted with space as being three-dimensional and time playing the role of a fourth dimension that is different from the spatial dimensions.

Tetryonic theory redefines as time to be a measure of the changing quantised angular momenta of Planck scale Charges In any spatial plane or volume

By combining space and time into a single manifold, we can significantly simply a large number of physical theories, and re-formulate them in a more uniform way to explain the mechanics of the Universe at all scales

Tetryonics maps radial spacetime co-ordinates through the vector momentum of Energy

Cartesian Space-Time

3 spatial vectors

Recti-Linear energy momenta mapping

1 hidden dimension of time

The quantised angular momenta of mass-Energy and Matter are triangular geometries

The current methodologies for mapping energy densities onto Euclidean, Cartesian and Reimannian co-ordinates are inaccurate reflections of the charged mass-ENERGY-Matter geometries, introducing a mathematical complexity to a otherwise simple foundational equilateral geometry

Tetryonic Space-Time

3 spatial vectors

Tetryonic mass-ENERGY- Matter geometries

changing QAM is time

By mapping equilateral mass-energies & Matter into radial spatial co-ordinates Tetryonic theory is able to reveal the hidden 4th dimension of time

Space & time separated

All equilateral mass-energies & tetrahedral Matter can be mapped with planar spatial geometries within spherical space-time co-ordinates

Space is the region of measurement defined by the vector propagation of light
time is a measure of the changing QAM within any spatial region

Tπ standing-waves

c^4 spatial regions contain mass-Matter

spatial field

nullspace

compounds

c^2 spatial regions contain mass-energies

nπ radiant geometries

weak irradiated mass-energies permeate 'empty' space
[vacuum energies]

γ

photons

Baryons

Elements

3D Matter

topologies

Molecules

W+

2D mass-energy

geometries

+q

bosons

charges

-q

W-

photons

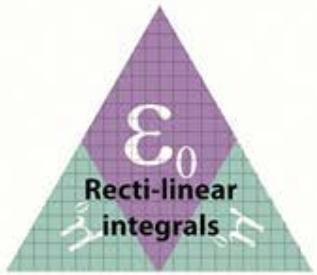
γ

'nullspace' is a spatial region devoid of all forms of energy
[found only within tetrahedral Matter topologies]

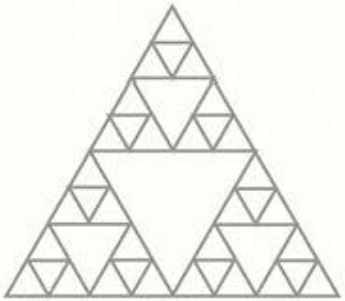
2D Euclidean spatial geometry

All 2D mass-energy momenta map onto **FLAT** Euclidian co-ordinates

[x,y] $\Delta\Omega$
(2D space & time)

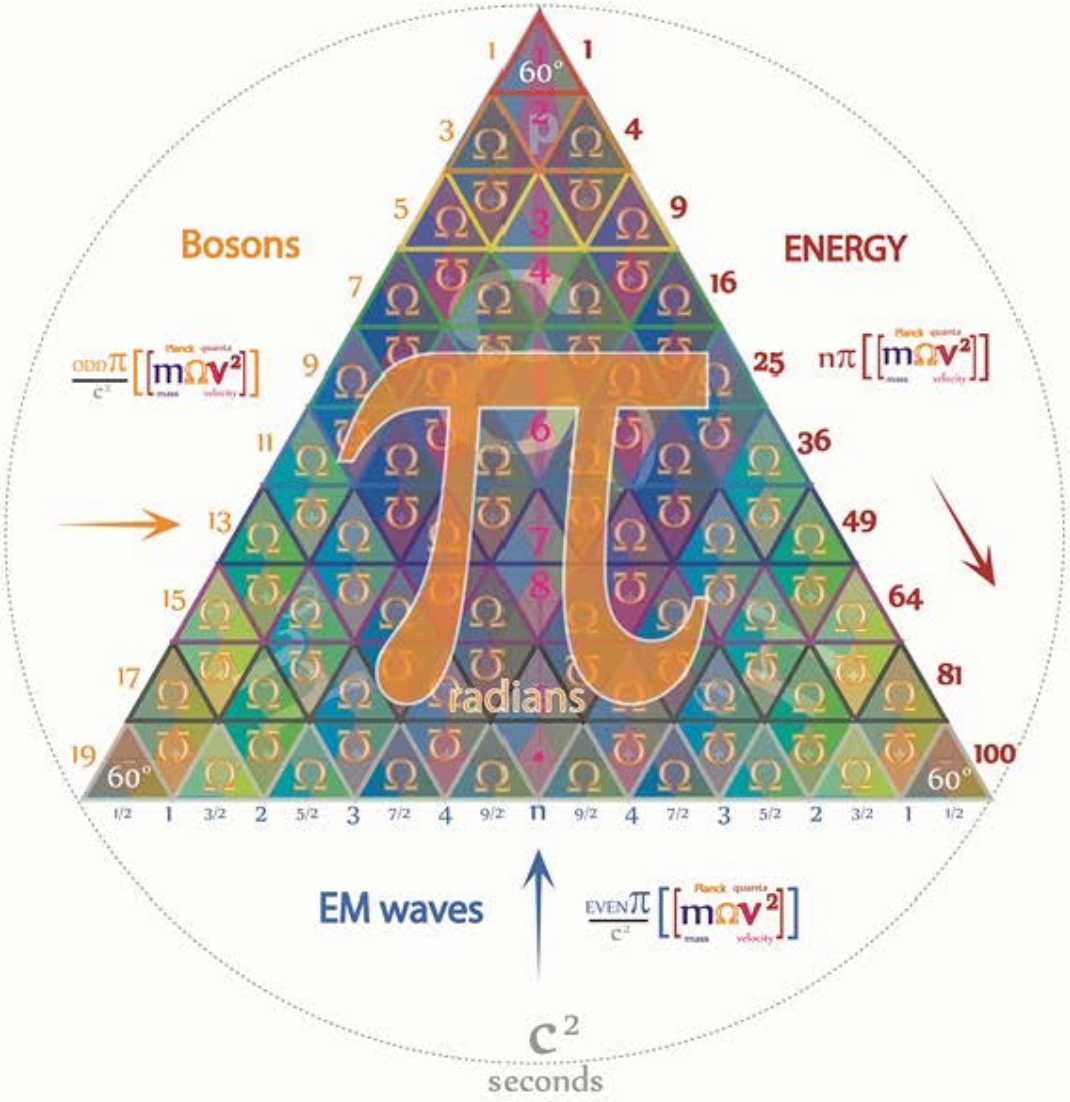


Cartesian spatial co-ordinates
fail to accurately map
equilateral energy momenta

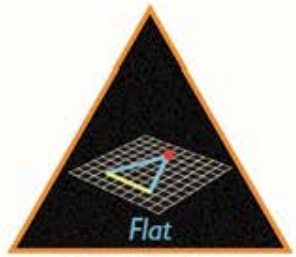


Minkowski spacetime
is a close approximation of
Tetryonic energy momenta

Tetryonic space-time

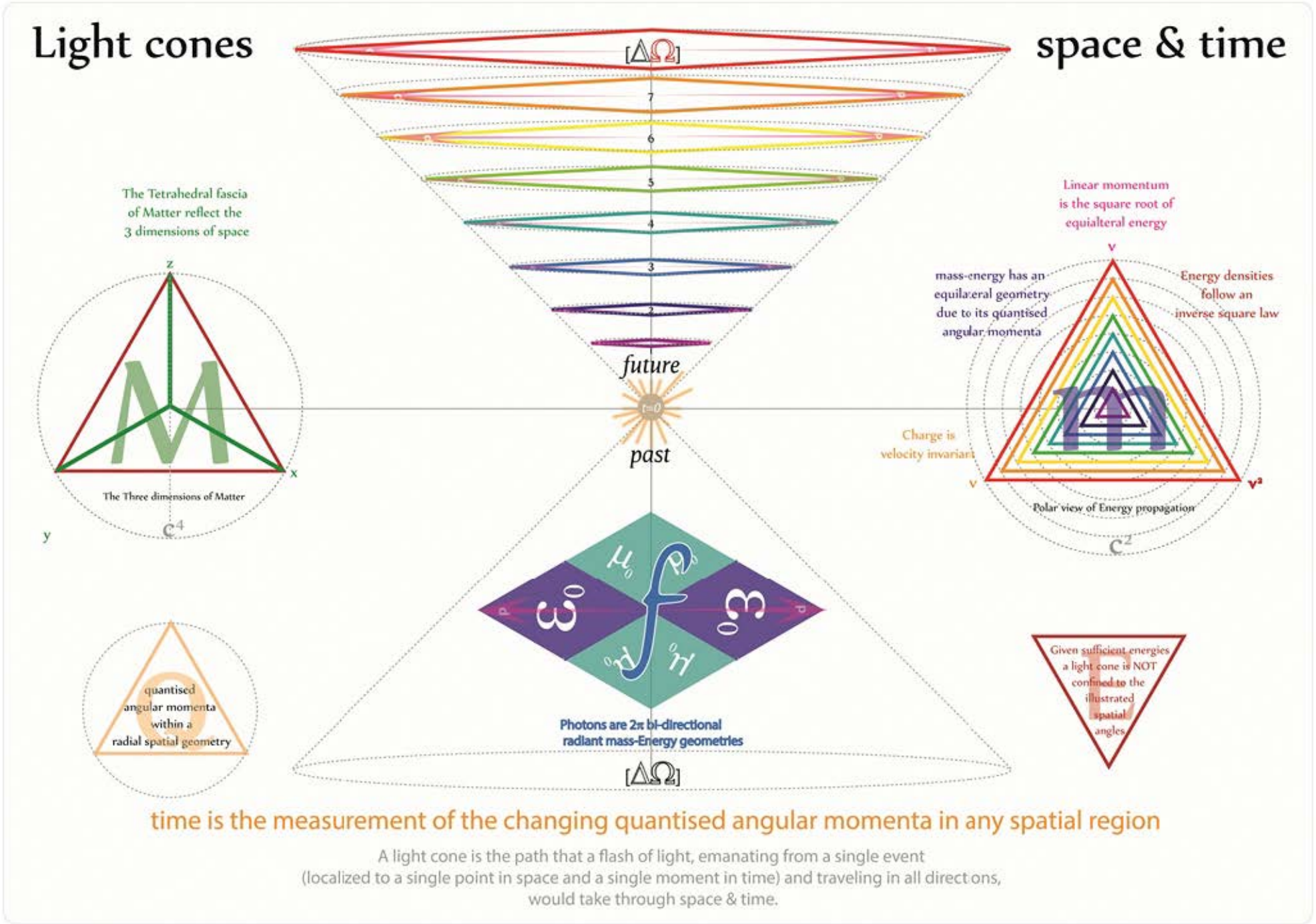


negative curvative
angles add up to > 180 °



flat Euclidean
angles = 180 °

positive curvature
angles add up to < 180 °



time is the measurement of the changing quantised angular momenta in any spatial region

A light cone is the path that a flash of light, emanating from a single event
(localized to a single point in space and a single moment in time) and traveling in all directions,
would take through space & time.

Charge, energy momenta & time

measurements of the changing quantised angular momenta of scalar energy is the basis of measuring time

Ω

.0012

$\frac{m^2}{s}$

quantised angular momentum

$\beta = \left[\frac{v}{c}\right]$

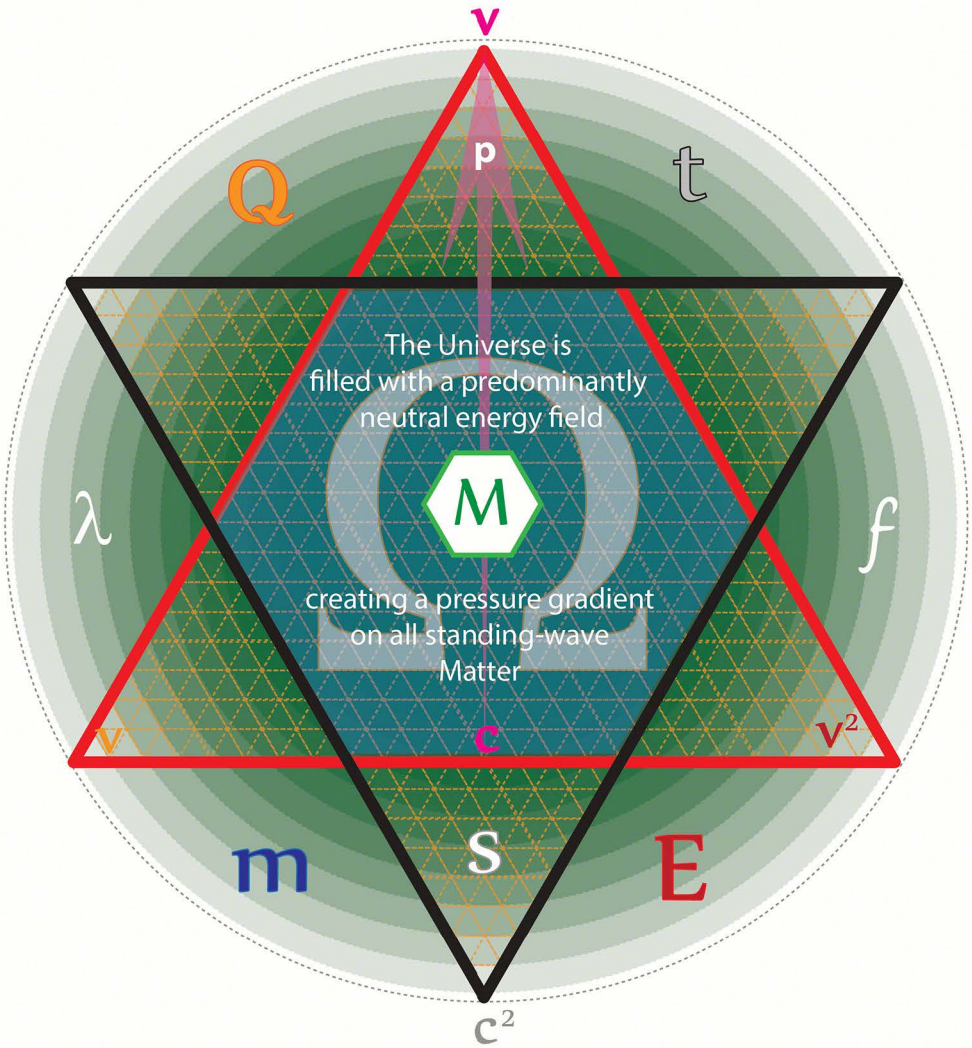
Linear Lorentz factor

metres

$\frac{m^2}{s} \cdot \frac{s}{m}$

$\frac{\Omega}{v}$

λ



Velocity of Light

$c = \left[\left[\frac{\Omega}{c}\right]^{\lambda} \cdot \left[\frac{c^2}{\Omega}\right]^{f}\right]$

Wavelength Frequency

q

$\frac{\Omega}{c^2}$

$\frac{m^2}{s} \cdot \frac{s^2}{m^2}$

seconds

$\left[\frac{v^2}{c^2}\right] = \beta^2$

Scalar Lorentz factor

per second

$\frac{m^2}{s^2} \cdot \frac{s}{m^2}$

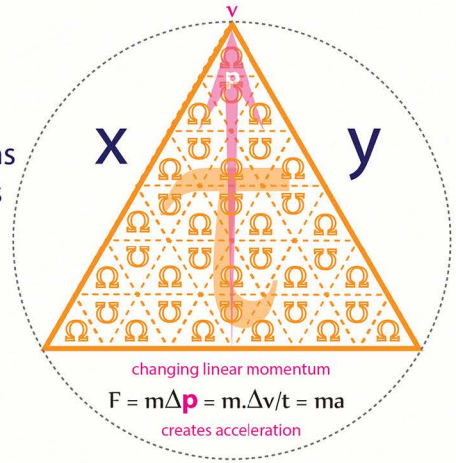
$\frac{v^2}{\Omega}$

f

$\vec{p}$

Spatial co-ordinate systems are defined by the vectors of their linear energy momentum

Space
[x,y,z]



$\Delta\Omega$

Time is a measure of the changing quantised angular momenta in any defined region of space

Time
[seconds]

Spacetime Fields

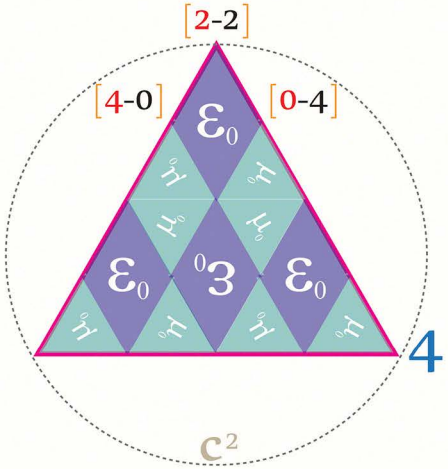
are spatial geometries that contain changing Quantised Angular energy-Momenta
[Planck quanta]

Charge is the nett distribution of Planck quanta mass.[Quantised Angular Momenta] within any spatial co-ordintate system

EM masses are 2D planar energy waveforms

2D mass-energy quanta have linear & angular momenta

Matter has a 3D volumetric energy waveform



$$\frac{n\pi}{c^2}\left[\left[m\Omega v^2\right]\right]$$
mass: Planck quanta; mass: velocity

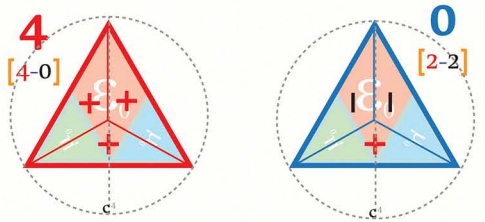
Tetryonic geometry restores symmetry to Einstein's mass-energy equivalence and reveals a mass-ENERGY-Matter equivalance

radiant mass-energies can form standing-wave Matter

$$\frac{m}{c^2} = E = M$$

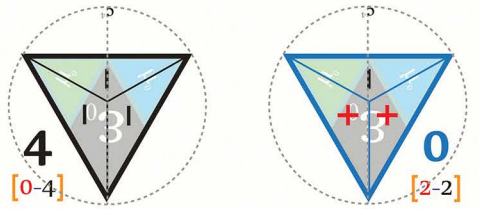
standing-wave Matter can release radiant mass-energies

where space and time are separated



Matter: Planck quanta

$$\frac{T\pi}{c^4}\left[\left[m\Omega v^2\right]\right]$$
mass: velocity



The 4th dimension of Time

is charge, the angular momenta associated with any planar mass-energy

Accelerate

$\vec{p}$

increasing a systems's linear momentum

$F = m\Delta p = m.\Delta v/t = ma$

creates acceleration

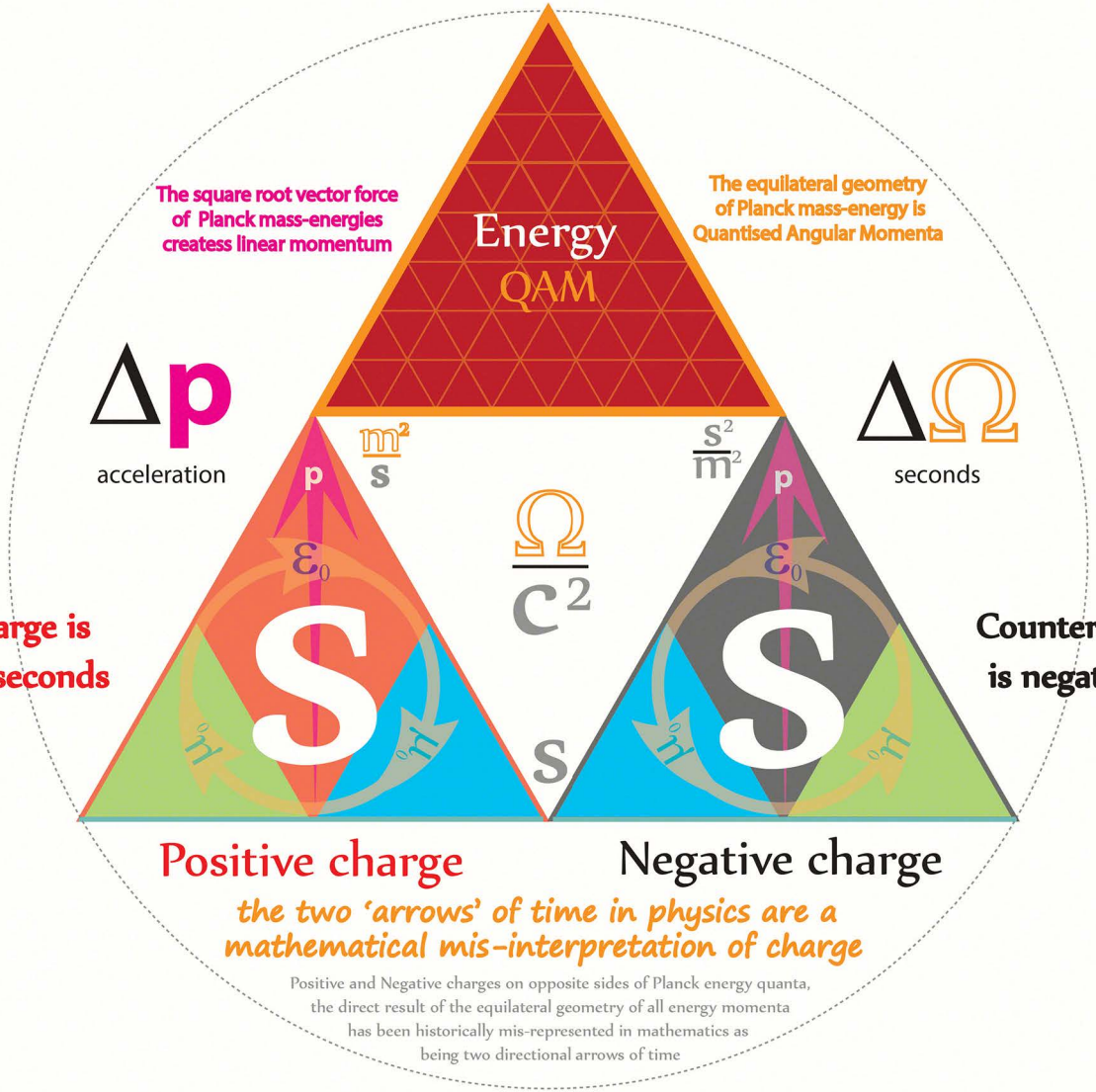
Deccelerate

$\overleftarrow{p}$

decreasing a systems's linear momentum

$F = m\Delta p = m.\Delta v/t = ma$

creates decceleration



$\Delta\Omega$

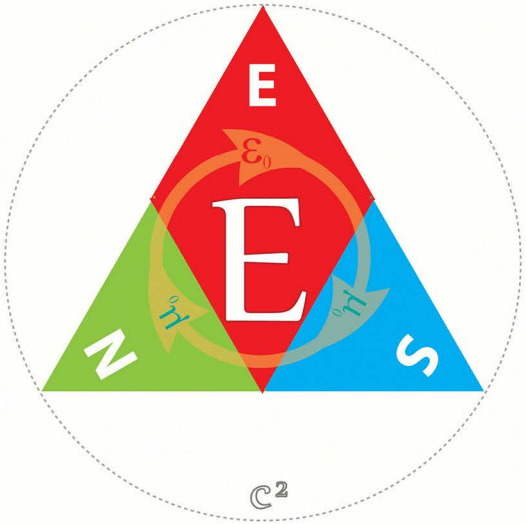
Positive Time

Time is a measure of the changing angular momenta-energy (Planck geometry) of any given spatial region

$\Delta\Omega$

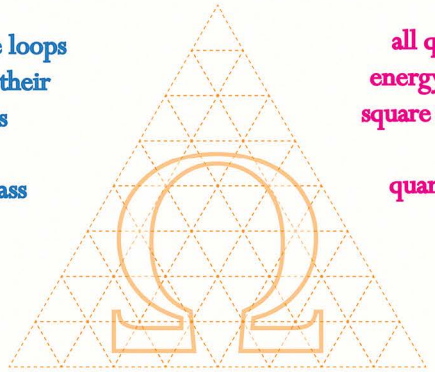
Negative Time

CHARGE



all ideal inductive loops
resist changes to their
Energy levels

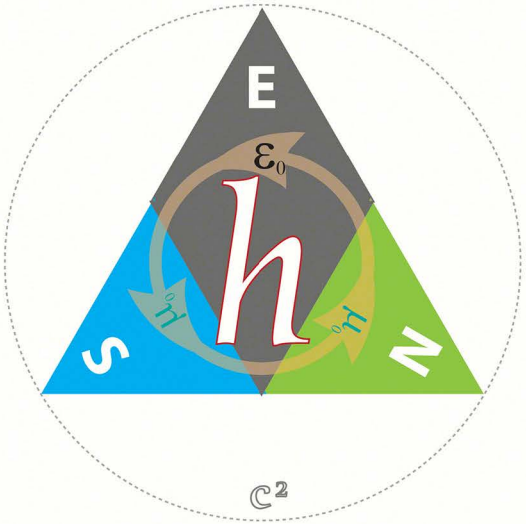
INERTIAL mass



All quantised angular momentum
is an equilateral geometry

all quantised Planck
energy momenta posses
square root vector Forces

quantum of WORK



vector velocity results from
linear momentum - the square root
of all scalar energies

$$kg\left[\frac{m^2}{s^2}\ \frac{s^2}{m^2}\right]$$

$$kg\left[\frac{m^2}{s}\ \frac{s^2}{m^2}\right]$$

Scalar energy
per unit time

mass

Planck quanta
per unit time

mass.seconds

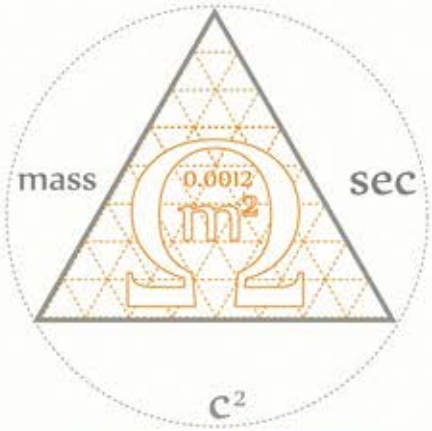
Positive charged mass-energy

1
[1-0]

Clockwise inductive energy flux

Charge is the equilateral geometry of Energy that gives form to all mass & Matter

charge



time

mass.seconds in physics is expressed as Coulombs [charge]

$$t \quad \frac{\Delta\Omega}{c^2} \quad \frac{m^2}{s}\frac{s^2}{m^2} \quad s \quad t$$

seconds

1.33518 e-20 s

Changes to nett quantised angular momenta [charged mass-energies] within any spatial co-ordinate system forms the basis of time

Negative charged mass-energy

1
[0-1]

Counter clockwise energy flux

ElectroMagnetic Charge is a quantum property resulting from the equilateral QAM geometry of mass-energy

Two ElectroMagnetic charges are possible & both are created through the tesselation of EM energy momenta in ideal inductive loops

The Quantum Arrow of Time

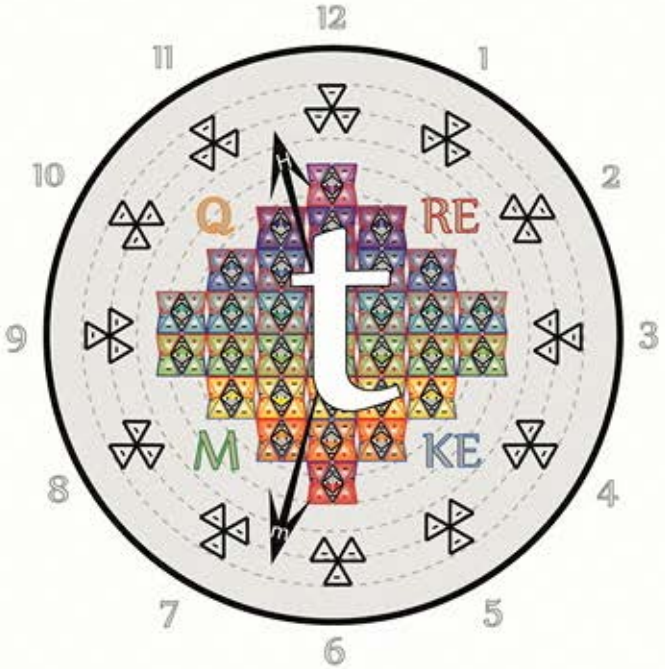
in physics is a measurement of changes to quantised angular momenta

Thermodynamic arrow of time

The Entropy of a system always increases

Radiative arrow of time

EM mass-energies rative outward from a point source



Cosmological arrow of time

The Universe is evolving from a big bang to ?

Causal arrow of time

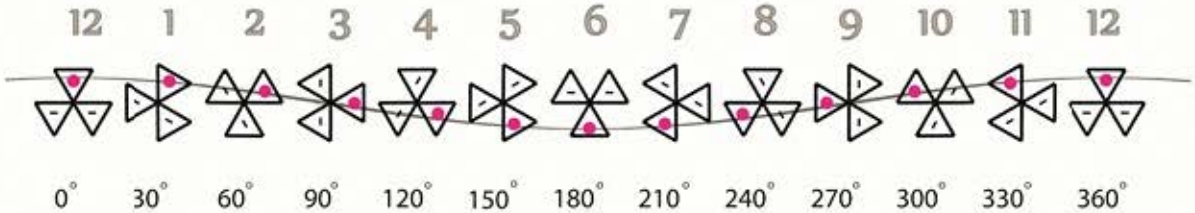
A cause always precedes its effect

Tetryonic theory maps QAM as equilateral Planck geometries & reveals ΔQAM to be time
Time and the spatial dimensions it creates are mapped with radial & spherical co-ordinates

ΔmΩ Decceleration

The Arrow of Time

is our perception of changing quantum-scale angular momenta



ΔmΩ Acceleration

Time dilation

An accurate clock at rest with respect to one observer may be measured to tick at a different rate when compared to a second observer's own equally accurate clocks.
This effect arises neither from technical aspects of the clocks nor from the fact that signals need time to propagate, but from the nature of spacetime itself.

The changing quantised angular momenta of all mass-energy-Matter densities in any spatial region all impact on our measurement of time [ΔΩ]

increasing the mass of Matter increases the stress energy tensor [mass-energy gradient]

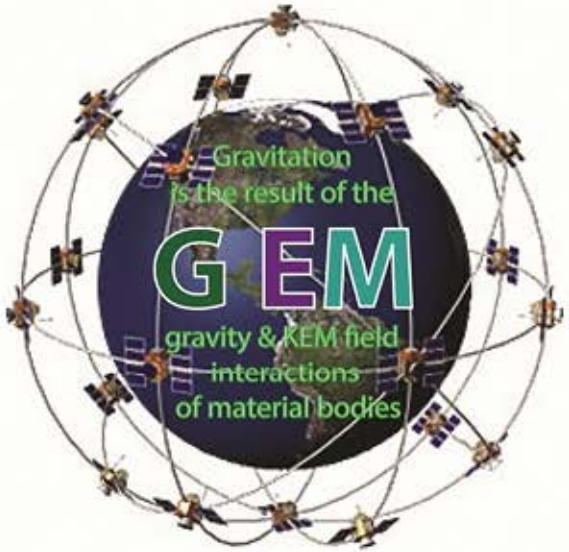
Stronger G fields

GR

Vacuum energy-Matter pressure gradients

Weaker G fields

gravity is proportional to the material displacement volume of mass-Matter in a given spatial region of vacuum energy



tests of GR using photons are erroneous tests of SR

accelerating material objects increases the Planck quanta [mass.QAM] in their KEM fields

Stronger KEM fields

SR

Kinetic EM energies of motion

Weaker KEM fields

deccelerating material objects decreases the Planck quanta [mass.QAM] in their KEM fields

Any attempt to accurately model the full effections of Gravitation must include a complete definition and differentiation of all mass-energy & Matter along with the vacuum energy pressure gradient created by them

In the theory of relativity, time dilation is an actual difference of elapsed time between two events as measured by observers either moving relative to each other or differently situated from gravitational masses.

Entropy in physical systems

is the result of changes to the net organisation of quantised angular momenta as it seeks equilibrium

Second law of thermodynamics

An isolated physical system, if not already in its own internal state of thermodynamic equilibrium, spontaneously evolves towards it.
In an isolated physical system, there is a tendency towards spatial homogeneity.

The Boltzmann equation was developed to describe the dynamics of an ideal gas

$$\frac{\partial f}{\partial t} + v\frac{\partial f}{\partial x} + \frac{F}{m}\frac{\partial f}{\partial v} = \frac{\partial f}{\partial t}$$

Ludwig Eduard Boltzmann

(February 20, 1844 – September 5, 1906)

$$S = k\cdot[\log(W)]$$

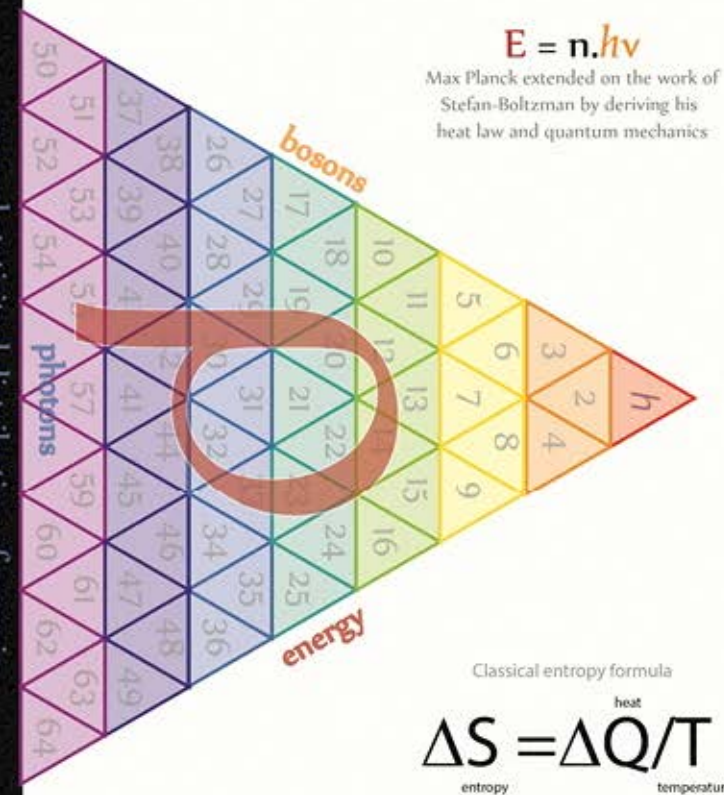
Boltzmann entropy formula

Tetryonic theory utilises the equilateral geometry of ideal quantum inductors to model EM energies

mass-energy radiator

normal statistical distribution of energies

Energy in all its forms seeks equilibrium



$$E = n.h\nu$$

Max Planck extended on the work of Stefan-Boltzman by deriving his heat law and quantum mechanics

Classical entropy formula

$$\Delta S = \Delta Q/T$$

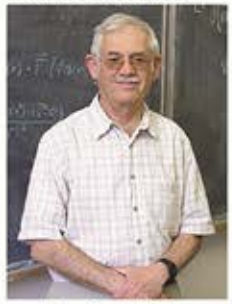
entropy — heat — temperature

Energy always moves from higher energy organised systems to a lower dis-organised system

lower energy blackbody

A black body is an idealized physical body that absorbs all incident electromagnetic radiation

Jacob David Bekenstein



(born May 1, 1947)

Bekenstein–Hawking entropy formula

$$S = \frac{\pi A k c^3}{2hG}$$

still uses 3D [c^3] classical cartesian co-ordinates

Stephen William Hawking

(born 8 January 1942)

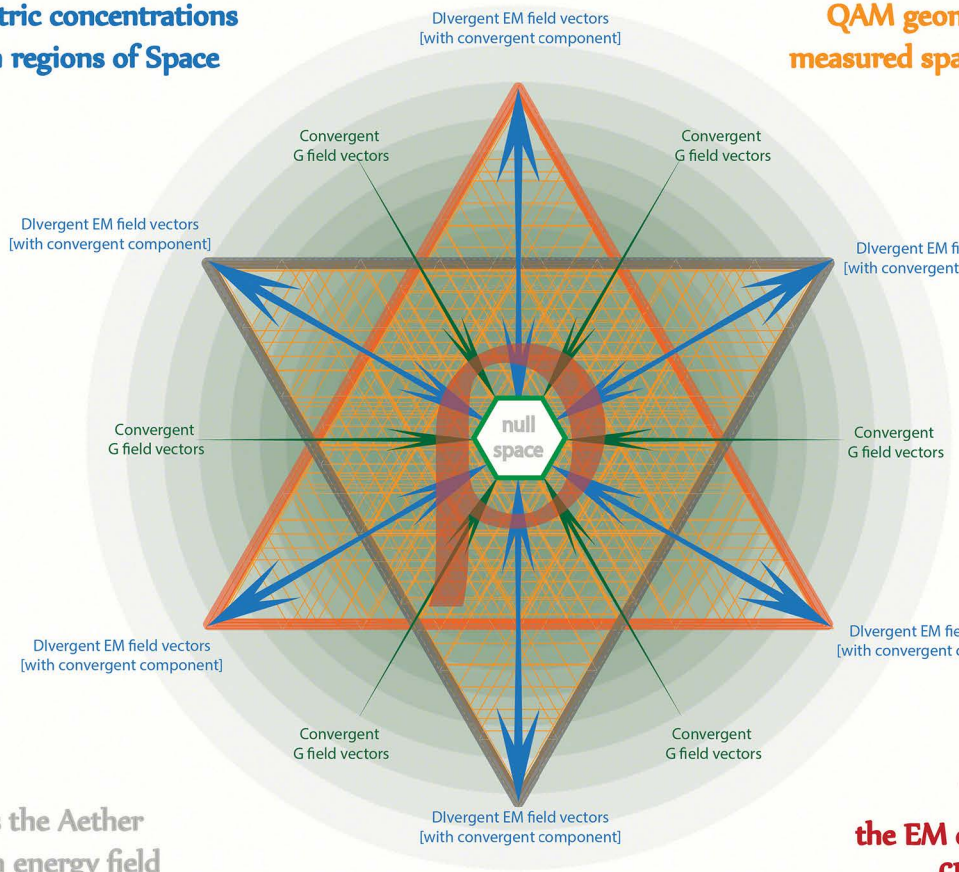
Tetryonic theory unites classical and quantum mechanics with relativity through equilateral QAM

The Aether

Aether theories in physics propose the existence of a medium, the aether
a space-filling substance or field, thought to be necessary as a transmission
medium for the propagation of electromagnetic waves.

bosons, photons and Matter
are simply geometric concentrations
of EM energy in regions of Space

Spacetime is the
QAM geometry of any
measured spatial [LT] region



Vast radiant energy fields
exist throughout all of Space
save inside Matter topologies

Matter geometries form
perfect quantum Faraday cages
excluding all energies
thus creating nullspaces

The low level EM fields
permeating the space between
Matter forms a background
vacuum energy density

The vacuum energy field
acts upon the internal 'null space'
volumes of all Matter creating a
gravitational pressure gradient

Historically refered to as the Aether
(or the Ether) this vacuum energy field
has been the source of much contention

Vacuum Energy is
the EM energy that permeates and
fills any spatial region

Photons do not require the aether to propagate however
the aether is permeated with 'weak' superpositioned EM fields

The Luminiferous Aether

In the late 19th century, luminiferous aether or ether, meaning light-bearing aether, was proposed as a medium for the propagation of light.

Newton's Opticks (1704) postulated an "Aethereal Medium" transmitting vibrations faster than light, by which light, is put into "Fits of easy Reflexion and easy Transmission"

Maxwell proposed a mechanical sea of molecular vortices to explain the transfer of ElectroMagnetic energies

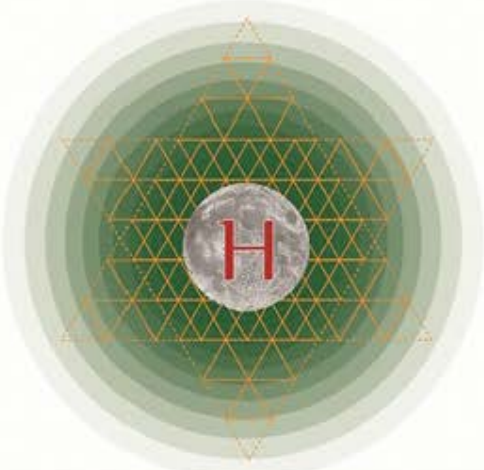
Einstein wrote that one can actually speak about a "new aether", but one may not speak of motion in relation to that aether

$\frac{\rho}{m^2}$

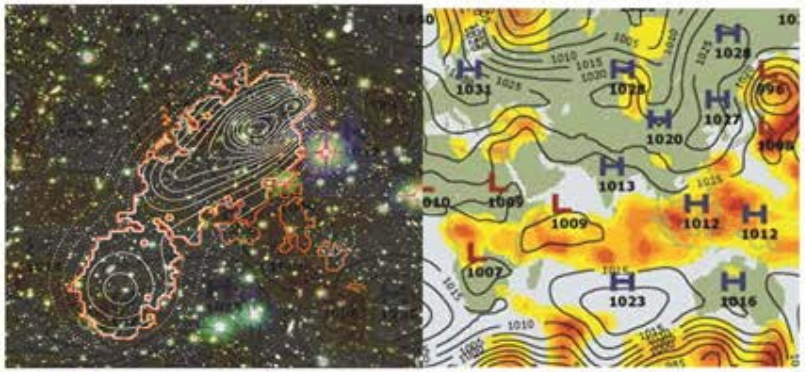
Photons are radiant 2D mass-energy geometries

Vacuum energies are very long wavelength photons

Hendrik Lorentz created an electron/aether theory, in which he introduced a strict separation between Matter and the aether



In Tetryonics all EM radiation & Matter are revealed to be concentrations of geometric Energies seeking equilibrium in regions of Spacetime



The aether does NOT facilitate the transmission of Energies throughout the Universe, it is the result of radiated [K]EM energies

Vacuum energies can be likened to the mean atmospheric pressure, with 2D mass-energies being HIGHER pressure 'gusts'

and

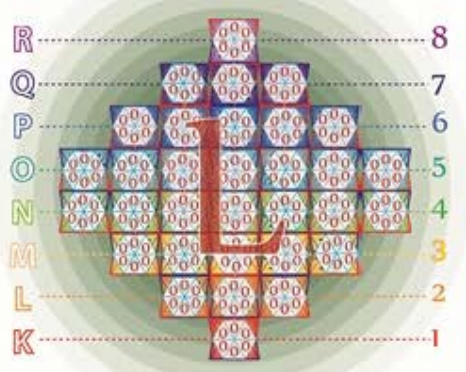
the nullspaces within 3D Matter creating a LOW pressure gradient [providing a driving mechanism akin to to that of Storms, Cyclones or Tornados]

$\frac{\rho}{m^3}$

All Matter are 3D mass-energy topologies containing nullspaces

Planets, Stars and Galaxies contain high densities of mass-energies

Michaelson and Morley sought to detect the Relative motion between the Earth and aether by measuring the speed of light

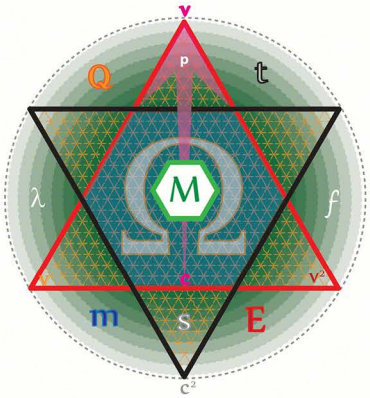


Vacuum Energy

Vacuum energy is an underlying background mass-energy that exists in free space even when the space is devoid of matter

The Universe is Electric in nature and all Matter in it interacts via Gravito-Electro-magnetic [GEM] fields

Tetryonics shows that all Matter is quantised and these charged mass-energy quanta produce EM fields of varying strengths in turn radiating out from the source Matter into Space to form GEM fields



VE is not a 'quantum foam' as popularly depicted, it is a triangular Euclidean geometry of neutral mass-energies

The internal nullspaces of all Matter geometries creates a pressure gradient within Vacuum energies

Photons

'Vacuum' Energies

EM fields do NOT propagate to 'infinity'

They radiate under the inverse square law until they weaken to become vacuum-energies

Gravitational Energy

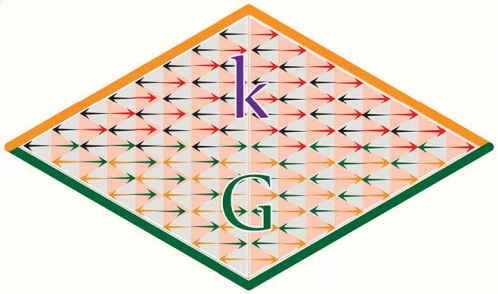
Matter

There are no 'virtual particles' in free space only varying mass-Energy density geometries [Bosons, Photons & Matter]

The Cosmic background radiation is the result of low level KEM fields radiated from all Matter

The field gradients are strongest closer to bodies of Matter

Coulombic fields are DIVERGENT [K]EM fields with interactive forces



Gravitational fields are CONVERGENT Gravity is always attractive

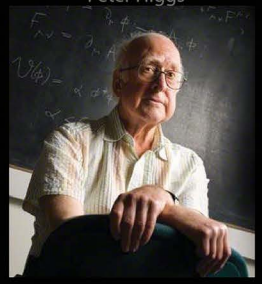
Space is not Black [it is INDIGO]

It is filled with superpositioned EM fields

The Higgs Field

is another name for the Aether (or vacuum energy field) that fills free Space, its interaction with inductive Tetryonic topologies creates the inertial properties observed in mass-Matter

Peter Higgs



(born 29 May 1929)

The 'Higgs Boson' is just a W boson by another name

All Higgs vacuum fields are equilateral mass-Energy-momenta fields

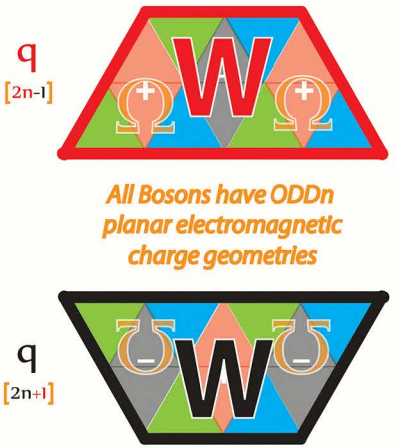
Free Space

is any spatial region free of EM energy quanta (nullspace within Tetryons)

Vacuum Energy

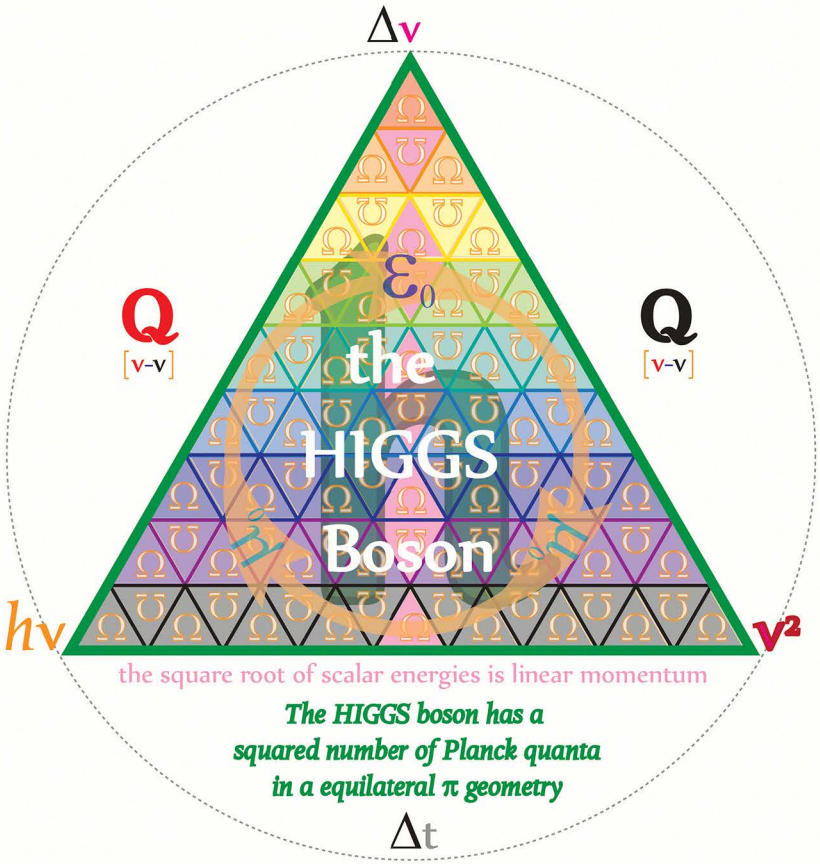
is the lowest denisty [longest wavelength] electromagnetic mass-energy that having diverged from Matter radiates outwards to fill space & create a pressure gradient

'Virtual particles' do NOT exist



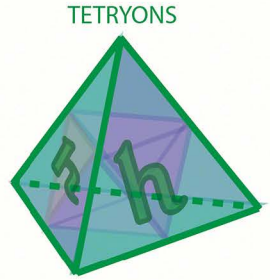
All Bosons have ODDn planar electromagnetic charge geometries

Inductive resistance to changes of the energy content of charged fascia through vacuum energy fields creates inertial mass

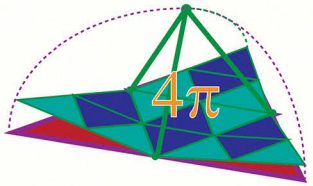


the square root of scalar energies is linear momentum

The HIGGS boson has a squared number of Planck quanta in a equilateral π geometry



All Matter has 4n enclosed tetrahedral charge topologies



$$\frac{n\pi}{c^2}[[m\Omega v^2]]$$

mass — Planck quanta — mass — velocity

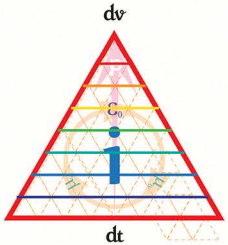
Electromagnetic mass is a measure of the Energy content of a 2D geometry per unit of Time

m

mass-energy is a 2D geometric property of 3D Matter

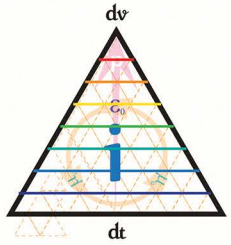
The HIGGS boson is an alternative name for the 2D charged mass-energy fascia of all Matter

[whose inductive QAM quanta create the physical property of inertial mass]



$$F = \mathring{m}a$$

inertial mass is a measure of a body's resistance to changes in acceleration due to external forces



$$\frac{T\pi}{c^4}[[m\Omega v^2]]$$

Matter — Planck quanta — mass — velocity

3D material Matter is a EM standing-wave topology whose mass is a measure of its geometric Energy content

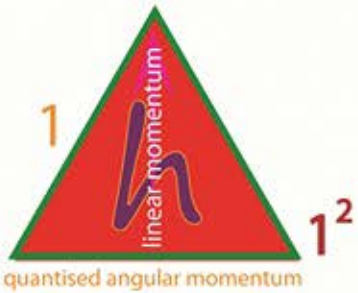
M

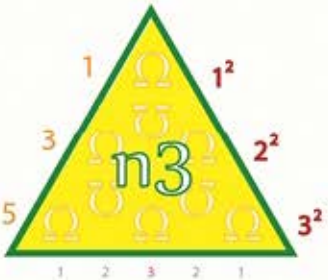
Matter is the 3D topology created by mass-energies

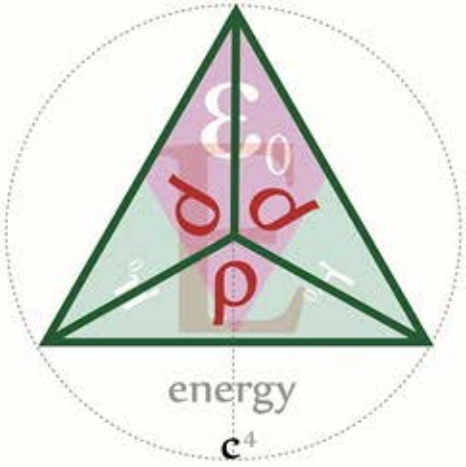
Charged Planck quanta form the geometry of of all mass-ENERGY-Matter [each charge fascia contains equilateral mass-energy momenta]

The energy momenta density of standing wave Matter

determines its inertial mass







m
mass
kg

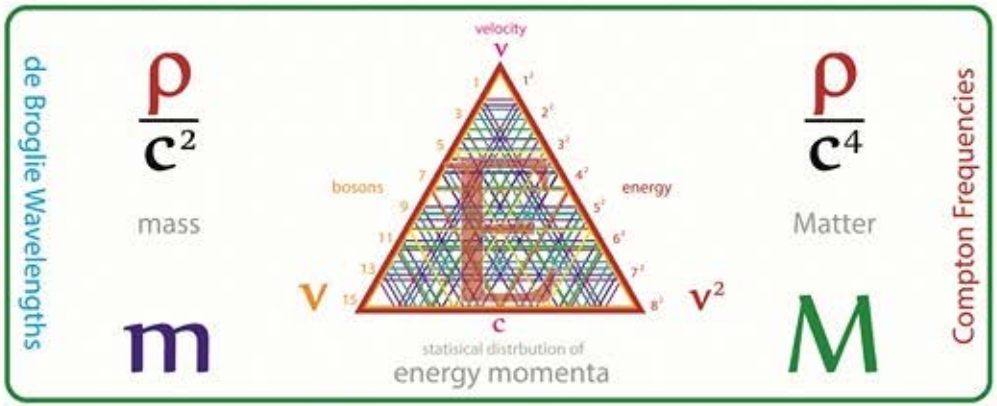
M
Matter
KG

Spatial topology

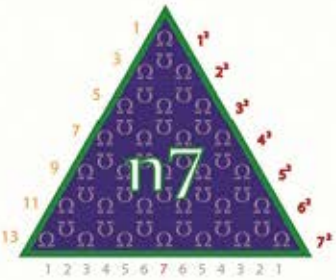
$$\frac{4n\pi}{c^4}\left[\left[\underset{\text{mass}}{m}\Omega\underset{\text{velocity}}{v^2}\right]\right]$$

Matter Planck quanta

EM mass-energies



The mass-energy content of Matter is contained entirely within its charged fascia topology



3D Nullspaces

Planck mass-energy quanta clothe
only the topologies of Matter

**3D EM fields with volume
are measurements of
Energy per unit Time squared
[Matter]**

$T\pi$

**Nullspace is proportional to the
internal volumes of Tetryons**

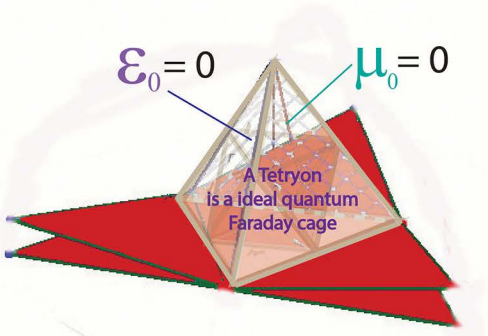
**2D planar EM fields
are measurements of
Energy per unit Time
[EM mass]**

$[m\Omega v^2]$

**The mass-energy densities [fascia] of
Matter do NOT influence nullspaces**

**Inside the Tetrahedral topologies
of all Matter exists the only true vacuum**

Any radiant energy trying to enter
the interior volume of a Tetryon
will be absorbed into the fascia,
increasing its Tetryonic mass
(or increasing its KEM field energy)



A volume devoid of any possible energy quanta
[ie The True vacuum]

The interior volume of Tetryons has the
lowest energy density/pressure possible
and is accumulative as Matter forms
increasingly complex states, creating
regions of low energy density within
the nuclei of all Matter

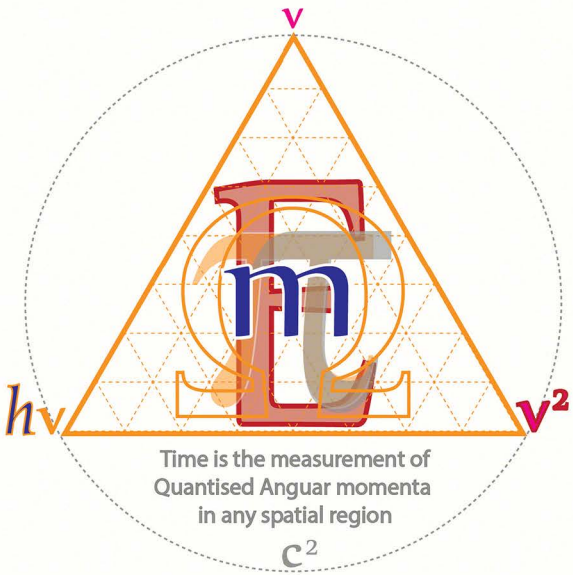
*Outer space is considered a high-quality vacuum,
with the equivalent of just a few hydrogen atoms
per cubic meter on average. However even it is
permeated with superpositioned EM fields
of vacuum mass-energies*

$$\frac{\rho_0}{T}$$

*A true vacuum is a spatial volume
that is completely devoid of EM mass-energies,
such that its energy density/pressure is much lower
than of the surrounding energy density/pressure
[a nullspace]*

[x,y] $\Delta\Omega$

Positive charges in 2D space
are classically modelled as
clockwise energy fluxs



[x,y] $\Delta\Omega$

Negative charges in 2D space
are classically modelled as
anti-clockwise energy fluxs

Charged Planck mass-energies provide the scaffolding of 3D Matter

$$\frac{n\pi}{c^2}\left[\left[m\Omega v^2\right]\right]_{\text{mass}}^{\text{Planck quanta}}$$

m mass

[x,y,z] $\Delta\Omega$

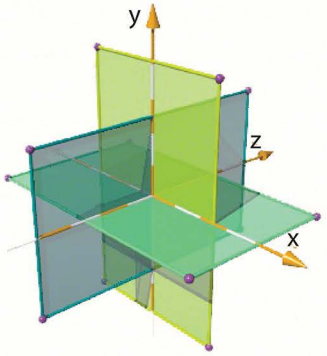
3D Space and Time

M Matter

$$\frac{T\pi}{c^4}\left[\left[m\Omega v^2\right]\right]_{\text{mass}}^{\text{Planck quanta}}$$ Matter

2D mass geometries are a property of 3D Matter

2 Dimensional mass-energies



3 Dimensions of Space

kg

radiant

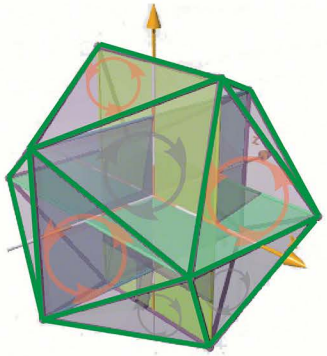
2D mass-energy momenta

$$T\pi\left[\left[\varepsilon_0\mu_0\right]_{\text{impedance}}^{\text{EM Field}}.\left[m\Omega v^2\right]_{\text{mass}}^{\text{Planck quanta}}\right]$$

creates 3D standing-wave Matter

KG

2D charged fascia



3D Space + Time

3D Matter topology is not a property of 2D mass-energy

The impedance of any spatial region

is determined by its scalar energy content

4
[4-0]

Positive Matter

4
[0-4]

Negative Matter

$$\frac{m}{hv^2}$$

$$\frac{mc^2}{v^2}$$

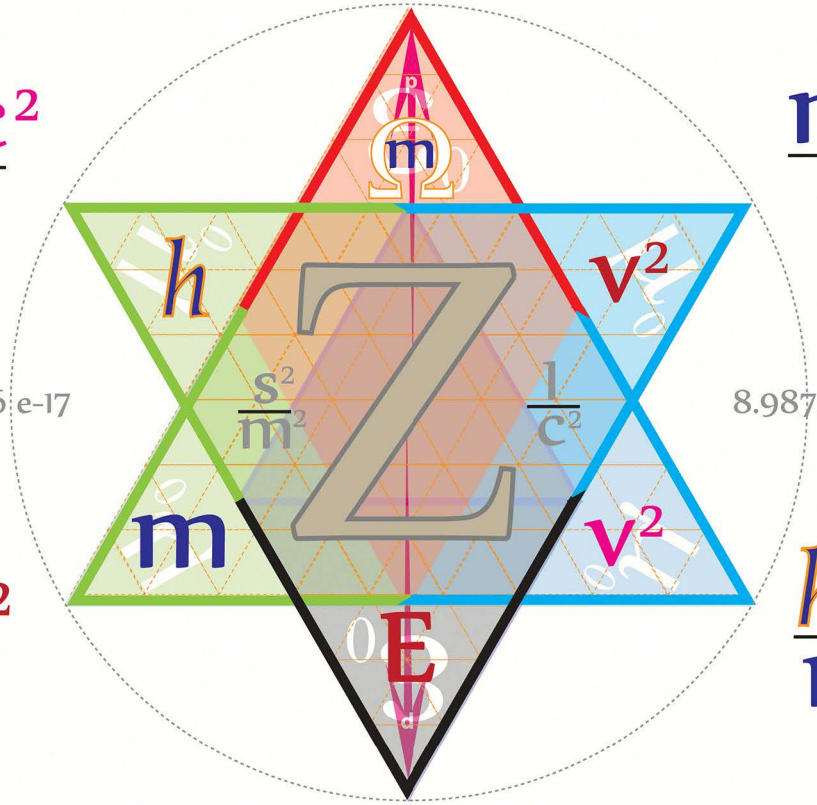
$$\frac{mc^2}{h}$$

$$\frac{v^2}{c^2}$$

1.112650056 e-17

8.987551787 e16 $^{-1}$

$$\frac{h}{m}$$



$$\frac{hv^2}{c^2}$$

$$\frac{hv^2}{m}$$

111.265 ohms

Neutral Matter

0
[2-2]

Neutral Matter

0
[2-2]

The impedance of any medium determines
the velocity of propagation for mass-energy momenta through it

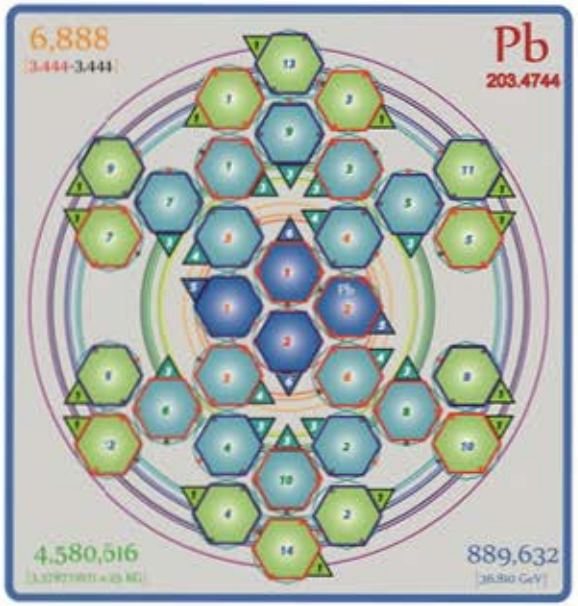
EM mass vs. Matter

Often a source of confusion,
Tetryonics provides a rigorous
definition of both EM mass & Matter

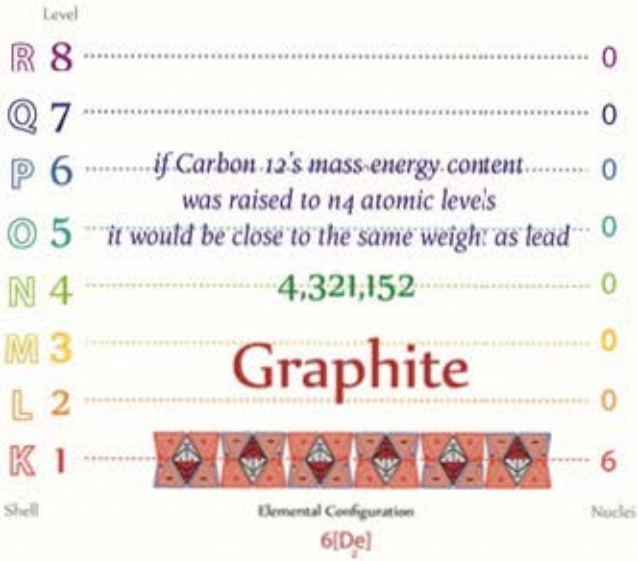
6.022141579 e23
[Avagadros number]

1 ton of Carbon & 1 ton of Lead
have the same mass-energies

But they have differing Matter topologies
that create a differing energy densities
for any spational region of measurement



1 mole of Carbon atoms
[11.996 grams]



In terms of charged Matter topology
Carbon12 displaces 1/14th the volume of Lead

504
Carbon12 atom
270,072

1 : 17

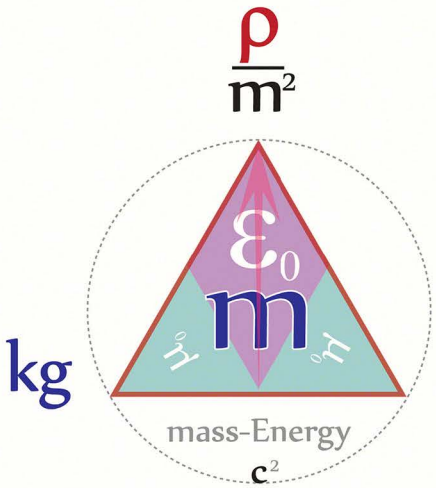
4,580,616
Lead atom
6,888

In terms of mass-ENERGY-Matter densities
Lead is 17 times denser than Carbon
as a result of the mass quanta per charge fascia

1 mole of Lead
[203.4744 grams]

EM mass-energy geometries

are 2D Euclidean EM fields posessing energy momenta

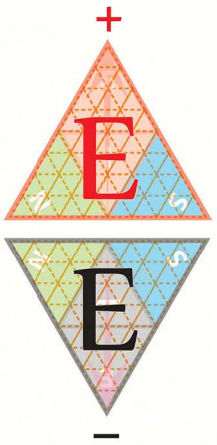


Charge $\frac{1\pi}{c^2}[[m\Omega v^2]]$ (Planck quanta; mass, velocity)

Bosons $\frac{ODD\pi}{c^2}[[m\Omega v^2]]$ (Planck quanta; mass, velocity)

Photons $\frac{2\pi}{c^2}[[m\Omega v^2]]$ (Planck quanta; mass, velocity)

EM waves $\frac{EVEN\pi}{c^2}[[m\Omega v^2]]$ (Planck quanta; mass, velocity)



mass

$\frac{n\pi}{c^2}[[m\Omega v^2]]$ (Planck quanta; mass, velocity)

m

ENERGY

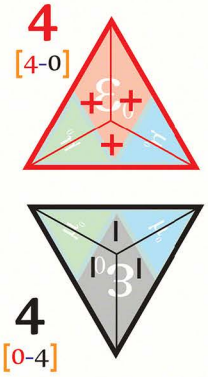
$n\pi[[m\Omega v^2]]$ (Planck quanta; mass, velocity)

M

Matter

$\frac{T\pi}{c^4}[[m\Omega v^2]]$ (Planck quanta; mass, velocity)

Equilateral mass-energy geometries & Matter Topologies are measured in radial spatial-time co-ordinate systems

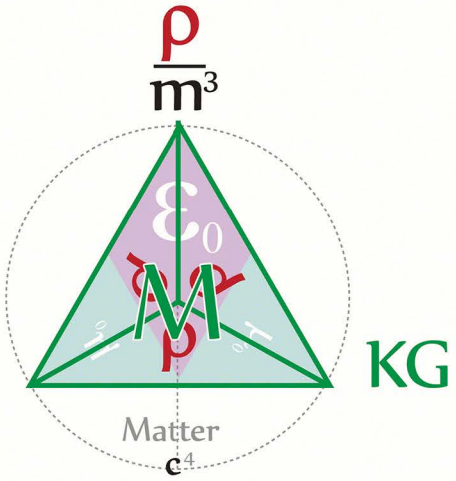


Tetryons $\frac{4\pi}{c^4}[[m\Omega v^2]]$ (Planck quanta; mass, velocity)

Fermions $\frac{12\pi}{c^4}[[m\Omega v^2]]$ (Planck quanta; mass, velocity)

Baryons $\frac{36\pi}{c^4}[[m\Omega v^2]]$ (Planck quanta; mass, velocity)

Deuterons $\frac{84\pi}{c^4}[[m\Omega v^2]]$ (Planck quanta; mass, velocity)



Matter Topologies

are 3D standing-wave [4nπ] mass-energy geometries

mass-energy-Matter quanta

are all defined by charged geometries & topologies

Bosons (v)

Bosons

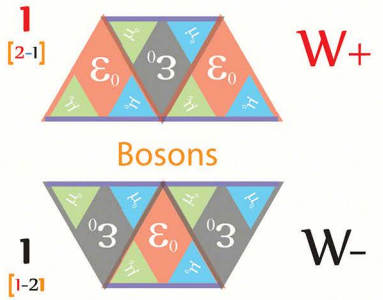
$$\frac{ODD\pi}{c^2}\left[\left[m\Omega v^2\right]\right]$$

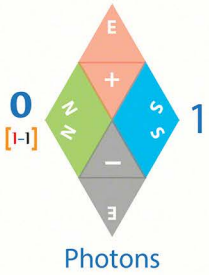
Planck quanta: mass, velocity

charges

1π	ZPF	v
$_{ODD}\pi$	boson	v

Inductive charges





Photons(f)

EM waves

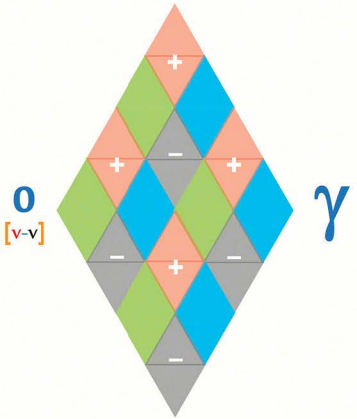
$$\frac{EVEN\pi}{c^2}\left[\left[m\Omega v^2\right]\right]$$

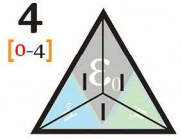
Planck quanta: mass, velocity

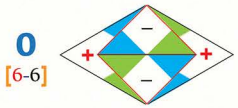
mass-energies

2π	photon	$2v^2$
$_{EVEN}\pi$	EM wave	$2v^2$

EM waves







Tetryons (n)

Matter

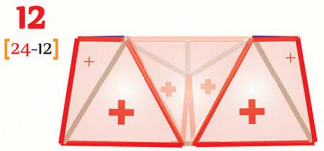
$$\frac{4n\pi}{c^4}\left[\left[m\Omega v^2\right]\right]$$

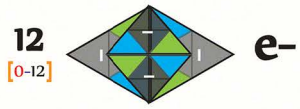
Planck quanta: mass, velocity

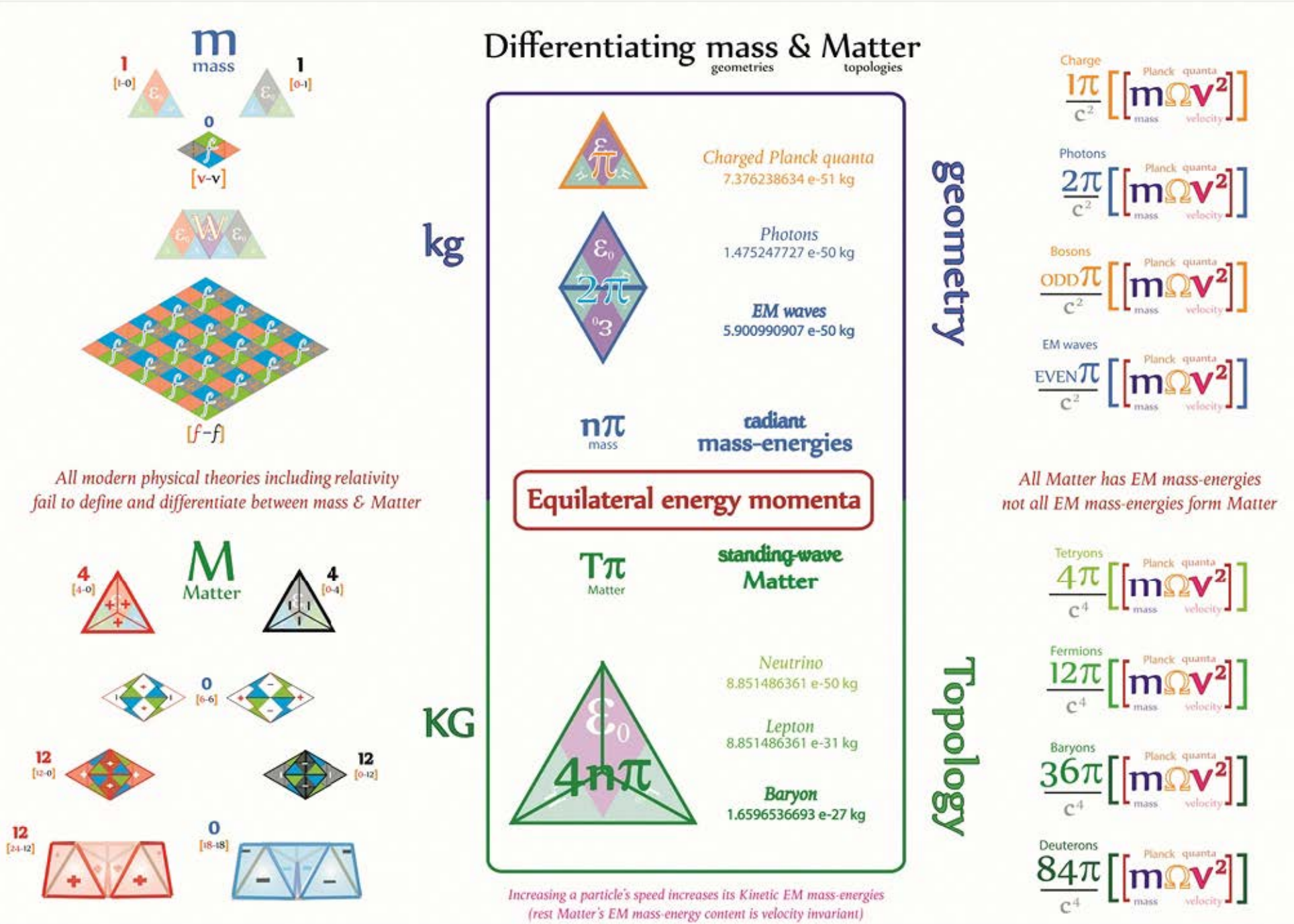
mass-Matter

4π	tetryon	n
12π	lepton	n
24π	meson	n
36π	Baryon	n

Matter particles







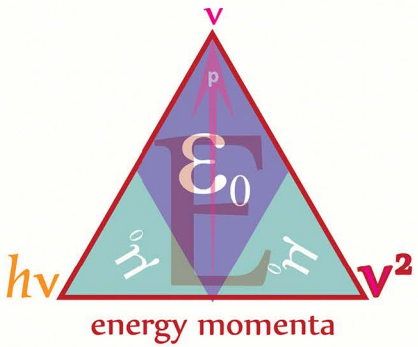
6.629432351 e-34 J

$E = mv^2$

E
Energy
$kg\,\frac{m^2}{s^2}$

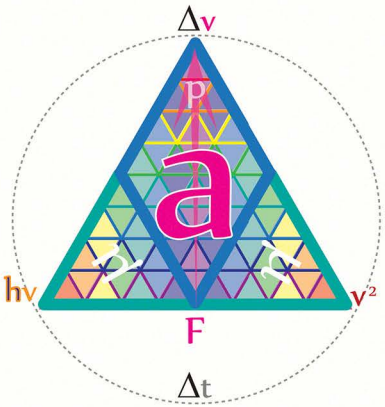
$$E_{\text{Energy}} = n\pi\left[\left[m_{\text{mass}}\,\Omega\,v^2_{\text{velocity}}\right]\right]_{\text{Planck quanta}}$$

ENERGY



$E=hv^2$

the proagation velocity of energy is determined by the impedance of any spatial region



$F=ma$

the scalar impedance of space

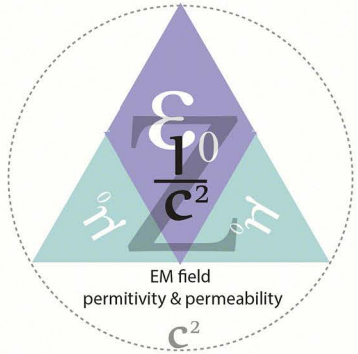
$\frac{s^2}{m^2}$

$$\varepsilon_0 \times \mu_0$$

Electric permittivity & **Magnetic permeability**

$1.11265\ e\text{-}17\ \frac{s^2}{m^2}$

$\frac{1}{c^2}$



the Forces created by energy momenta in any spatial region are related through the scalar constant of mass

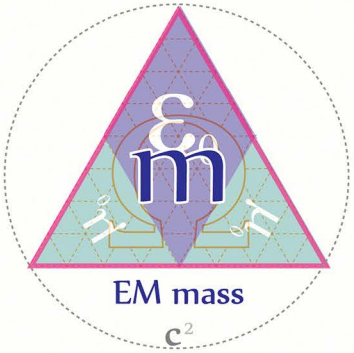
EM mass

$$m = \frac{E}{c^2}$$

m
mass
kg

$$n\pi_{\text{mass}}\left[\left[\varepsilon_0\mu_0\right]_{\text{ElectroMagnetic}}^{\text{field impedance}}.\left[m_{\text{mass}}\,\Omega\,v^2_{\text{velocity}}\right]_{\text{Planck quanta}}\right]$$

$7.376238376\ e\text{-}51\ kg$

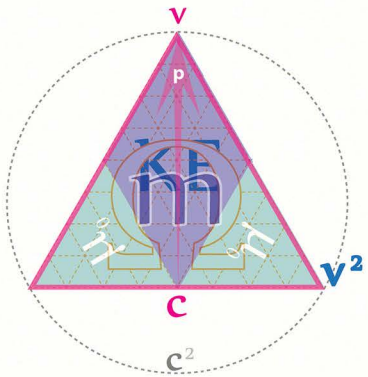


The energy-momenta of Matter

$$\mathbf{p} = mv$$

Linear correction factor

$$\beta = \left[\frac{v}{c}\right]$$



The Energy comprising all KEM fields is proportional to the particle's velocity

$$\beta^2 = \left[\frac{v^2}{c^2}\right]$$

Scalar correction factor

$$\mathbf{p}^2 = E = mv^2$$

$$\mathbf{p} = T\pi\left[\left[m\Omega v\right]^{\text{Energy}}_{\text{momenta}}\right]$$

As the velocity of a particle increases so does its KEM field's mass-energy momentum

$$mv = \mathbf{p} = h\nu$$

$$\text{kg}\,\frac{\text{m}}{\text{s}}$$

$$\sqrt{6.629432351\ \text{e-34 J}}$$

$$4n\pi\left[m\Omega v\right]^{\text{Planck quanta}}_{\text{mass velocity}}$$

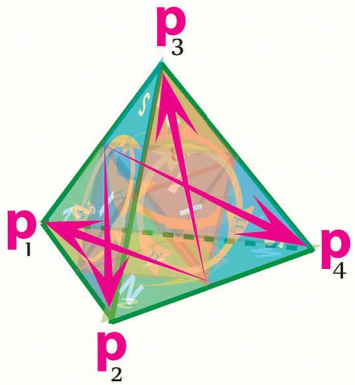
2.5476847 e-17 kg m/s

The linear momentum of mass-energies in standing-wave rest Matter topologies propagates at c

$$\mathbf{p}_M = 4\pi\left[mv\right]$$

The rest mass of a particle with NO motion is the total EM mass-energy of the particle

Its linear four-momentum is the square root of its scalar energies



rest mass-Matter

In standing-wave Matter, where there is NO external forces acting on the particle, all internal momenta act in opposition and add to ZERO

$$\vec{\mathbf{p}}_0 = \sum^{\text{all fascia}} \vec{\mathbf{p}}$$

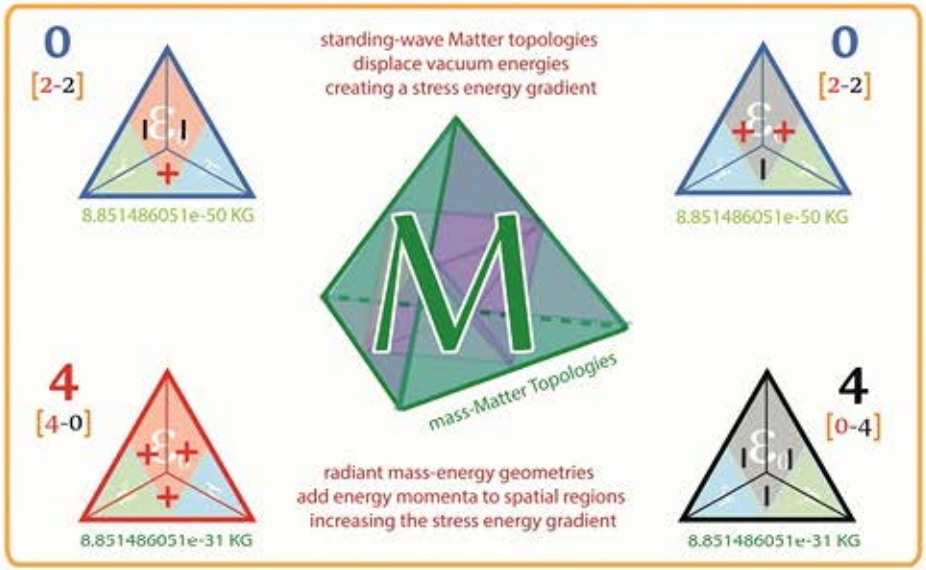
Gravitational mass-Matter quanta

gravity pulls on things proportional to their mass-Matter content

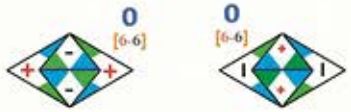
$$F = -G \frac{M_1 M_2}{r^2}$$

Radiant mass-energy geometries

All 3D Tetryonic topologies create displacement Matter volumes that in turn generate KEM fields as a result of the motion of their charge fascia



Standing-wave Matter Topologies



8.851486051e-50 KG

Mattter particles can have the same Tetryonic topologies but possess a differing charged mass-energy momenta content

8.851486051e-31 KG

Gravitational Attraction can be modelled as a dipole attraction of opposite charged mass fascia of Matter topologies through its differing energy field interactions

Gravitation attraction is a strictly UNI-DIRECTIONAL CONVERGENT FORCE

$k = 8.99\ e9\ \frac{N\ m^2}{C^2}$

$G = 6.67\ e\text{-}11\ \frac{N\ m^2}{KG^2}$

KEM field energy momenta produce a BI-DIRECTIONAL INTERACTION FIELD

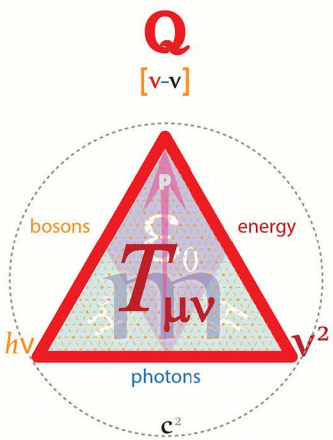
Gravitation attraction is 20 orders of magnitude weaker

KEM field energy momenta produce a BI-DIRECTIONAL INTERACTION FIELD

Stress energy gradients

Energy's highest density form is 3D Matter [comprised of planar 2D EM mass-energies]
whilst its lowest pressure form is the vacuum energies created by radiated mass-energies filling space

ENERGY in all its forms
seeks equilibrium

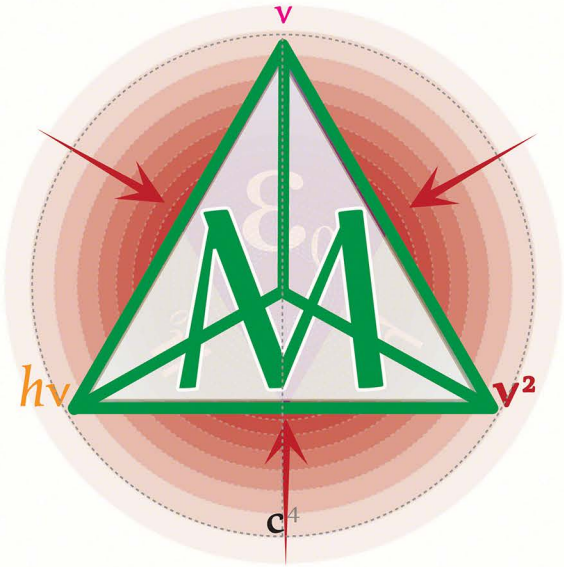


Where Newton's
Law of Gravitation is
modelled on geometric means

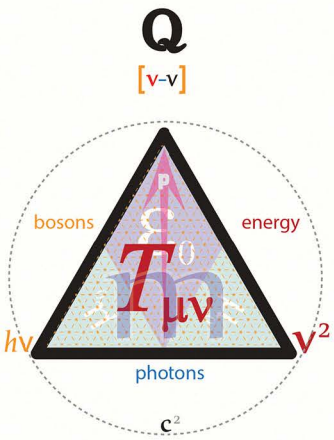
$$F = k\frac{Q_1 Q_2}{r^2}$$

Inverse Square Law

$$F = -G\frac{M_1 m_2}{r^2}$$



Like any pressure gradient, ENERGY always flows from areas of highest density to regions of low density seeking to reduce 'pressure' differentials and reach a state of equilibrium.



Einstein's
General Relativity is
modelled on energy pressure

$$PV = nRT$$

Matter tells Spacetime how to bend
Spacetime tells Mater how to move

$$R_{\mu\nu} - \tfrac{1}{2}Rg_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu}$$

mass-Matter topologies create stress energy differentials
in the vacuum energies of space

Gravitational Matter & weight

is a measure of the amount of mass-energy in Matter

The gravitational mass of a body determined by its response to the force of gravity

mass-Matter

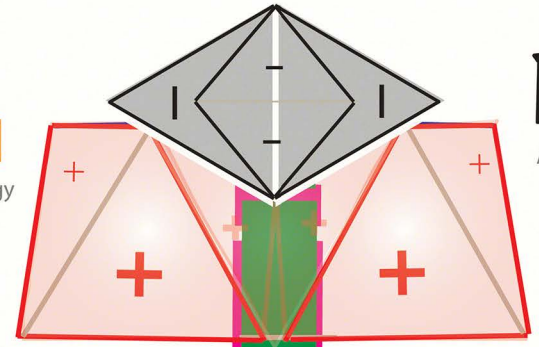
Matter

$$\frac{4n\pi}{c^4}\left[\left[m\Omega v^2\right]\right]$$

Planck quanta; mass; velocity

The gravitational acceleration of a body in any gravity field is uniform and proportional to its mass-Matter

$$w = F = M.g$$



48

[24-24]

charge topology

N_A

Avagadro

electrons

$$\frac{12\pi}{c^4}\left[\left[m\Omega v^2\right]\right]$$

Planck quanta; mass; velocity

mass-energy-Matter

8.8514586361 e-31 KG

Baryons

$$\frac{36\pi}{c^4}\left[\left[m\Omega v^2\right]\right]$$

Planck quanta; mass; velocity

mass-energy-Matter

1.659653693 e-27 KG

22,512

mass-Matter

1.66053884 e-27 KG

mass-Matter quantum

.001 KG

molar mass

$w=M.g$

lg

weight

$9.8\ m/s^2$

$F=Ma_g$

= [.001] x [9.8]

= .0098 N

KG

g

Force

$$\frac{\left[kg\,\frac{m}{s^2}\right]}{KG}$$

Zero Point Fields

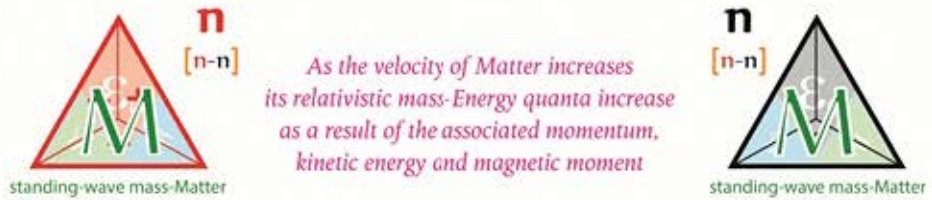
ZPF quanta charges are the opposite sides of the same 'quantum coin'

ZPF quanta have unidirectional energy momenta orientations

KEM fields

N-S magnetic moment vector

S-N magnetic moment vector



As the velocity of Matter increases its relativistic mass-Energy quanta increase as a result of the associated momentum, kinetic energy and magnetic moment

standing-wave mass-Matter

standing-wave mass-Matter

in addition to their standing-wave topologies mass-Matter also posesses

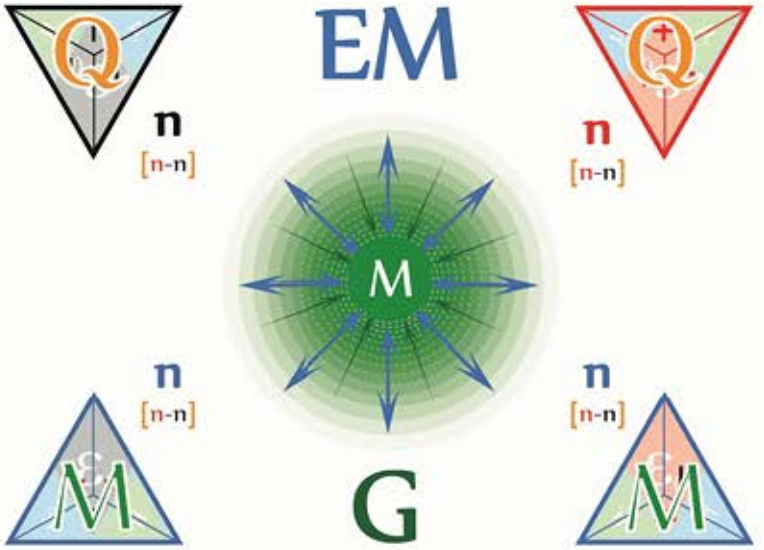
radiant mass-energies

Gravity & EM fields

All energy fields are velocity dependent and combine to form vectorial K-EM fields

All charged Matter posseses bi-directional interactive radiant EM fields

EM



G

charged Matter topologies create uni-directional convergent energy gradiants

All mass-Matter is velocity invariant and creates convergent G fields

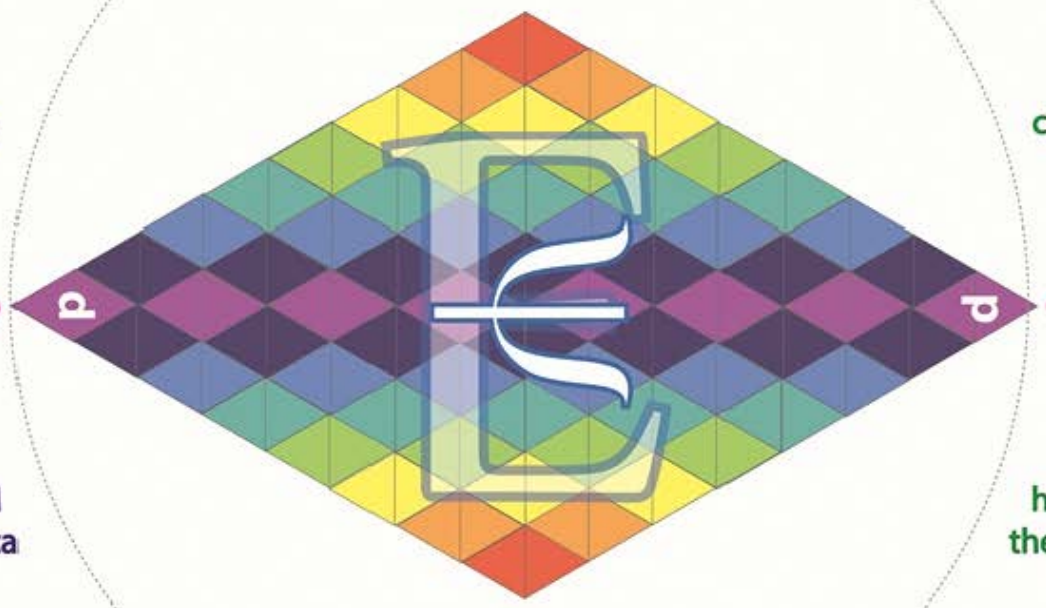
Matterless EM mass-energies

Photons are often termed as 'mass-less' particles in physics which is a complete mis-nomer.
Leading to many erroneous supersitions on the true nature and physics of light and gravity

$$\frac{E}{c^2} = m$$ mass geometry

$$M = \frac{E}{c^4}$$ Matter topology

mass is a measure of planar Energy per second



mass-less infers no energy momenta

Photons are weightless radiant EM energies not massless particles

photons possess 2D planar radiant EM mass-energy momenta

A Particle has a charged Matter topology

Matter is a closed tetrahedral standing-wave energy possessing volume

photons & EM waves have no 3D Matter topology, they are Matter-less geometries

ENERGY $n\pi\left[\left[m\Omega v^2\right]\right]$ (Planck quanta; mass, velocity)

c^2

second

mass $\frac{n\pi}{c^2}\left[\left[m\Omega v^2\right]\right]$ (Planck quanta; mass, velocity)

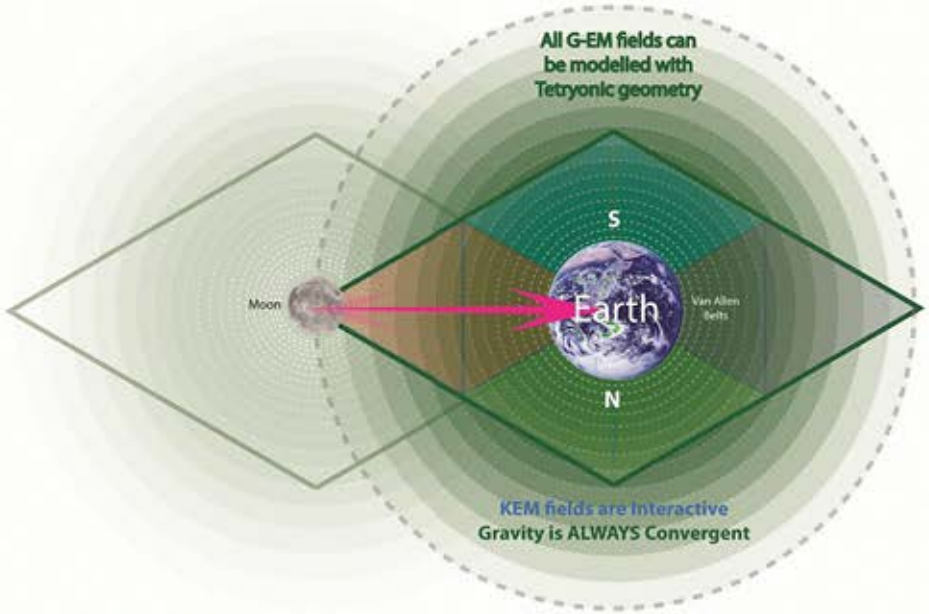
Matter $\frac{T\pi}{c^4}\left[\left[m\Omega v^2\right]\right]$ (Planck quanta; mass, velocity)

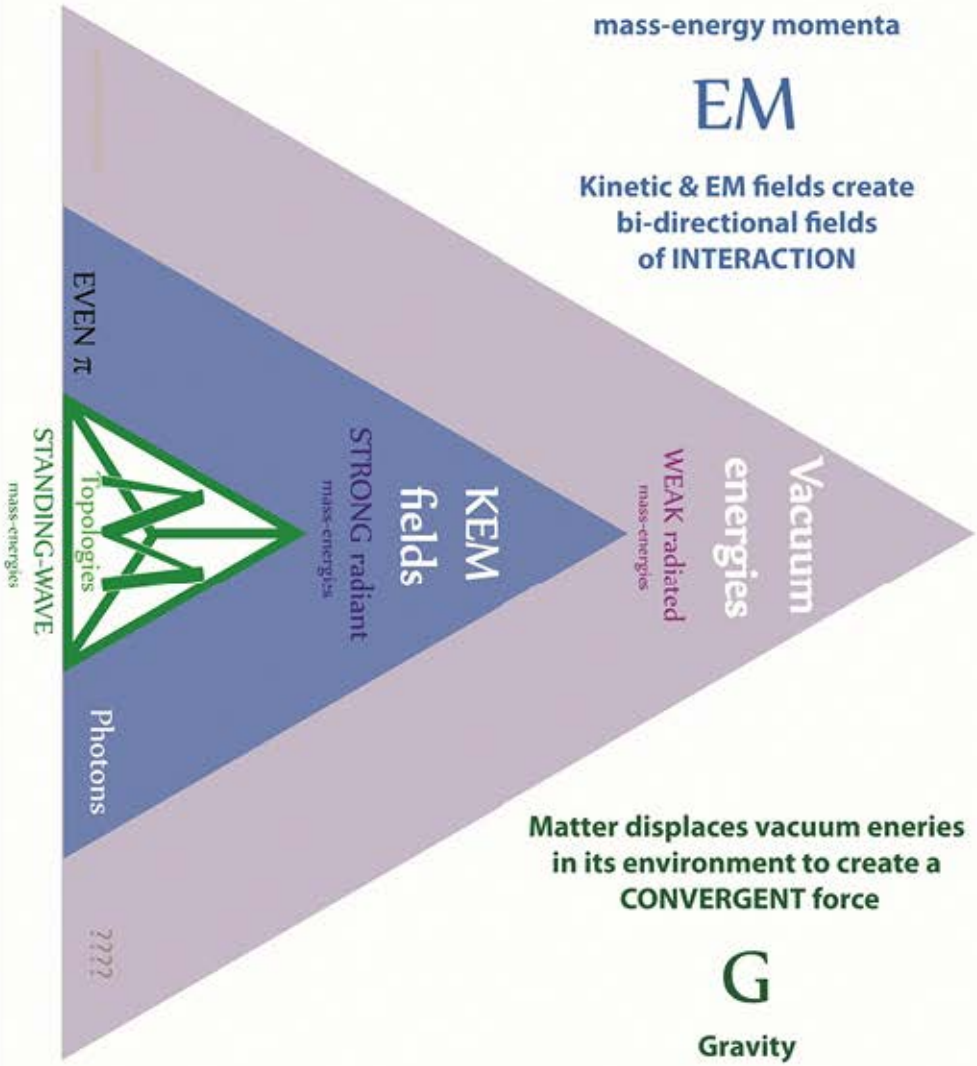
The definition and distinction between mass & Matter
is a major failing of modern physics, corrected for by Tetryonic theory

EM fields, vacuum energies and gravity

all result from radiant equilateral mass-energy momenta
and standing-wave Matter in radial space

$$F = k \frac{Q_1 Q_2}{r^2}$$





mass-energy momenta

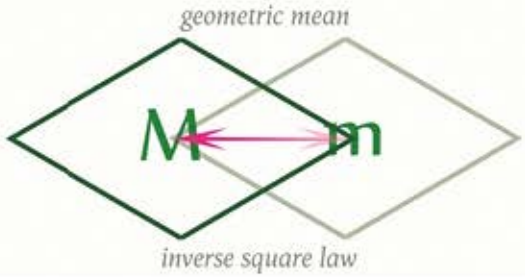
EM

Kinetic & EM fields create bi-directional fields of INTERACTION

All GEM fields have equilateral quantum geometries

the proportional attraction of material bodies towards each other can be easily modeled with Tetryonic fields

$$F = -G \frac{M_1 m_2}{r^2}$$



Matter displaces vacuum eneries in its environment to create a CONVERGENT force

G

Gravity

Charges vs. Gravity

both can be modelled as interactive or attractive geometric forces

Charged particles are comprised of non-neutralised Planck quanta

Neutral Matter is comprised of neutralised Planck quanta

$$F = k\frac{Q_1 Q_2}{r^2}$$

$$F = -G\frac{M_1 M_2}{r^2}$$

Charges produce bi-lateral interactive forces

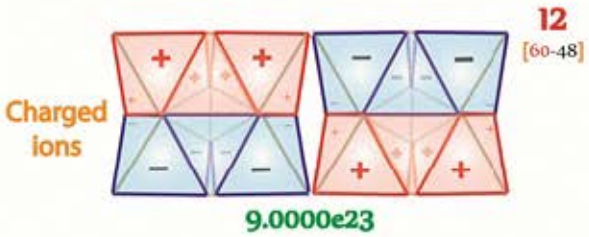
mass

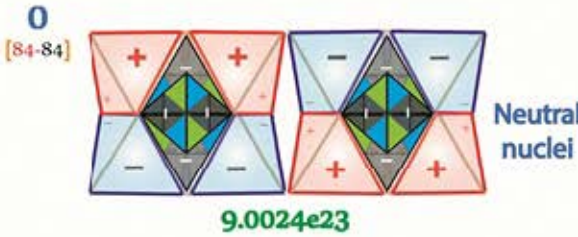
Matter

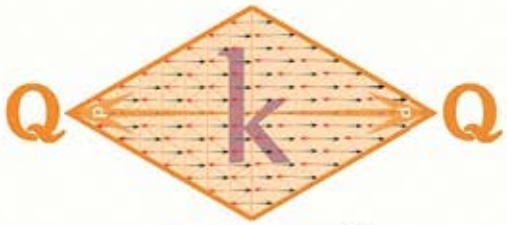
Nuclei

Elements

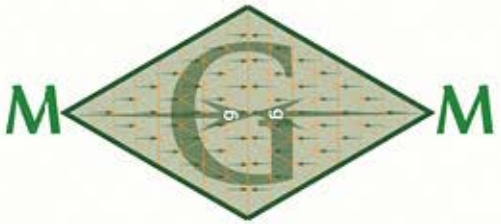
Gravity is a convergent attractive force







Opposites Attract
Similars Repel



Gravitational Matter is always Attractive

Interactive mass-energies & **Gravitational mass-Matter**

both produce inverse squared forces

$$\nabla \times \mathbf{E} = -\frac{\partial \mathbf{B}}{\partial t}$$

GravitoElectroMagnetism, (abbreviated GEM), refers to a set of formal analogies between Maxwell's field equations and an approximation, valid under certain conditions, of the Einstein field equations for General Relativity.

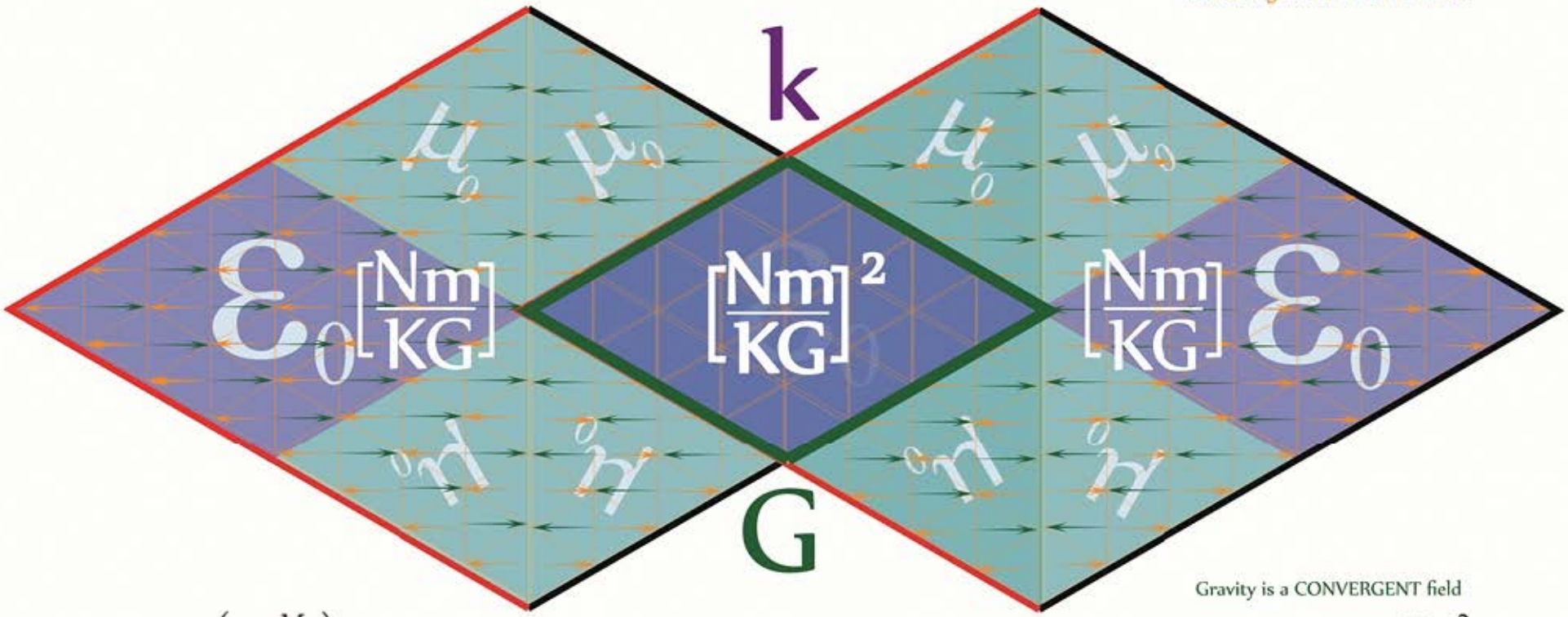
$$\nabla \cdot \mathbf{B} = 0$$

$$\mathbf{F} = q\left(\frac{-1}{4\pi\varepsilon_0}\frac{Q}{r^2}\hat{\mathbf{r}}\right) = q\mathbf{E}$$

$$F = k\frac{Q_1 Q_2}{r^2}$$

$$k = 8.99 \times 10^9 \frac{N\,m^2}{C^2}$$

nett Charge is a DIVERGENT field



Gravity is a CONVERGENT field

$$\mathbf{F} = m\left(-G\frac{M}{r^2}\hat{\mathbf{r}}\right) = m\mathbf{g}.$$

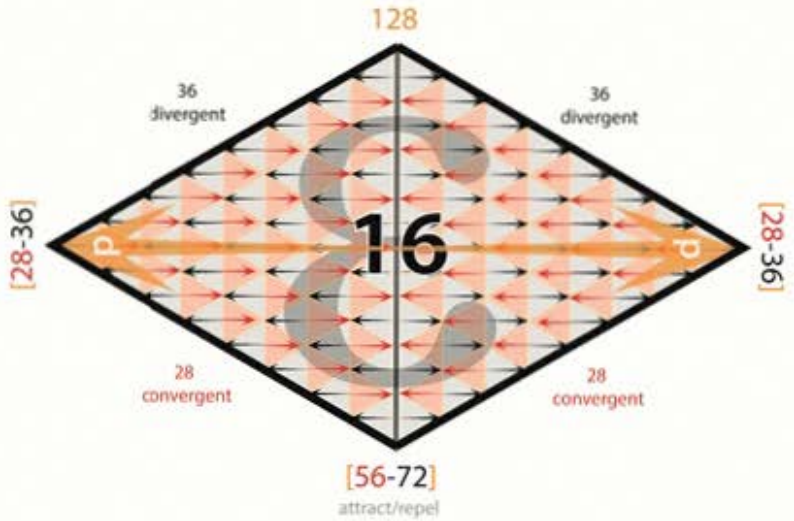
$$F = -G\frac{M_1 M_2}{r^2}$$

$$G = 6.67 \times 10^{-11} \frac{N\,m^2}{kg^2}$$

$$\nabla \times \mathbf{E}_g = -\frac{\partial \mathbf{B}_g}{\partial t}$$

GEM fields are an accurate way of modelling Gravitational attraction between massive bodies using weak KEM field vectors

$$\nabla \cdot \mathbf{B}_g = 0$$

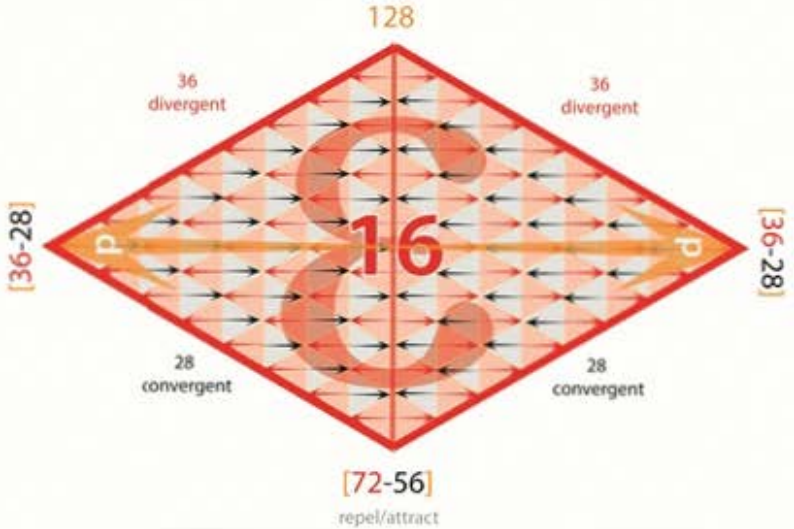


negative charge Matter

Electrostatic fields

Charges attract or repel dependent on polarity
Neutral Matter is largely unaffected (equally repel & attract)

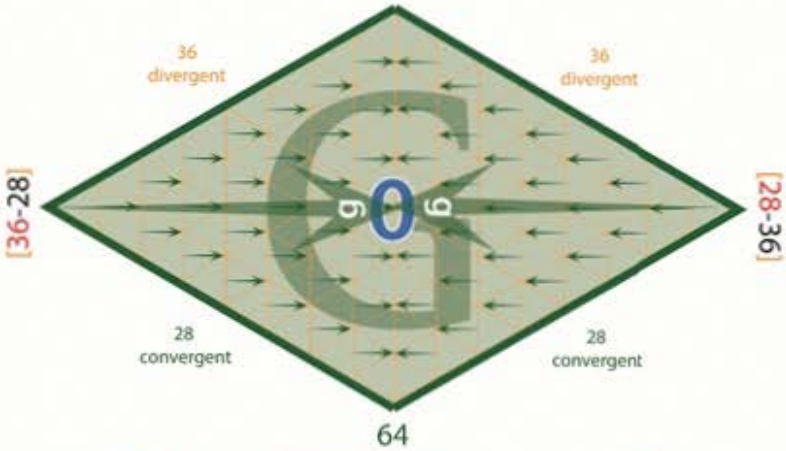
neutral charge Matter



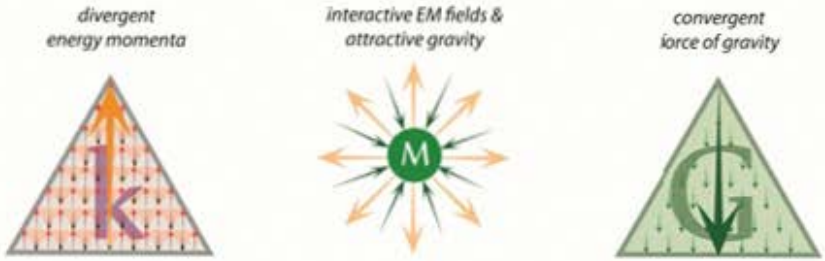
positive charge Matter

Gravitational fields can be modelled as weak convergent EM fields

Charged Matter INTERACTS electrically



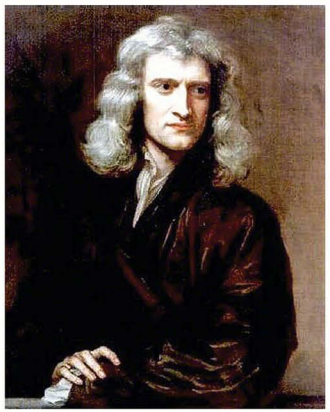
All Matter ATTRACTS gravitationally



Nett KEM field interaction is divergent from source
Gravitational attraction is the convergent mean force between two sources

Gravitational & Electric constants

are scaling constant relating Gravitational gradients to superpositioned EM fields



[1665]

Newton was the first to apply the Inverse Square law to Gravity

but was unaware of ElectroMagnetic forces

GEM

Gravito ElectroMagnetism

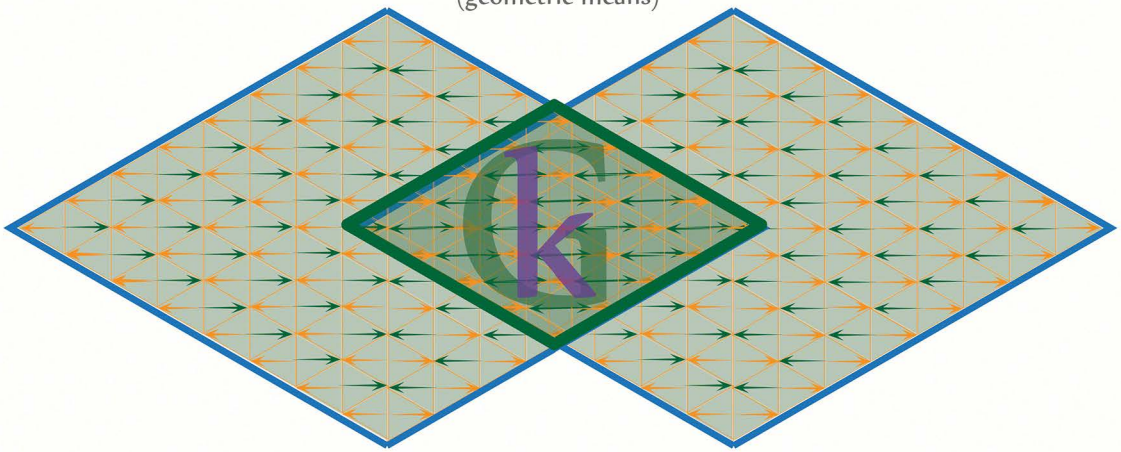
[1769]

Coulomb applied the Inverse Square Law to Charge Interactions

and obtained the value for the Electric Constant

Newton's convergent Gravity & Couolomb's Charge interaction
both follow inverse squared laws
(geometric means)

Attractive Gravity has the negative vector of nett Charge Interaction



Interactive EM fields are 20 orders of magnitude stronger than Gravity

'Graviton'
Gravitational 'charge' carrier

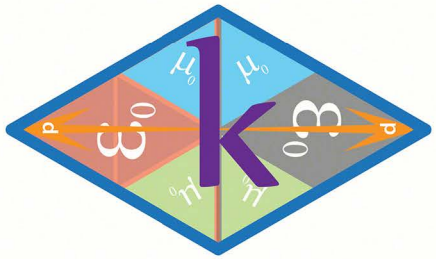
Convergent force vectors

superpositioned EM fields can be used to model the strength and direction of the weaker Graviational force vectors at any point in the fields as they are both inverse squared forces

Producing the ongoing speculation of the existence of a gravitational charge carrier

(an erroneous assumption that stems from using mathematics alone, without a solid understanding of geometric mass-energies & Matter topologies)

Photon
Electric charge carrier



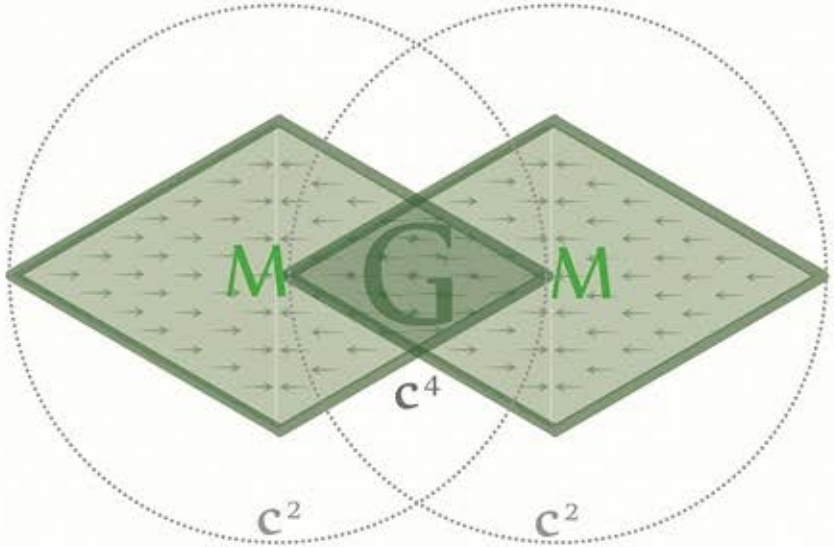
Divergent force vectors

Newton's attractive Gravity & Coulomb's Charge interaction
both follow inverse square laws

Instantaneous
action-at-a-distance

The Force of Gravity

Absolute
Space & Time
(x,y,z) (t)



Gravitational action
limited to c

mass-ENERGY-Matter

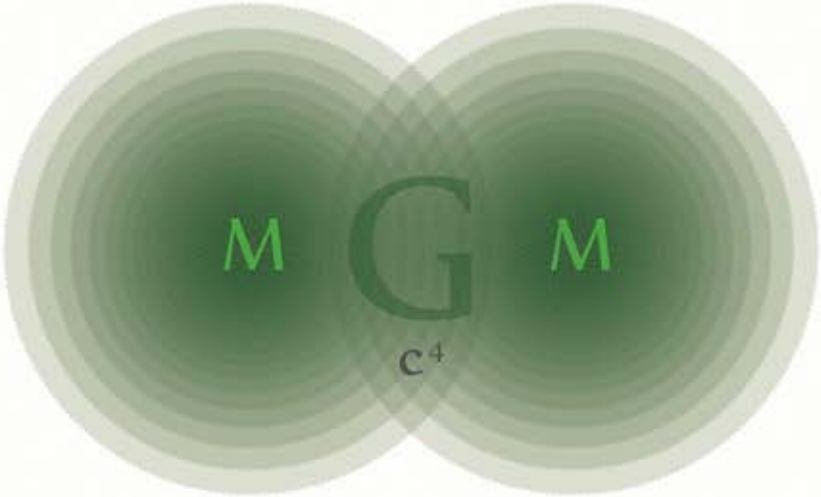
Curved relativistic
Spacetime
(x,y,z,t)

Modelling Gravity with EM field geometries

while superpositioned EM fields can be used to model the strength and vector direction
of weaker Gravitational fields at any point in time within the field geometry
they DO NOT reflect the actual physicality of the fields involved

$$R_{00} = 4\pi\rho$$

The speed of Gravity is not limited to c as changes to the energy density-pressure gradient are immediately translated through the aether from one object to the other



$$R_{\mu\nu} - \tfrac{1}{2}R g_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu}$$

Gravity is a the pressure gradient created by the displacement of vacuum energies though the presence of 3D mass-Matter topologies in any region of space

Fields of Interaction

All topological Matter in motion creates a interactive Kinetic EM field
in addition to its inherent convergent Gravitational field

Convergent Gravity fields produce a uni-directional attraction between two or more Matter topologies

Divergent EM fields produce a bi-directional interactive force between charged objects

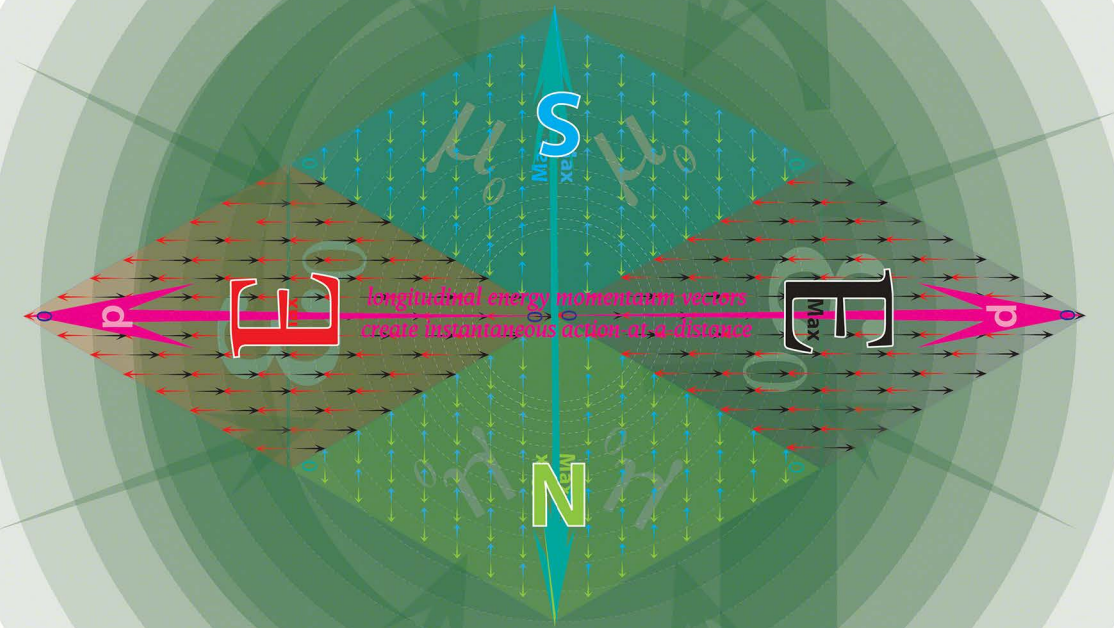
interactive EM fields of force are created by geometrically superpositioned equilateral energy momenta vectors

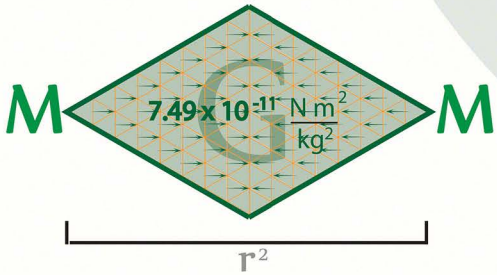
G fields

$\vec{G}$

E fields

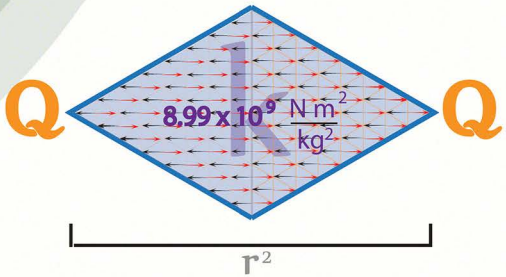
$\vec{EM}$





Gravitational fields of force are created by the displacement of vacuum energies by Matter topologies

Gravito-Electro-Magnetic Fields



GEM gradients

The gravitational field of Material objects is the result of zero energy nullspace volumes encompassed by all Matter which in turn creates a displacement energy pressure differential gradient with the surrounding Vacuum Energies

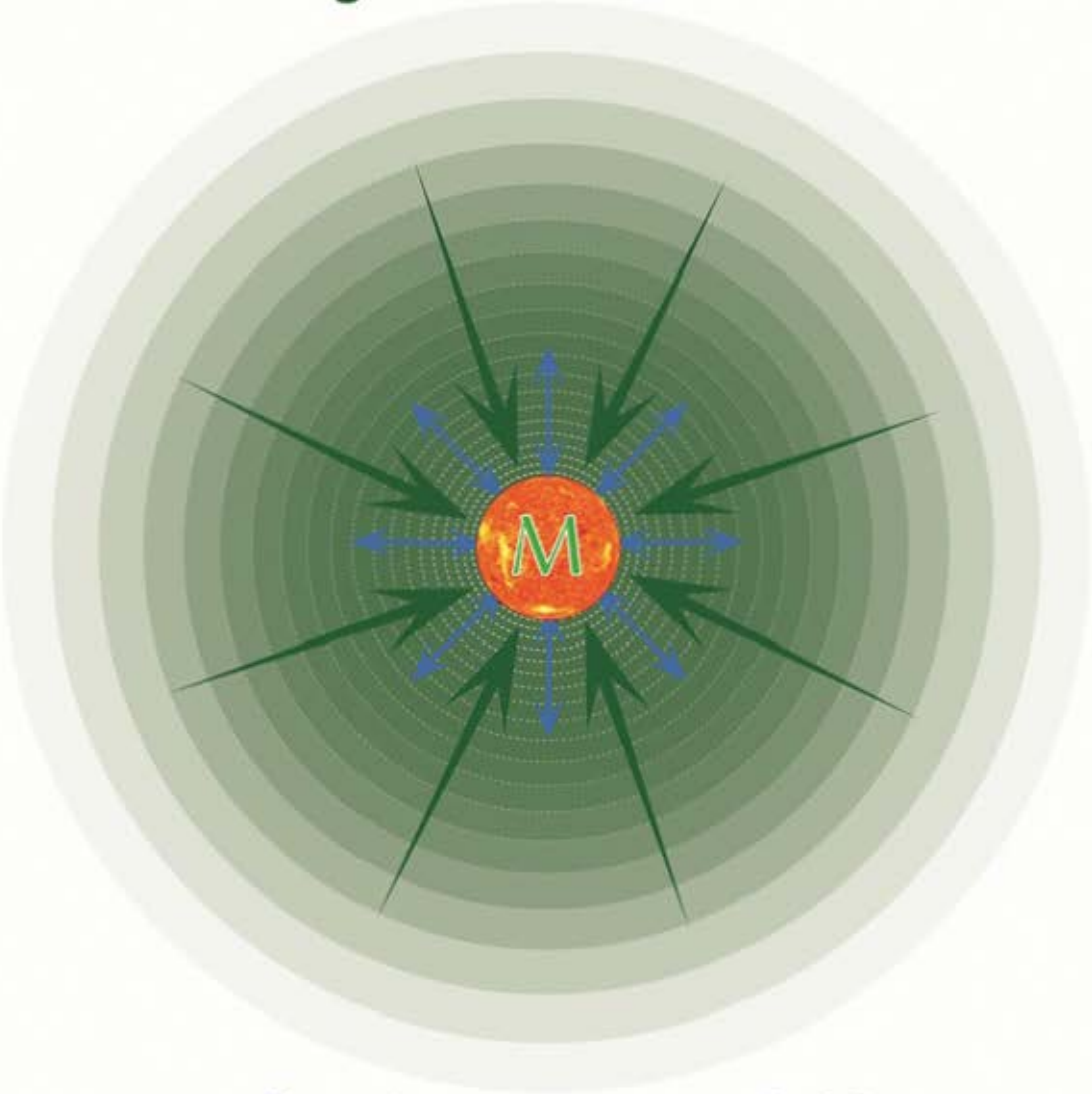
Gravitational attraction can be modelled as a CONVERGENT EM FIELD created by the nullspace differential of Matter

All Matter in motion creates an eternally dynamic system of Gravitational fields and radiative ElectroMagnetic Energies

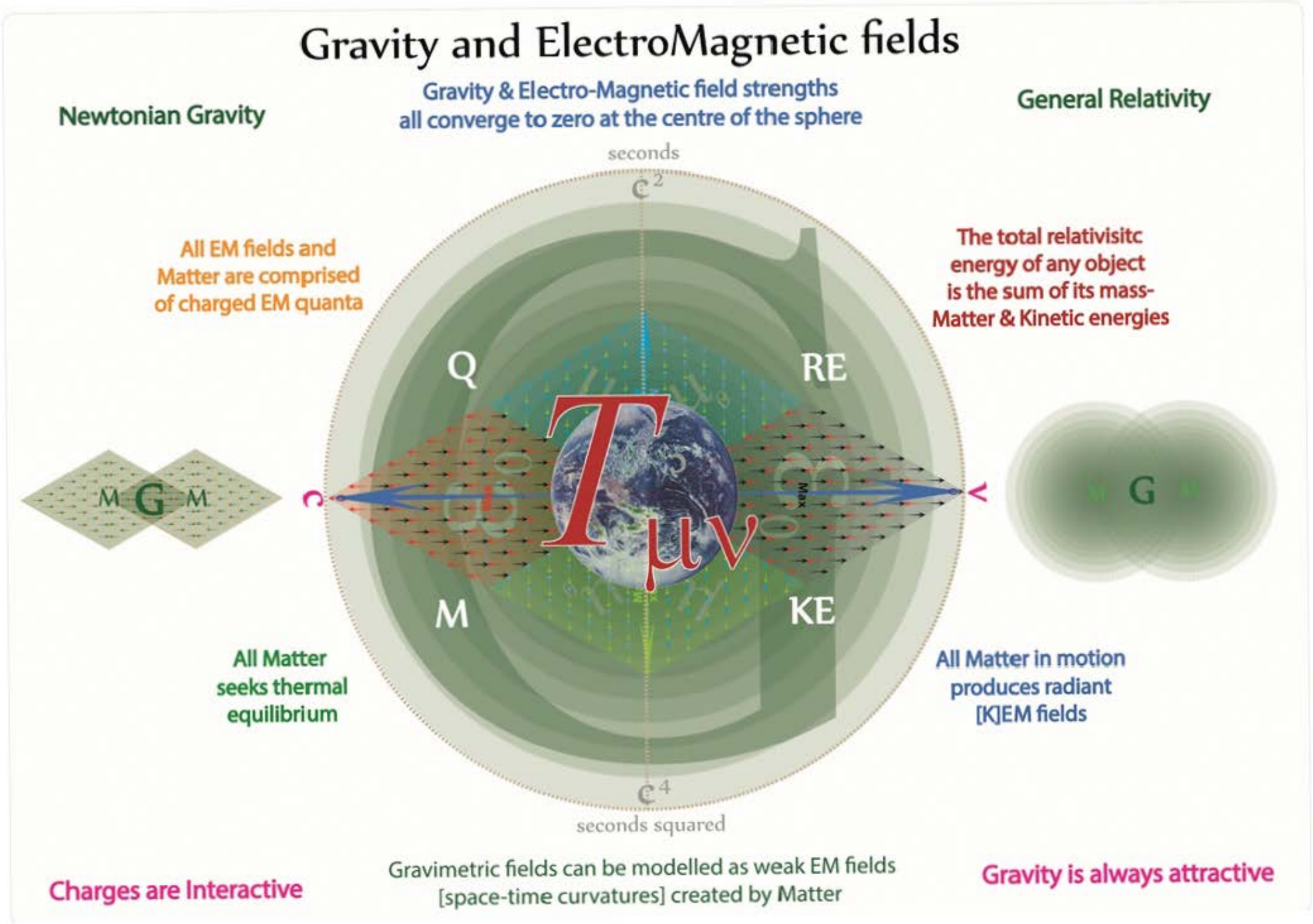
EM radiation is a bidirectional DIVERGENT-CONVERGENT FIELD resulting from quanta imbalances

radiative EM fields are created by all Matter as it seeks equilibrium with its environment, the impedance of space creates a propagation velocity equal to the speed of light

convergent Gravitational fields



radiant interactive EM fields



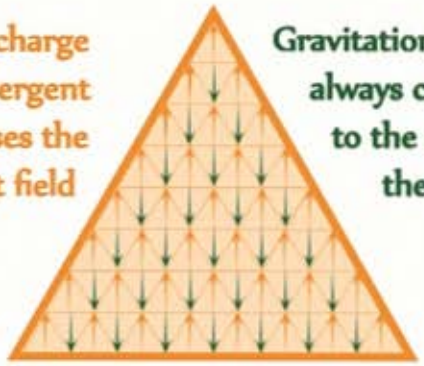
Electric vs Gravitational Fields

C

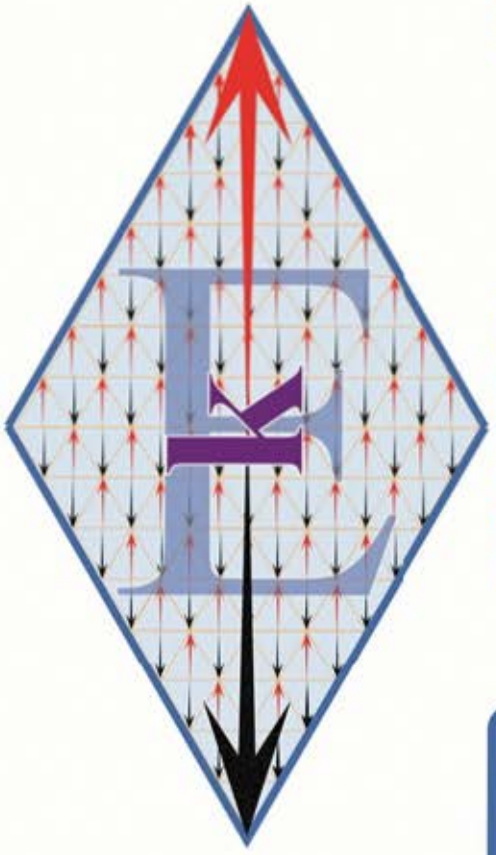
KG

In fields of charge the nett divergent field encloses the convergent field

Gravitational fields are always convergent to the source of the field



interactive electrostatic fields



nett Divergent Field

SR

Using Special relativity as the basis for the development of a General theory of Relativity to model Gravity is problematic
[as SR models EM interactions]

GR

strictly Convergent Field

attractive gravitational fields

Field	Units	Equation
Gravity	$\vec{g} = \frac{\text{newtons}}{\text{kilogram}} \left(\frac{N}{kg}\right)$	$\vec{F} = m\vec{g}$
Electricity	$\vec{E} = \frac{\text{newtons}}{\text{coulomb}} \left(\frac{N}{C}\right)$	$\vec{F} = q\vec{E}$

Electrical interaction is the result of the nett EM geometry of [K]EM fields

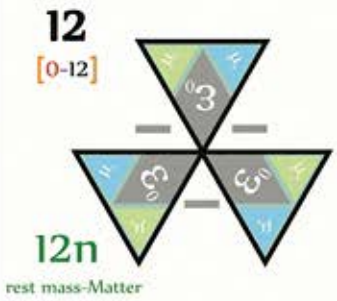
Gravitational attraction is the result of the displacement topology of Matter

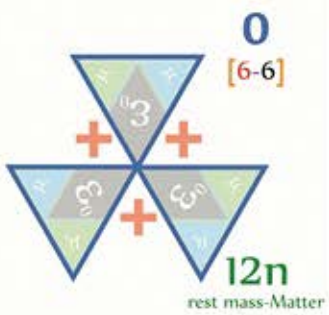
Q

M

The similarities between Electro-Magnetic and Gravitational fields can be shown by modelling their effects through EM field geometries

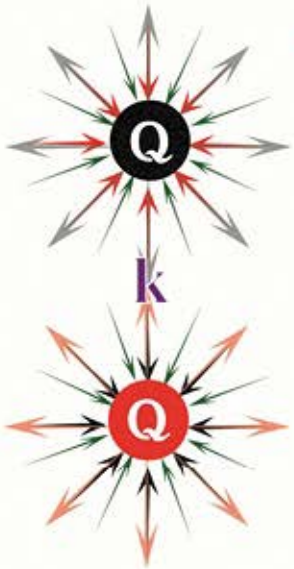
Electric fields and Gravitation

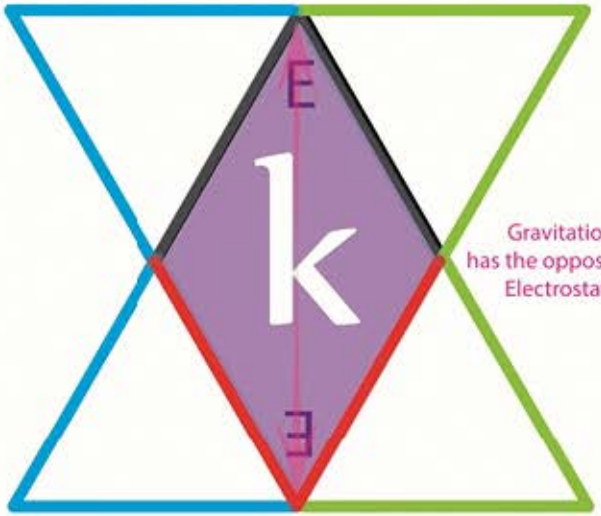




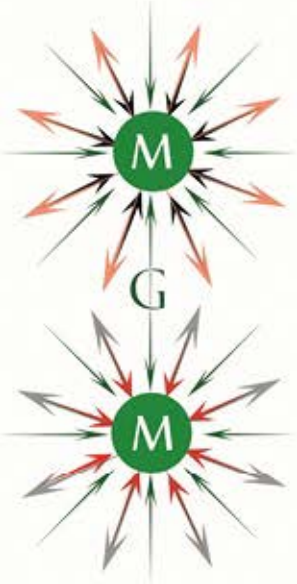
Electrostatic forces are much greater than Gravitational forces (by about 10^20 times),
The force of gravity is attractive for all Matter, whereas electrostatic forces are repulsive for like charged Matter,
There are no negative [repulsive] gravitational charges, while there are both positive and negative electric charges.

Electrostatic forces are interactive
while Gravitational forces are always attractive



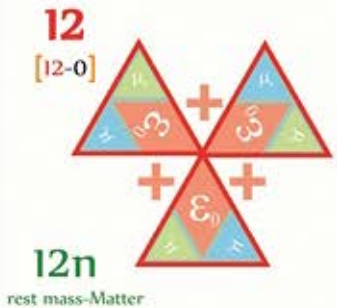


Gravitational attraction
has the opposite force vector of
Electrostatic interaction



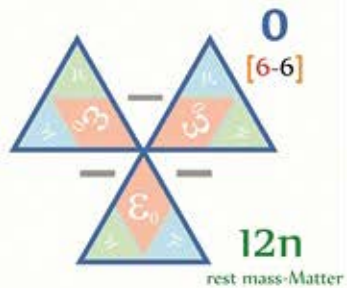
All ElectroMagnetic field quanta are subject to
Lorentz wavelength-frequency corrections due to velocity

Gravitational Matter topologies are NOT affected by
Lorentz corrections due to their velocity of motion



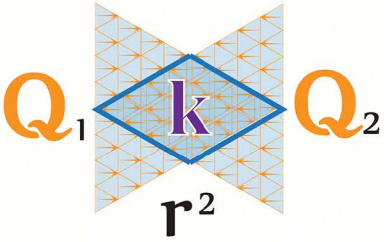
There are similarities between the Electric field and the Gravity field of Matter,
(so sometimes Matter is refered to as "gravitational charge")

Both act in a vacuum and are central and conservative.
Both obey an inverse-square law (both are inversely proportional to square of r).
Both field types propagate at the finite speed of c, the speed of light.
Electric charges and EM mass-energies are conservative



Charge vs Gravitation

[empirically determined value]
8.987551787e9 N



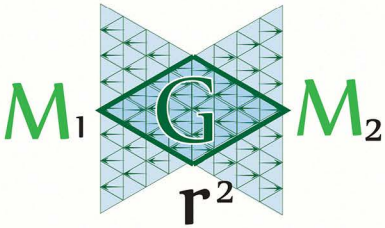
"The magnitude of the electrostatic force between two charges is directly proportional to the product of the magnitudes of each charge and inversely proportional to the square of the distance between the charges."

Charge interaction can be modelled as a DIVERGENT EM FIELD

We have two fundamental laws stating that the forces between two particles are directly proportional to the product of their charges/masses and inversely proportional to the square of the distance between them

Gravitational attraction can be modelled as a CONVERGENT EM FIELD

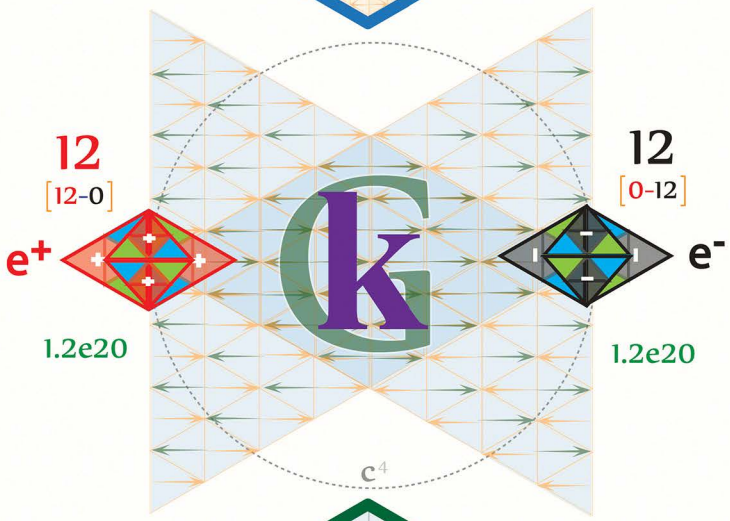
"The magnitude of the gravitational force between two masses is directly proportional to the product of the magnitudes of each mass and inversely proportional to the square of the distance between the charges."



6.67428e-11 N
[empirically determined value]

Coulombic interaction is proportional to Charge
(energy geometry imbalances)

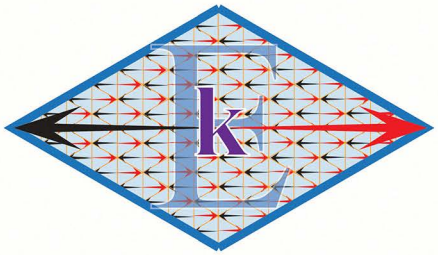
$$F = k \frac{Q_1 Q_2}{r^2}$$



$$F = -G \frac{M_1 M_2}{r^2}$$

Gravitational attraction is proportional to Matter
(total rest EM mass-energy content)

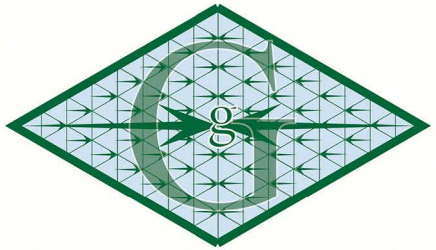
It can now be clearly demonstrated that ***Newtonian Gravity*** *can be modelled as a weak convergent Electro-Magnetic Force*



$$\frac{k}{G} \quad \frac{8.9875 \text{ e9 N}}{6.67384 \text{ e-11 N}}$$

$$= 1.346 \text{ e20}$$

The field strength differential is reflective of the Compton frequency of electron [1.20 e20 quanta]



Einstein's general relativity offers a different model of Gravitational attraction however

Gravito-Electro-Magnetic interaction

The ElectroMagnetic [Coulombic] field strength is proportional to an object's relativistic charge

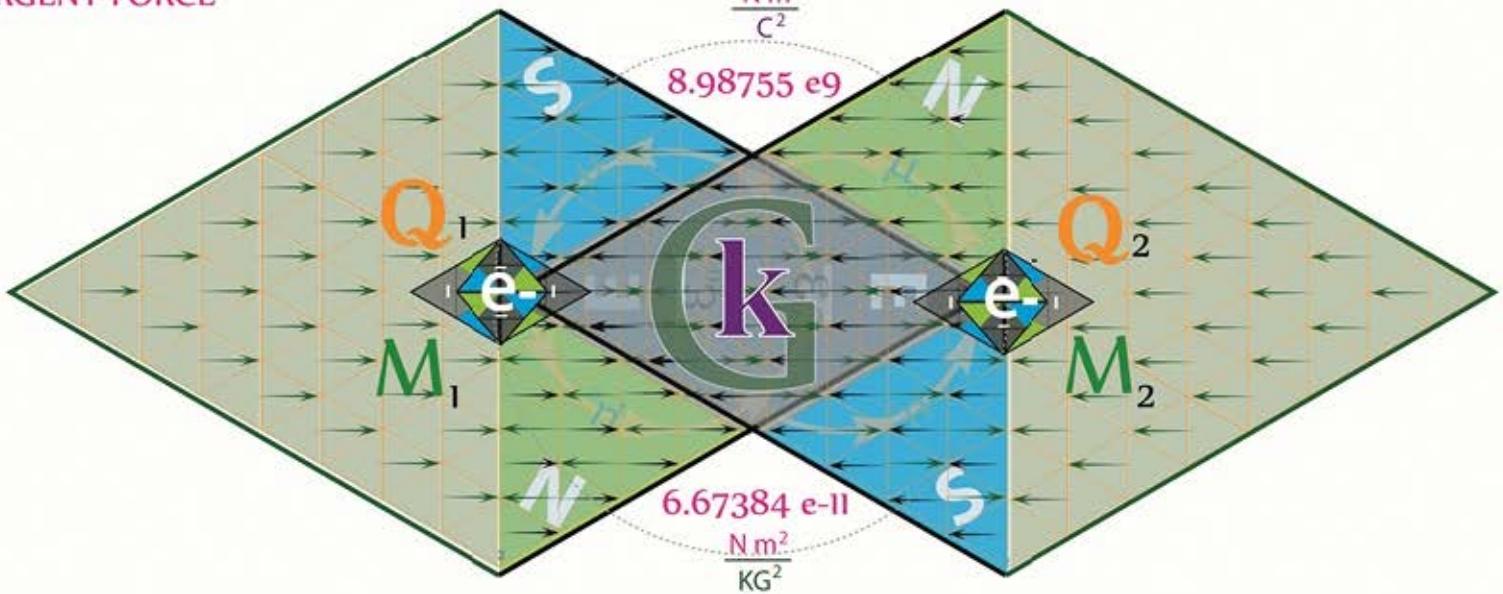
$$F \propto \frac{Q_1 Q_2}{r^2}$$

12 [0-12] $\frac{k}{r^2}$ 12 [0-12]

$$F = k \frac{Q_1 Q_2}{r^2}$$

Charge interactions can be modelled as a superpositional DIVERGENT FORCE

$\frac{N\,m^2}{C^2}$ 8.98755 e9



6.67384 e-11 $\frac{N\,m^2}{KG^2}$

equilateral mass-energy momenta quanta create the interactive fields of Force between material bodies of Matter

The attractive strength of Gravity is 20 orders of magnitude weaker than the strength of Electrostatic interaction

Gravitational attraction can be modelled as a superpositional CONVERGENT FORCE

1.2e20 $\frac{G}{r^2}$ 1.2e20

$$F = -G \frac{M_1 m_2}{r^2}$$

$$F \propto \frac{M_1 m_2}{r^2}$$

Gravitational field strenth is proportional to the rest Matter topology (and can be modelled with weak coulombic fields)

Charged Matter Gravitational interactions

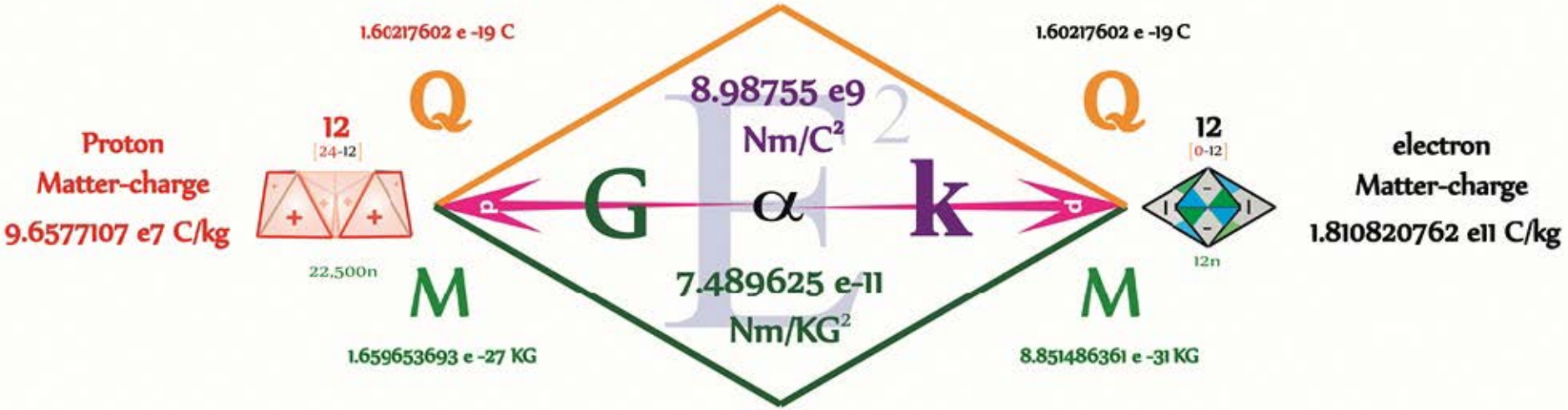
Electrostatic force fields dominate Gravitational fields and can be modelled via their superpositioned energy momenta force fields

Following the field symmetries provided by Tetryonic geometry we can now model all fields

$$F = k \frac{Q_1 Q_2}{r^2}$$

2.30900415 e-28 Newtons

Electromagnetic interactions as well as the convergent Gravitational atraction



Reflecting all of the geometric force interactions in terms of EM mass-ENERGY &Matter

1.10025594 e-67 Newtons

$$F = -G \frac{M_1 m_2}{r^2}$$

Allowing an accurate value of the graviationl constant to be derived

Gravity [like electrostatic] fields can be modelled as superpositioned Energy momenta force fields

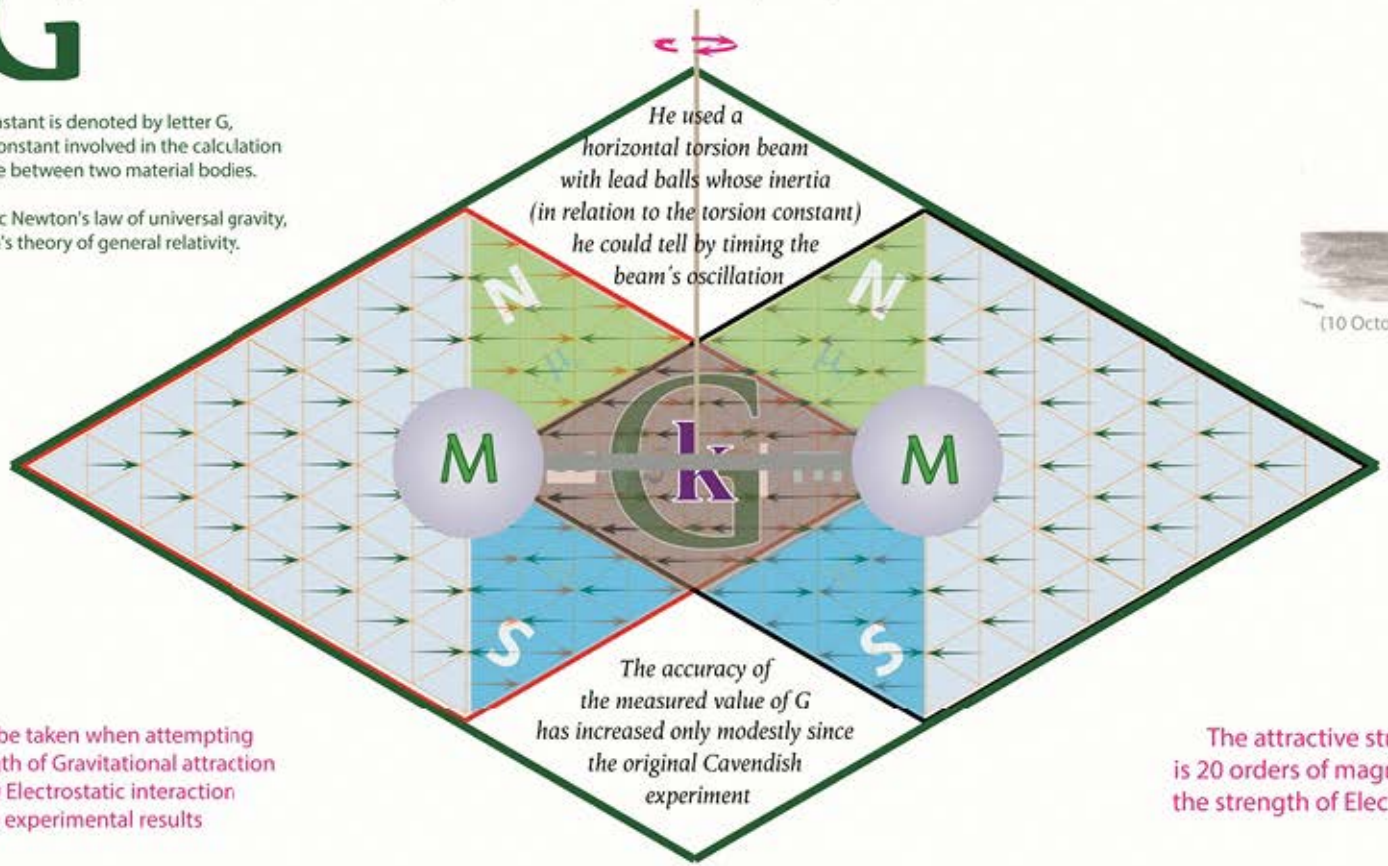
The Gravitational Constant

The gravitational constant is a difficult physical constant to measure to high accuracy, in fact it was not measured until over seventy years after Newton's death by Henry Cavendish with his torsion beam experiment, performed in 1798

G

The gravitational constant is denoted by letter G, it is an empirical physical constant involved in the calculation of the gravitational force between two material bodies.

It usually appears in Sir Isaac Newton's law of universal gravity, and in Albert Einstein's theory of general relativity.



Henry Cavendish

(10 October 1731 – 24 February 1810)

Extreme care must be taken when attempting to measure the strength of Gravitational attraction to ensure that NO Electrostatic interaction influences the experimental results

The attractive strength of Gravity is 20 orders of magnitude weaker than the strength of Electrostatic interaction

$8.98755 \text{ e}9 \text{ N}$

It is also known as the universal gravitational constant, Newton's constant, and colloquially as Big G.

$6.67384 \text{ e-}11 \text{ N}$

$$F = k \frac{Q_1 Q_2}{r^2}$$

g

It should not be confused with "little g" (g), which is the local gravitational field (equivalent to the free-fall acceleration), especially that at the Earth's surface.

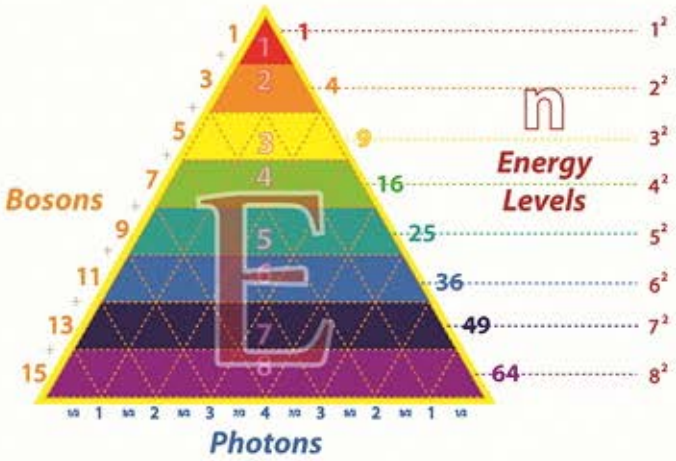
G

$$F = -G \frac{M_1 m_2}{r^2}$$

Gravity has no established relation to other fundamental forces, so it does not appear possible to calculate it indirectly from other constants that can be measured more accurately, as is done in some other areas of physics

Fundamental field strengths

are the result of equilateral energy momenta geometries



Force	Approximate Relative Strength	Range
Strong Nuclear	10^{38}	10^{-15}
ElectroMagnetic	10^{36}	Infinite
Weak	10^{2}	10^{-18}
Gravitational	1	infinite

All the field strengths of the fundamental interactions are a direct result of the interactions of their Tetryonic mass-energy goemetries and Tetryonic Matter topologies

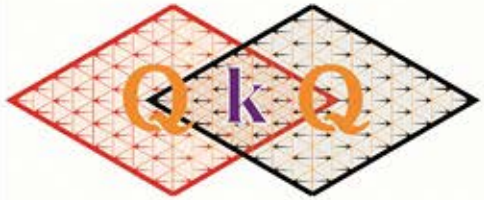
m E M

geometries density topologies

(whilst Gravity can be modelled as a weak convergent Coulombic attraction its actual physics are the result of vacuum energy displacement by Matter topologies)

The Strength of the Gravitational Constant

Coulomb's Constant



[24-12]

Proton nett charge

1.60217646 e -19 C

equal (but opposite) nett Charges

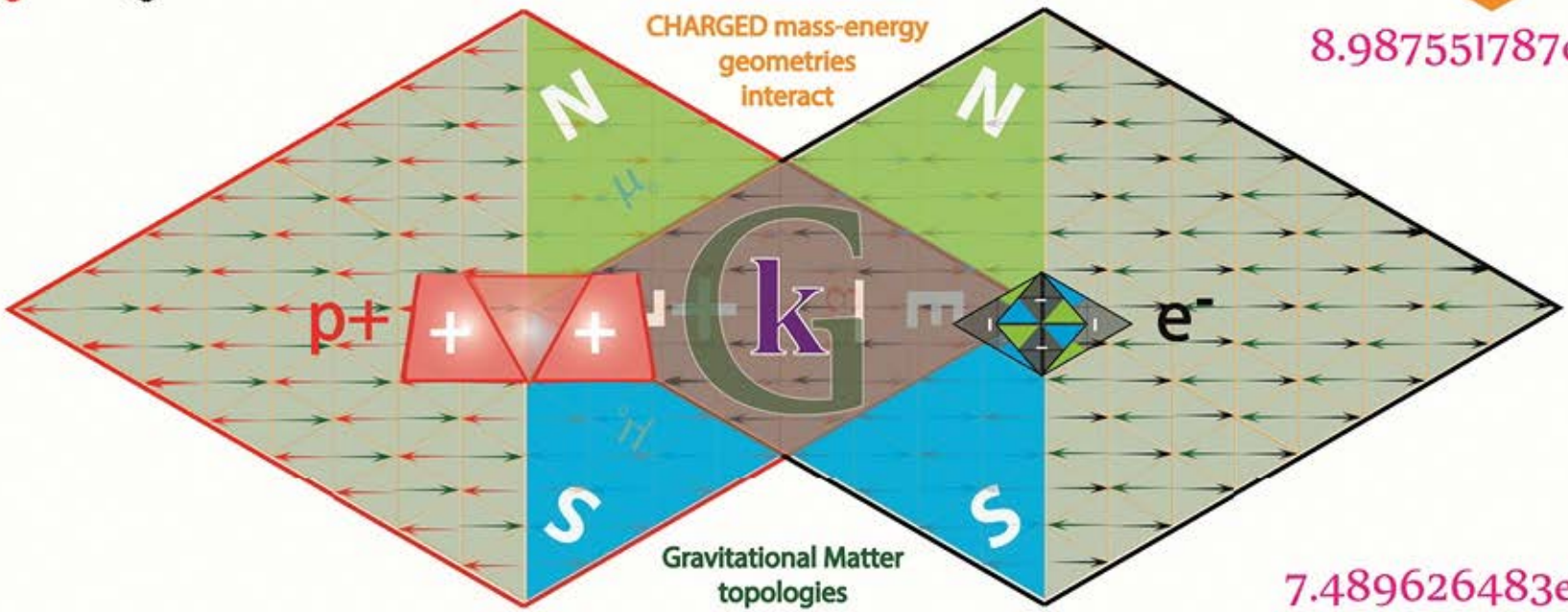
[0-12]

Electron nett charge

1.60217646 e -19 C

8.987551787e9 N

CHARGED mass-energy geometries interact



Gravitational Matter topologies attract

7.489626483e-11 N

Newton's Constant

1.659653693 e -27 KG

Proton rest mass-Matter

[1.5e23-7.5e22]

1875

8.851486361 e -31 KG

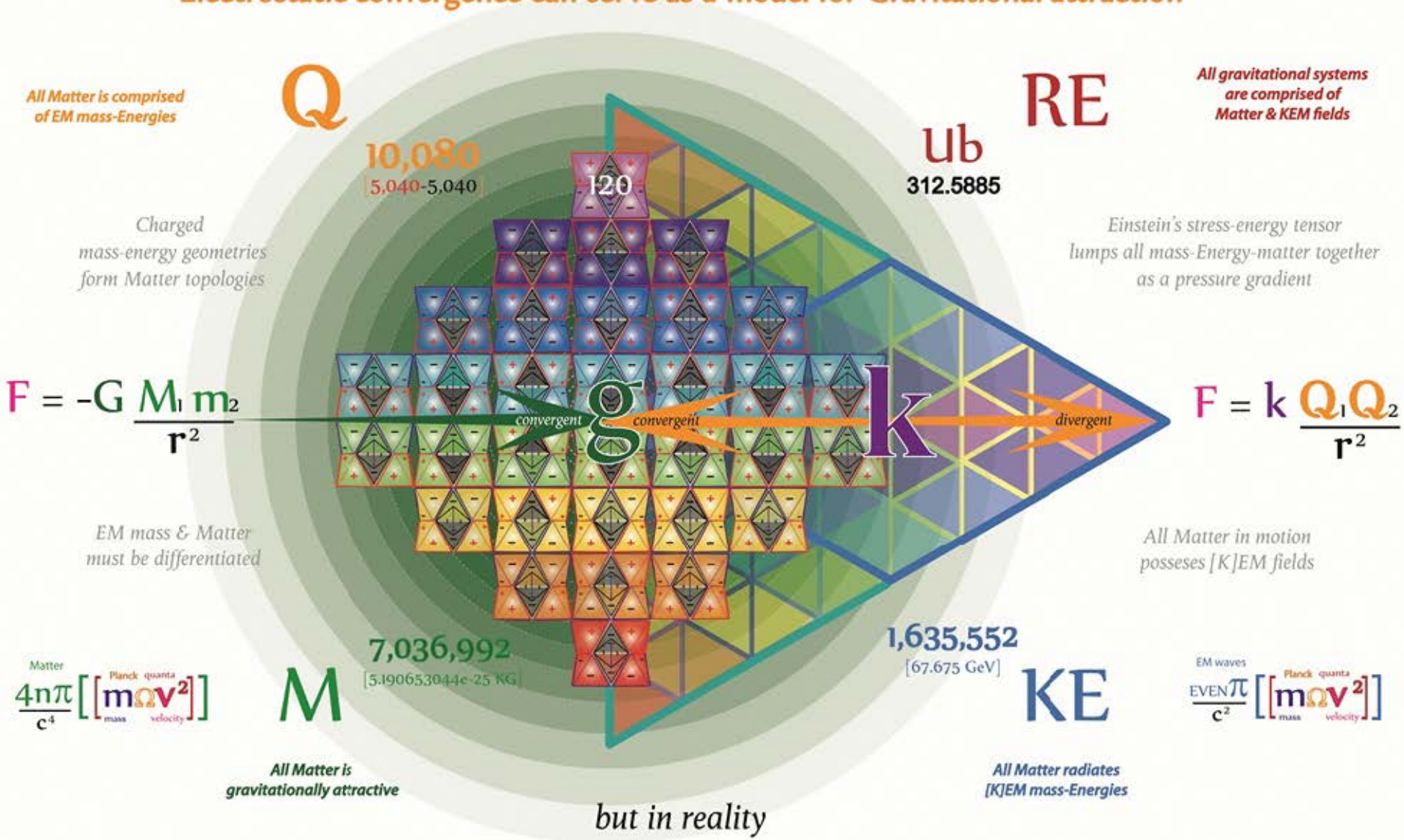
electron rest mass-Matter

[1.2e20]

Although it provides a coherent and accurate model of all the motive forces & interactions present the modelling of Gravity with EM fields dces not account for the source, strength & unilateral direction of Gravitational fields

Tetryonic Matter interaction and Gravitation

Electrostatic convergence can serve as a model for Gravitational attraction



Gravitational attraction results from the displacement of vacuum energies by Matter topologies

[The effects of stronger [K]EM fields can be excluded from the long distance attractive [gravitational] motion of material bodies to each other]

Modelling the force of Gravity

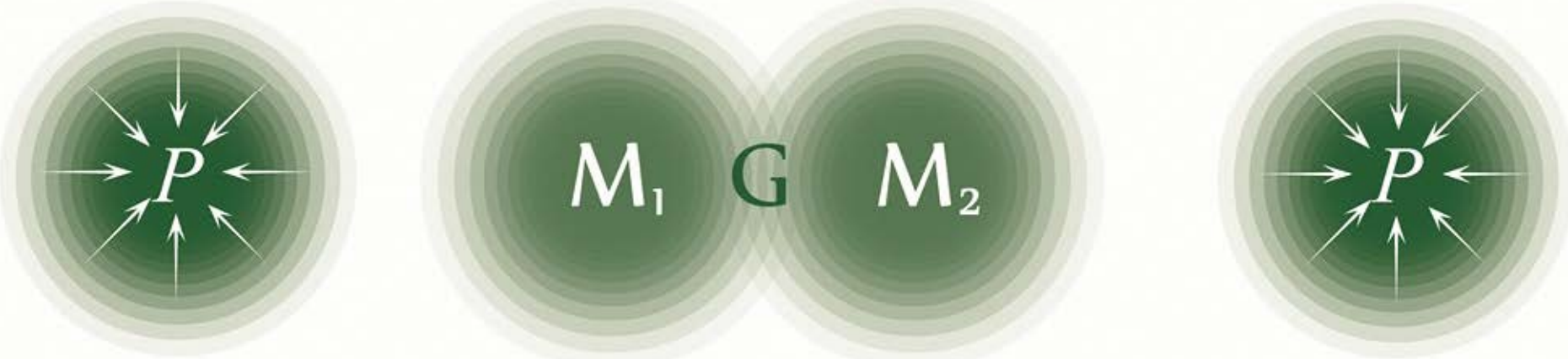
It is in many ways very similar to Coulomb's law of Interaction
between charged particles developed by Coulomb
(after Newton's Gravitation)

For many people, it is easiest to picture gravity
as a kind of special invisible force,
emanating from ALL the Matter in the universe.
Newton's law of Gravity leads one to sees
it this way and it is probably the view
most of us were given when we learned
about gravity in elementary school.

Gravity can be modelled as weak convergent EM field

However, there is another way
to model Gravity's effects.
It stems from Albert Einstein's
General theory of Relativity,
a theory that describes gravitation
as being the result of the curvature of
spacetime as a result of energy gradiant

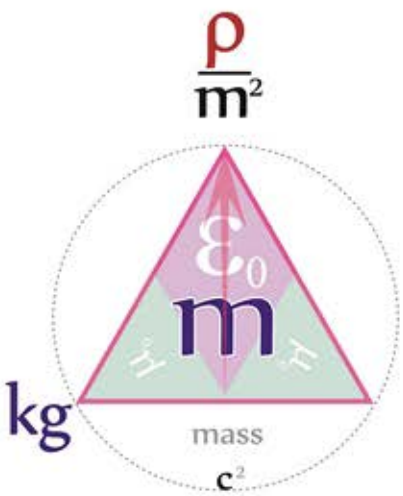
Gravity can also be modelled as convergent pressure gradients



To understand what gravity really is you must have a clear understanding of the distinctions between radiant EM mass and standing-wave Matter and the various quantum interactions they produce.

Tetryonics provides a clear geometric definition and distinction between 2D radiant mass-energy geometries and 3D Matter topologies along with a new unified model of the mechanics of Universal Gravitation at all scales

radiant mass-energy geometries



'Action-at-a-Distance'

mass-energies

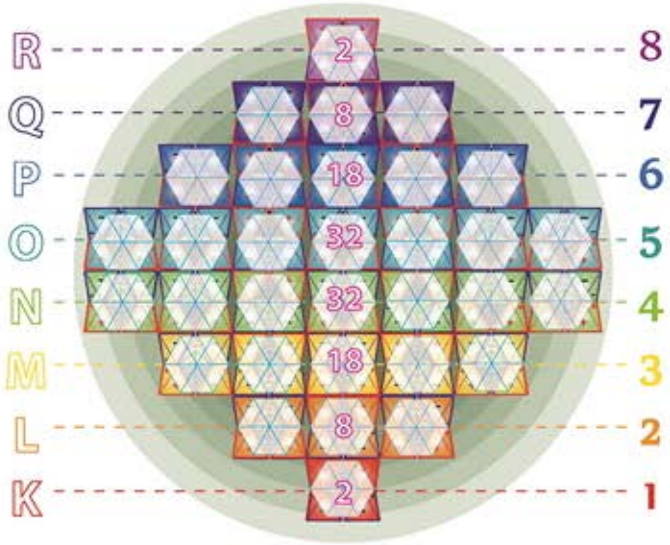
$$\frac{n\pi}{c^2}\left[\left[\underset{\text{mass}}{m}\Omega\underset{\text{velocity}}{v^2}\right]\right]$$

Planck quanta

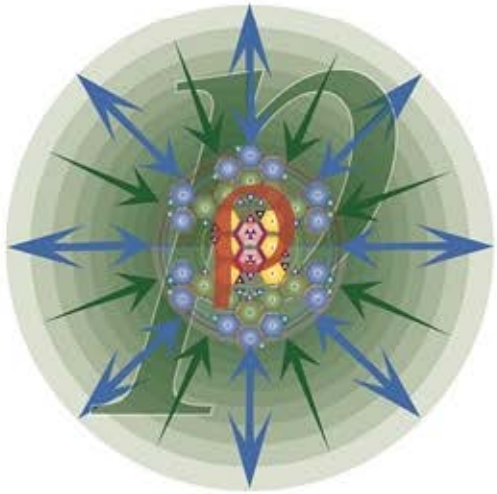
[K]EM mass-Energies with QAM create interactive divergent [and convergent] charge geometries

Newtonian Gravity

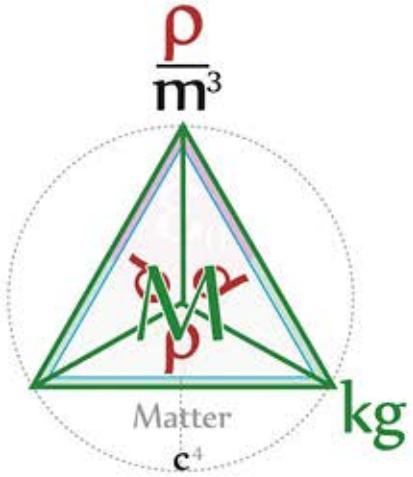
Toplogical mass is Matter



All Matter contains nullspaces and produces motional KEM fields



standing-wave Matter toplogies



'Folded Space-Time'

Matter

$$\frac{4n\pi}{c^4}\left[\left[\underset{\text{mass}}{m}\Omega\underset{\text{velocity}}{v^2}\right]\right]$$

Planck quanta

Tetryonic Matter creates low pressure nullspace resulting in convergent Energy pressure gradients

General Relativity

Instantaneous action-at-a-distance

Tetryonic QED theory shows that where the linear energy momentum of longitudinal waves align and act in a co-linear direction they can facilitate near instantanous action-at-a-distance

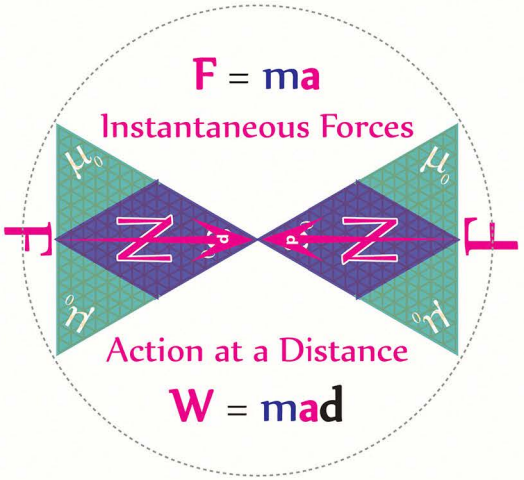
$$\sum \mathbf{F} = 0 \Rightarrow \frac{d\mathbf{v}}{dt} = 0$$

Free particles move with constant vector-velocity
(that is, with zero acceleration, unless acted upon by an outside force).

The Earth orbits the SUN where it is now about a common centre of gravity

'Action-at-a-Distance' and 'Instantaneous' forces were introduced into Physics within Newton's notion of absolute space and time

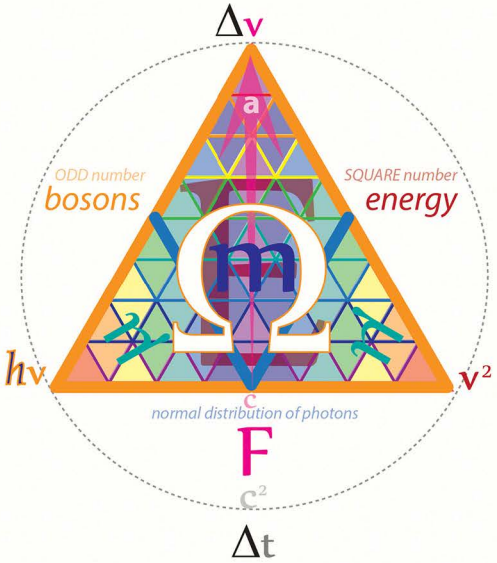
If the SUN were to vanish the Earth would cease traveling in its current elipical orbit immediately



$$\sum \mathbf{F} = \frac{\mathrm{d}\mathbf{p}}{\mathrm{d}t} = m\frac{\mathrm{d}\mathbf{v}}{\mathrm{d}t} + \mathbf{v}\frac{\mathrm{d}m}{\mathrm{d}t}$$

The vector-force on a particle equals the product of its mass by its vector acceleration

$$\mathbf{F} = m\mathbf{a} = \frac{\Delta \mathbf{p}}{\Delta t} = \Delta\left[\frac{m\mathbf{v}}{t}\right]$$



The speed of gravity is limited to c

Einstein's GR theory replaces Newton's force of gravity and absolute space & time with a relativistic spacetime gradient curved by mass-energies

If the SUN were to vanish the Earth would continue traveling in its current orbit for $8^{1/3}$ minutes

The forces of action and reaction are equal and opposite;
(if a particle A exerts a force f on a particle B, then B exerts a force–f on A)

$$\sum \mathbf{F}_{a,b} = -\sum \mathbf{F}_{b,a}$$

Newton's Gravitational Constant

$$F = -G\frac{M_1 m_2}{r^2}$$

According to Newton's law of universal gravitation,

the attractive force (F) between the centres of two bodies of mass-Matter, is proportional to the product of their Matter (M1 and m2), and inversely proportional to the square of the distance (r) between them

Long distance force

spacetime curvature

Newton's Gravitional Force models a motive force for gravitational acceleration

Einstein's General relativity has no motive force for gravitational accelerations

6.67384 e-11

$$\left[\frac{N\,m^2}{kg^2}\right].\left[\frac{N\,m^2}{kg^2}\right]$$

The gravitational force between two interacting bodies of Matter is

$$4\pi G\rho$$

$$\left[\frac{N\,m^2}{kg^2}\right] = \left[kg\,\frac{m}{s^2}\,\frac{m^2}{kg^2}\right] = \left[\frac{m^3}{kg\,s^2}\right]$$

$$8\pi G\rho$$

Action-at-a-Distance

All Matter creates KEM fields of energy momenta

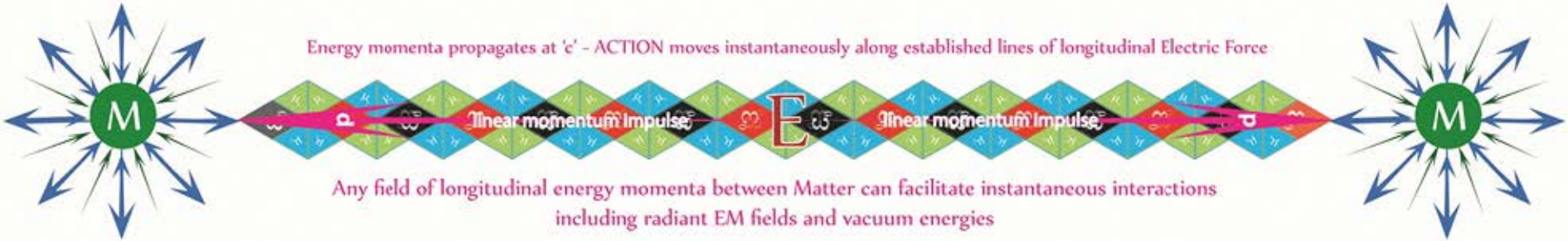
radiant mass-energies INTERACT

All Matter creates a displacement of vacuum energies

standing-wave Matter ATTRACTS

Once established longitudinal EM fields between Matter form an 'inelastic rod' of energy momenta that can facilitate an instantaneous 'Action-at-a-Distance'

Energy momenta propagates at 'c' - ACTION moves instantaneously along established lines of longitudinal Electric Force



Any field of longitudinal energy momenta between Matter can facilitate instantaneous interactions including radiant EM fields and vacuum energies

Gravity is known as a Universal force of attraction between two objects that is proportional to their mass-Matter content

Newton's theory of gravity offered no prospect of identifying any mediator of gravitational interaction. His theory assumed that gravity acts instantaneously, regardless of distance.

Energy momenta creates universal motive forces

According to Albert Einstein's theory of special relativity, instantaneous action-at-a-distance was seen to violate the relativistic upper limit on speed of propagation of information.

If one of the interacting objects were to suddenly be displaced from its position, the other object would feel its influence instantaneously, meaning information had somehow been transmitted faster than the speed of light.

Gravity fields create a universal attractive field

Gravitational Constant

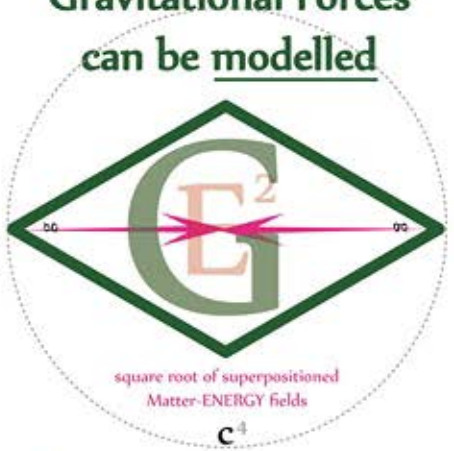
The gravitational constant denoted by letter G, is an empirical physical constant involved in the calculation(s) of gravitational force between two bodies.
It appears in Sir Isaac Newton's law of universal gravitation, and in Albert Einstein's theory of general relativity.
It is also known as the universal gravitational constant, Newton's constant, and colloquially as Big G.

It should not be confused with "little g", which is the local gravitational field (equivalent to the free-fall acceleration), at the Earth's surface

Gravitational Forces can be modelled

$6.67\ e\text{-}11\ \left[\frac{Nm}{kg}\right]^2$

linear Newton metres



$6.67\ e\text{-}11\ \left[\frac{E}{kg}\right]^2$

scalar Energy momentum

as the geometric MEAN of superpositioned fields of gravitational energy

$$F = -G\frac{M_1 m_2}{r^2}$$

The gravitational force between
two neutral interacting bodies is

N.m = Joules

$\left[\frac{Nm}{kg}\right].\left[\frac{Nm}{kg}\right]$

$[N.m/kg]^2 \sim [E/kg]^2$

Gravitational acceleration

Gravitational acceleration can be viewed as a reflection of the change in an object's momentum over time

$$\sum \mathbf{F} = \frac{d\mathbf{p}}{dt} = m\frac{d\mathbf{v}}{dt} + \mathbf{v}\frac{dm}{dt}$$

$$\frac{\left[\frac{m}{s}\right]}{s}$$

$$\vec{g} = \frac{\vec{F}_g}{m} = -G\frac{mM}{mr^2}\hat{r} = -\frac{GM}{r^2}\hat{r}$$

expressed vectorially the force is always ATTRACTIVE to the larger masss and acts in opposition to the KEM field's divergent momenta

F=ma

kg

G

g

force

The force on a body acted upon by a Gravitational field is given by

$$g = G\frac{m}{r^2}$$

The greater the mass of a gravitating object the greater the acceleration due to the mass

The closer a body is to a the source of a Gravitational field the greater the acceleration due to the field

$$\left[\frac{N}{kg}\right] = \left[\frac{m}{s^2}\right] = \frac{\left[kg\,\frac{m}{s^2}\right]}{kg}$$

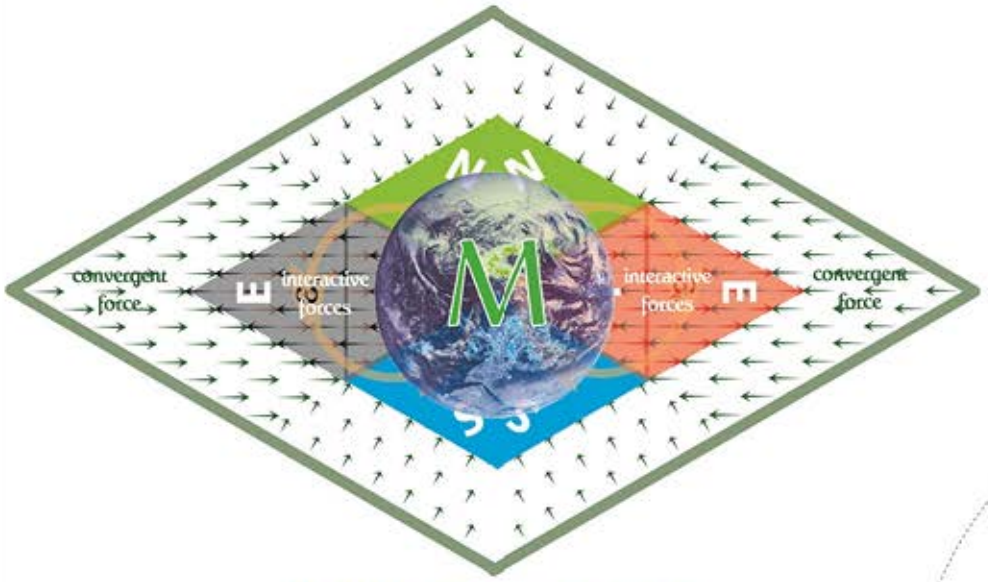
gravitational acceleration can be modelled as the convergent vector component of superpositioned EM fields

$$\left[\frac{Nm}{kg}\right]^2$$

The gravitational force between TWO neutral interacting bodies is

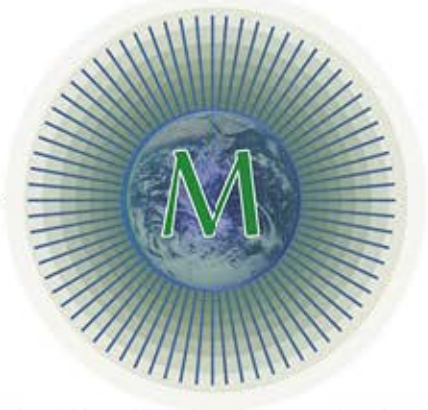
$$\left[\frac{Nm}{kg}\right].\left[\frac{Nm}{kg}\right]$$

Modelling Gravitational fields



The [K]EM fields of planetary bodies are the result of their mass-Matter density and motion in space

Gravity can be modelled as weak convergent force created by and acting between the mass-Matter in planetary bodies



Matter topologies displace vacuum energies creating Gravity

Weak KEM fields can accurately model Gravitational fields

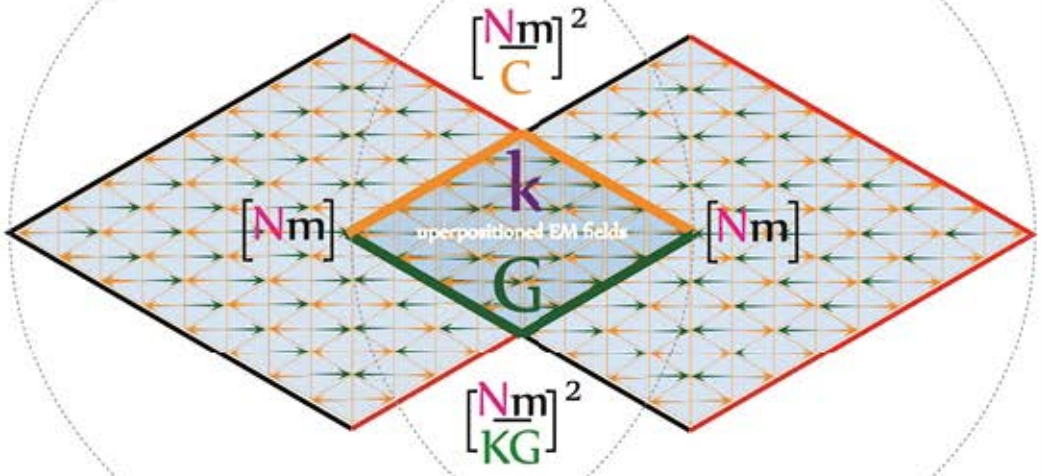
Gravitational fields are the result of the displacement of vacuum energies by Matter topologies and the interactive energy momenta of their radiant KEM fields

$$F = k \frac{Q_1 Q_2}{r^2}$$

interactive forces

8.98755 e9

The elecinteractive orce created by two superpositioned KEM fields



6.67384 e-11

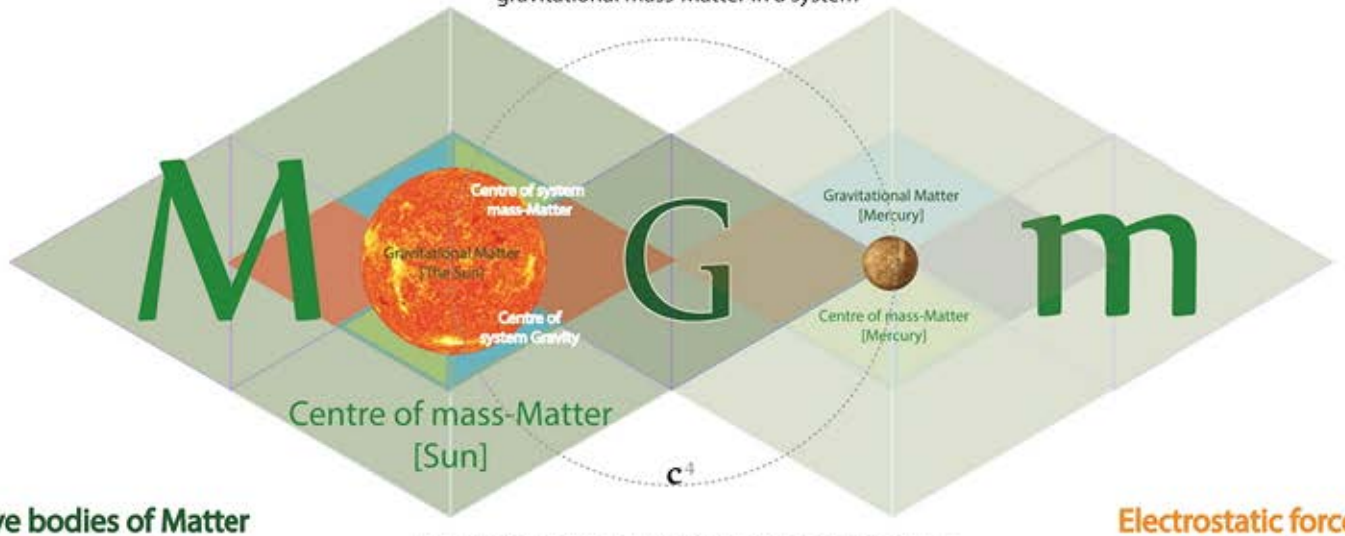
The gravitational force between two neutral interacting bodies

attractive force

$$F = -G \frac{M_1 M_2}{r^2}$$

Centres of Gravity

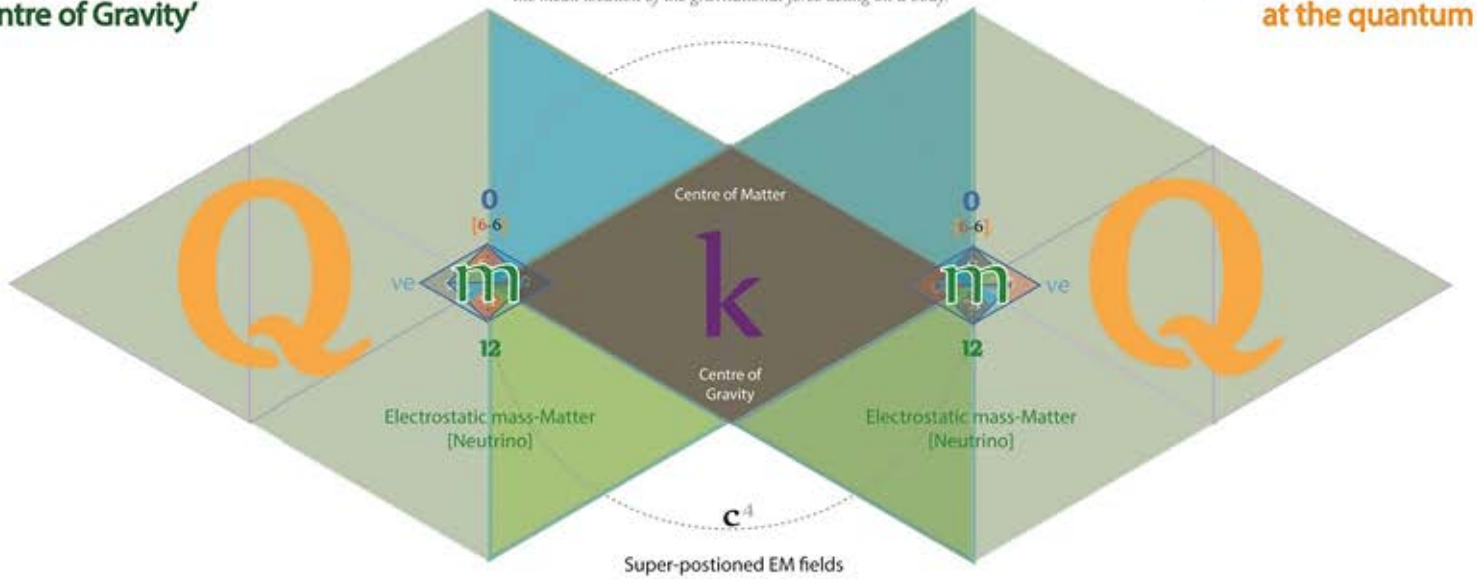
are determined by
the distribution of the combined
gravitational mass-Matter in a system



Any two massive bodies of Matter (be they Stars or Neutrinos) will orbit about their 'Centre of Gravity'

The term center of mass is often used interchangeably with center of gravity, but they are physically different concepts. They happen to coincide in a uniform gravitational field, but where gravity is not uniform, center of gravity refers to the mean location of the gravitational force acting on a body.

Electrostatic forces are many orders of magnitude greater than gravity & dominate nuclear interactions at the quantum scale



Super-postioned EM fields
have c^4 geometries [c^2 x c^2]

$F=ma$

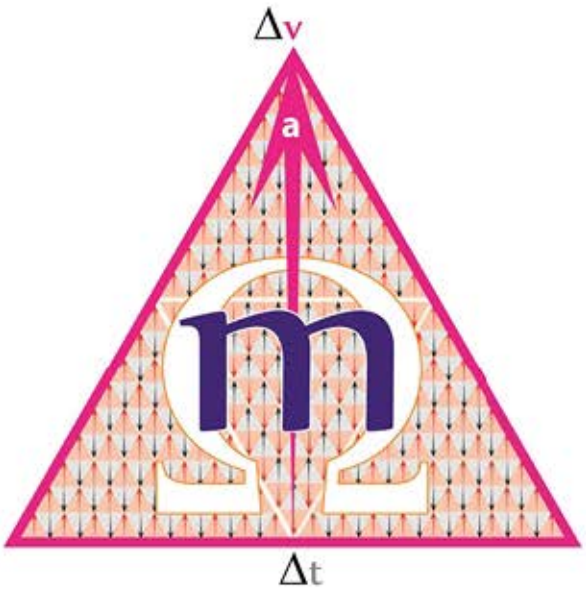
There are two quite distinct types of mass in Newton's theory of mechanics and gravitation.

(i inertial mass, which occurs as the ratio between force and acceleration in Newton's second law and thus measures a particle's resistance to acceleration, and

(ii) Gravitational mass, which may be regarded as the gravitational analog of electric charge, and which occurs in Newton's Gravitational equation

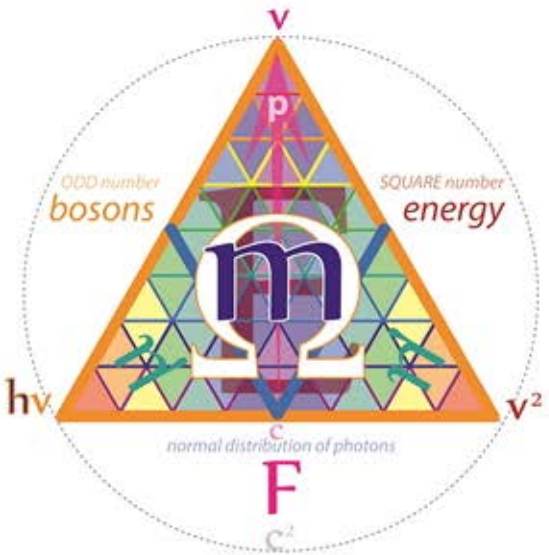
$$F_g = -G\frac{m_1}{r^2}$$

Inertial mass
is a measure of the total
energy momenta geometries
of Matter topologies



Inertial mass

results from constituent quanta
acting against (or with) any
Force applied to a mass



Often stated as the 'Principle of Equivalence'
on which General relativity is founded ,
it can be summarised as follows:

$$a = \frac{m}{m} g$$

"Inertial mass and Gravitational mass are equivalent"

whilst mass-energies contribute equally to inertial & gravitational mass it is Matter topologies that creates Gravity

All Gravitational Matter
has EM mass geometries in
its Matter topology

'Gravitational' mass

is seen as being the constituent quanta
of opposite charge polarity
attracting another particle's quanta

Discerning between the competing laws of Gravity

$M + KE = RE$

gravitational mass-Matter + *fields of force* = *relativisitic mass-energy densities*

At the heart of resolving the true nature of Gravity is the formal definitions of mass-Energy-Matter and the interplay between the various field interactions they produce and possess

Newton's view of gravity

Sir Isaac Newton described gravity as a force that attracts things possessing Matter

Sir Issac Newton

(25 December 1642 – 20 March 1727)

$$F = -G \frac{M_1 m_2}{r^2}$$

Newton taught that masses attract each other with a force inversly proportional to the distance between the masses.

Newton's idea was that planets are held in their orbits around the Sun by a force proprtional to the mass of the Sun and the planets, and that force is always pointing inwards (i.e. planets get pulled in the direction of the Sun, and the Sun gets pulled in the directions of the planets).

Newton said that a person standing on the Earth is being held to the Earth by a force due to the mass of the Earth and the mass of the person, and that force is always pointing inwards (i.e. a person gets pulled in the direction toward the center of the Earth, and the Earth gets pulled in the direction of that person).

Newton's and Einstein's view of gravity differ markedly

Einstein, on the other hand, taught that all things with mass (including the Sun, Earth, and the rest of the planets) create a energy density gradient that causes spacetime to curve and that this curvature is an alteration the geometry of spacetime.

The curvature casues Matter to move toward the center of the largest nearby mass. The closer to this mass the larger the degree of curvature in the local spacetime.

Additionally, Einstein taught that if there are no external forces acting upon an object (even those without any mass such as photons) then that object will simply follow its natural path (geodesic) through the altered geometry of the local spacetime - regardless of the degree of curvature of that local spacetime. This implies that if an object is somehow kept from following its natural path (geodesic) then a net force does exist and is measurable on that object.

Einstein's view of gravity

Albert Einstein described gravity as a 3D curvature of spacetime caused by Matter

Albert Einstein

(14 March 1879 – 18 April 1955)

Gravity is an instantaneous 'Action-at-a-Distance' mediated by a means unknown

Ricci curvature *scalar curvature* *Gravitational constant*

$$R_{\mu\nu} - \frac{1}{2} R g_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu}$$

spatial geometry *stress energy tensor*

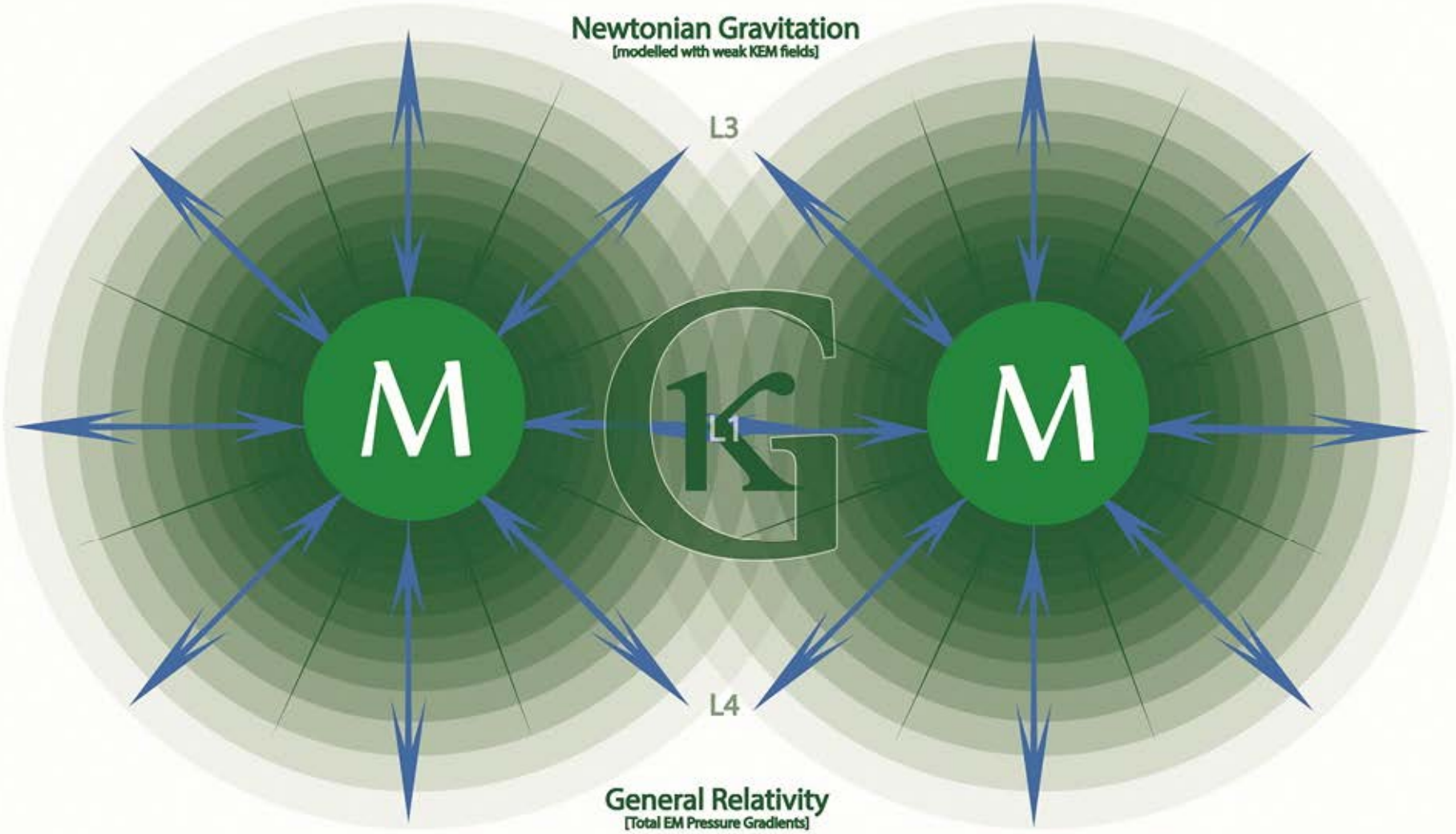
Matter and energy tell spacetime how to curve. Spacetime tells matter how to move

There is no doubt that both Sir Isaac Newton & Albert Einstein were both brilliant, their theories describing Universal Gravitation have remained at the fore for hundreds of years now.

However, a more accurate model of the Universal Gravitation is now at hand and its true nature is revealed via the Tetryonic geometry of EM mass-Energy-Matter and its associated field interactions. Tetryonic Gravitation demonstrates the validity of both approaches and reveals the true geometry behind the field interplays that result in the familiar force of Gravity

The two models of Gravitation

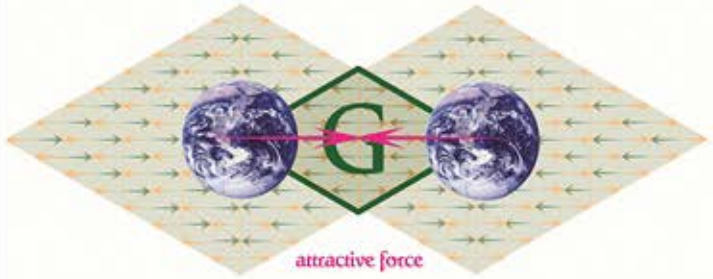
Newtonian gravitation models the observed large-scale convergent force between all material bodies



General Relativity models the convergent pressure gradiant created by all forms of energy

While both models are very successful they both fail to reveal the quantum-scale geometries and topologies that give rise to universal gravitation

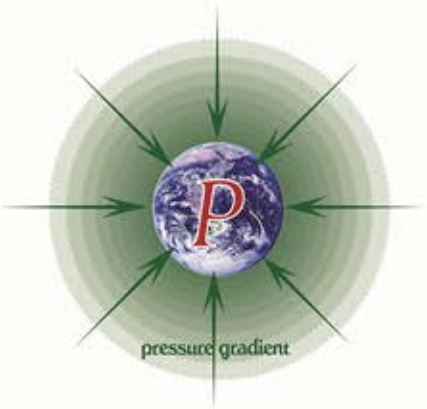
Theories of gravitation



Newton viewed Gravitation as an attractive FORCE of Matter
(inverse square field strength)

for the mechanics of gravitation
"I feign no Hypothesis"

"Gravity is the result of curved spacetime"



Einstein viewed it as the curvature of 4D spacetime
(PRESSURE gradient)

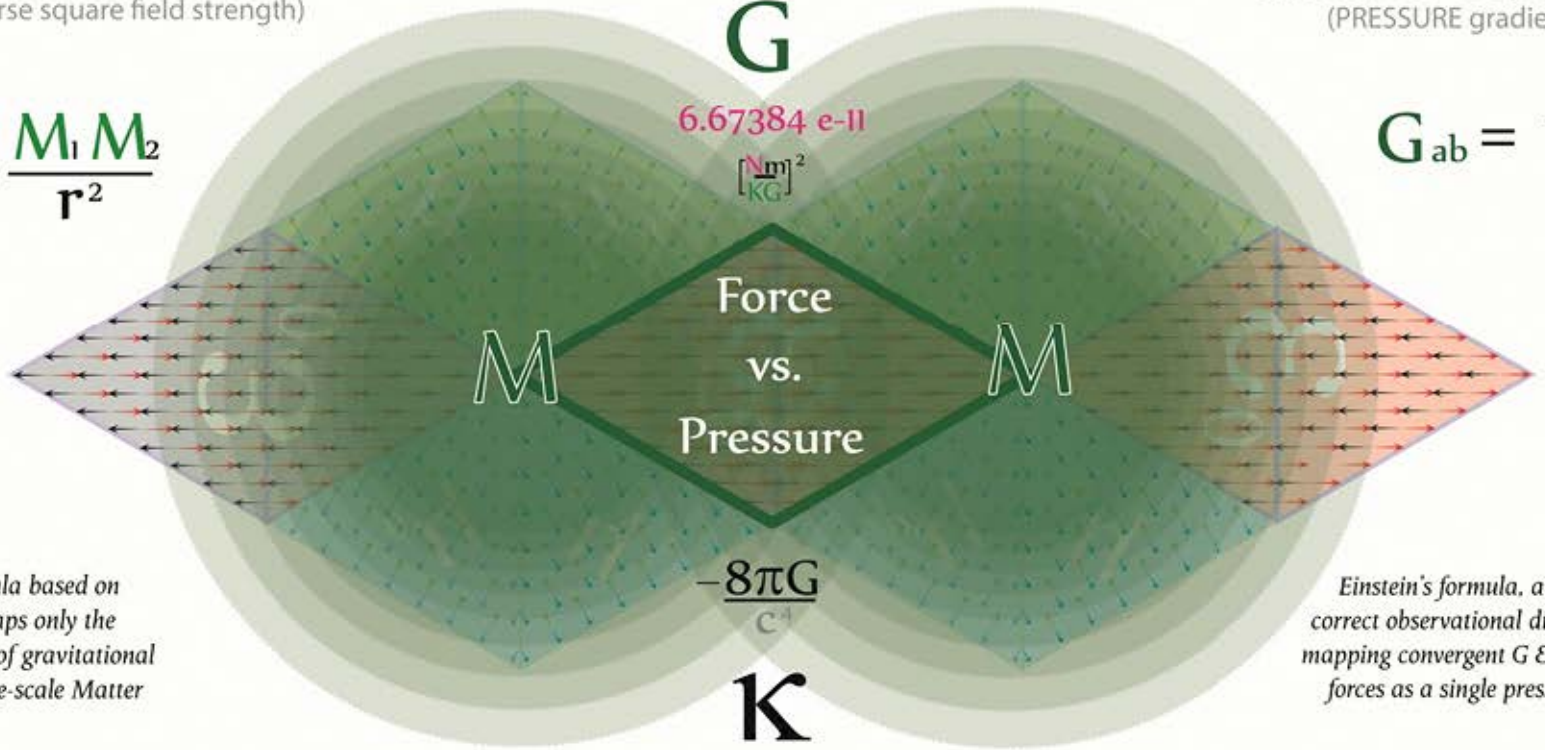
$$F = -G\frac{M_1 M_2}{r^2}$$

$$G$$

$$6.67384\ e\text{-}11$$

$$\left[\frac{Nm^2}{KG}\right]$$

$$G_{ab} = \kappa T_{\mu\nu}$$



$$-\frac{8\pi G}{c^4}$$

$$\kappa$$

Newton's formula based on observations maps only the observed nett force of gravitational attraction on large-scale Matter

Einstein's formula, attempted to correct observational discrepancies by mapping convergent G & divergent EM forces as a single pressure gradient

Both Newton and Einstein failed to define and distingush between mass-energy geometries & Matter topologies

Newton's G vs Einstein GR

Both Newton and Einstein developed their gravitational models from the observed motions of celestial bodies without any distinction between mass and Matter or the quantum forces at work

Φ

Gravitational Matter

Newton maps Matter's gravitational attraction [excluding any perturbations caused by [K]EM fields]

All mass-energies

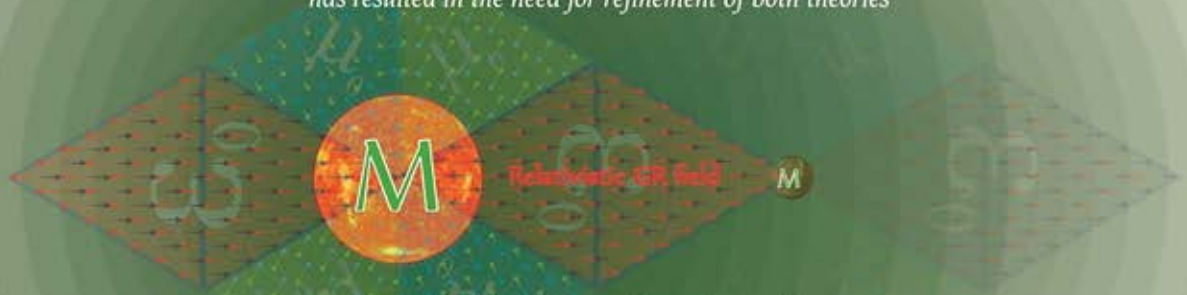
Einstein's GR maps Newton's G & SR effects [mass-energy momenta [K]EM interactions]

$g_{\mu\nu}$

Increasing accuracy in the measurements of the motions of spacecraft interacting with planetary bodies [using EM waves] has resulted in the need for refinement of both theories

F

$\Gamma^{\sigma}_{\mu\nu}$



$\nabla^2\Phi$

$R_{\mu\nu}$

Einstein's doubling of Newton's gravitational constant was done to fit later observed perturbations in Mercury's orbital mechanics

Newtonian G field

Any valid tests of the purely gravitational fields of Matter must exclude KEM fields and not use EM masses to test it

ρ

$T_{\mu\nu}$

$$[\text{Newton}] = \frac{4\pi GMm}{r^2}$$

$$\nabla^2\Phi = 4\pi G\rho$$

Poisson

$$[\text{Einstein}] = \frac{8\pi GT_{\mu\nu}}{c^4}$$

Pressure gradients and GR

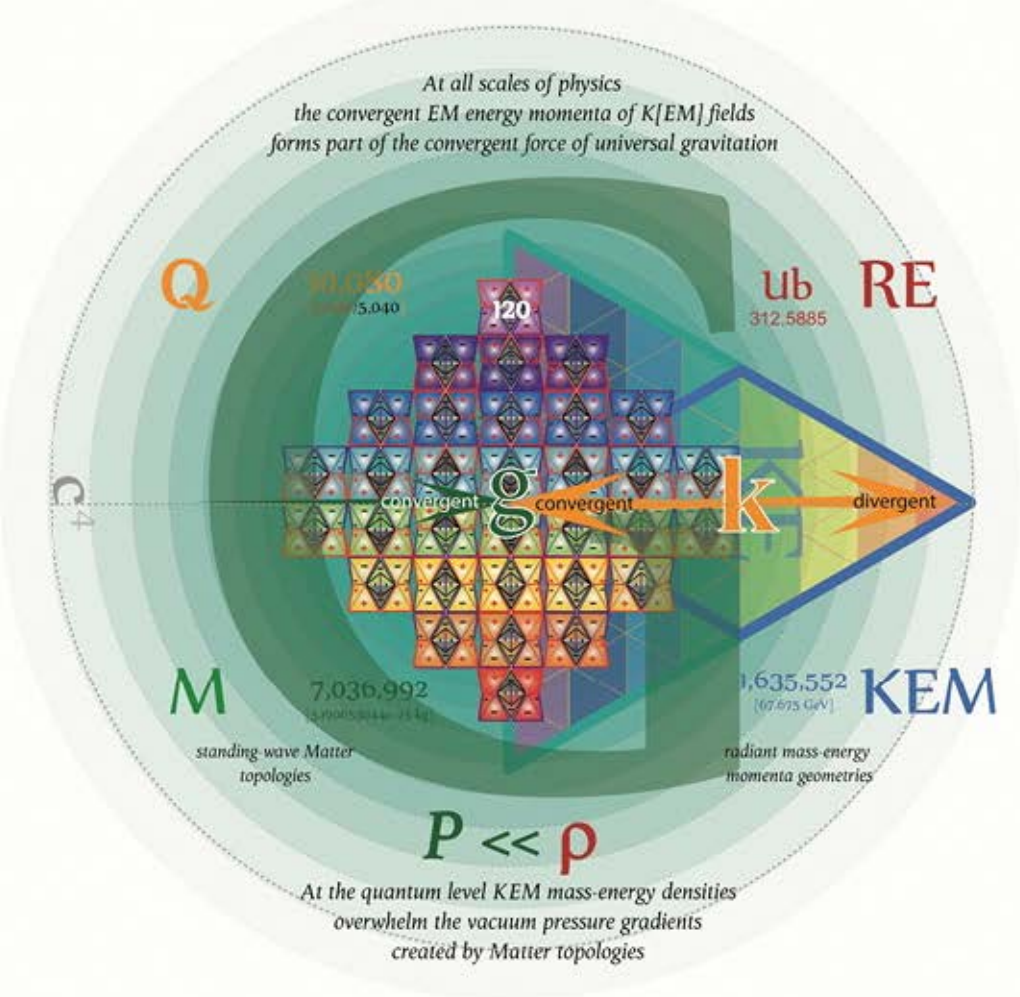
Tensor mathematics is utilised in General relativity to model mass-energy geometries and energy pressure gradients as curved spacetime

$$F = -G\frac{M_1}{r^2}$$

Newton's Gravitational fields are modelled on the observed motions of large-scale Matter attraction

$$G_{ab} = \kappa T_{\mu\nu}$$

Einstein's GR gradients corrects Newtonian gravity by modelling all forms of EM mass-Energy momenta



Newtonian G field

4π

Einstein's G field

8π

G

κ

Vector Force between Matter

$$n\pi\rho = \underset{\text{geometries}}{n\pi}\left[\left[\underset{\text{mass}}{m}\Omega\underset{\text{velocity}}{v^2}\right]\right] = T_{\mu\nu}$$

(charged mass-ENERGY-Matter; Planck quanta)

representive of ALL the mass-energy momenta of any spatial volume

Pressure gradient per unit Volume

Stress energy-pressure gradiants

are the result of Tetryonic charge geometries & topologies

$$\frac{n\pi}{c^2}\left[\left[m\Omega v^2\right]\right]$$

mass · Planck quanta · mass · velocity

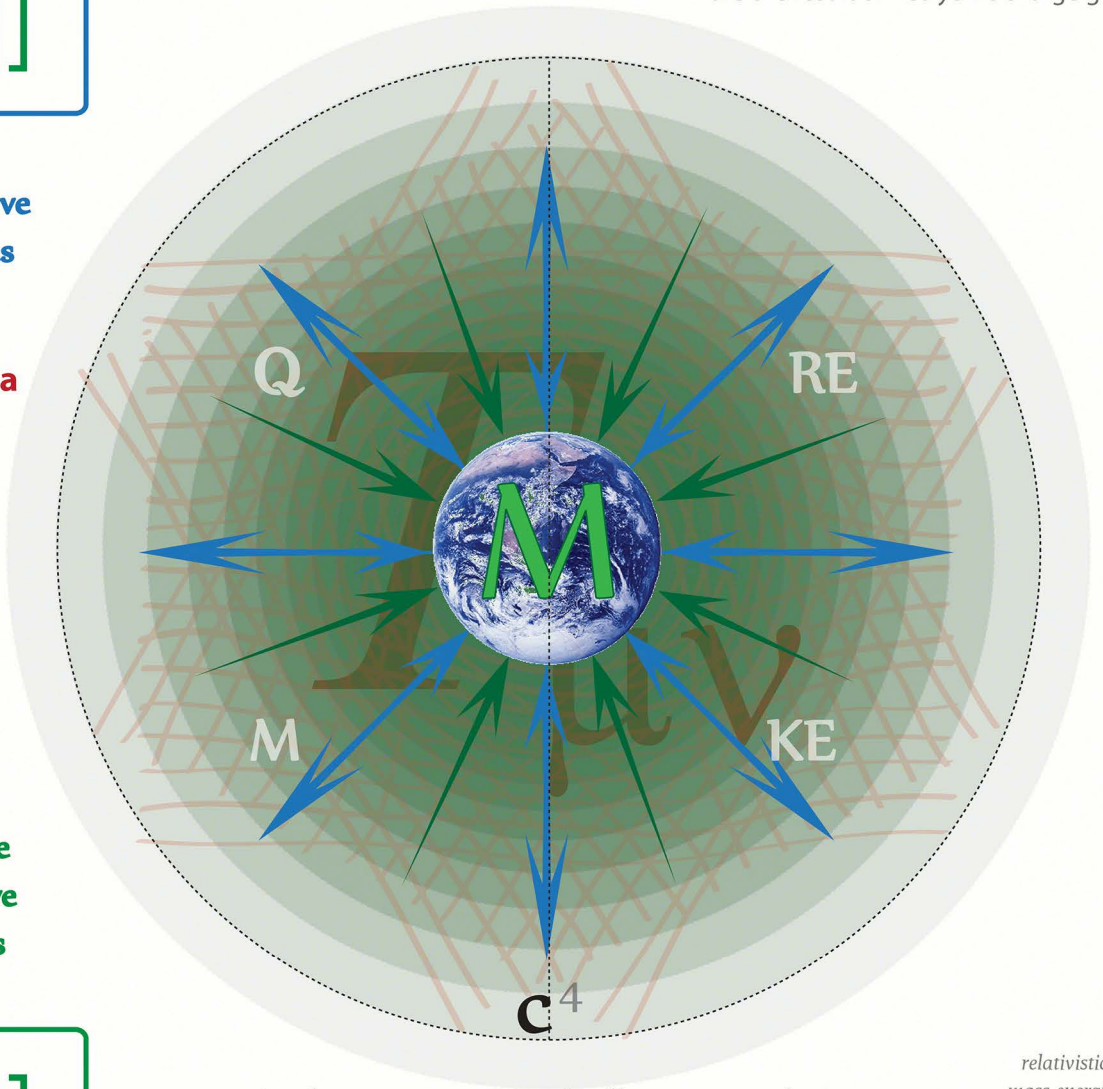
Radiant mass-energies have planar energy geometries

$n\pi$	**Energy quanta**
EVENπ	**photons**
ODDπ	**bosons**
4π	**tetryons**
12π	**quarks**
12π	**leptons**
24π	**mesons**
36π	**Baryons**

All Matter topologies are tetrahedral standing-wave mass-energy geometries

$$\frac{T\pi}{c^4}\left[\left[m\Omega v^2\right]\right]$$

Matter · Planck quanta · mass · velocity

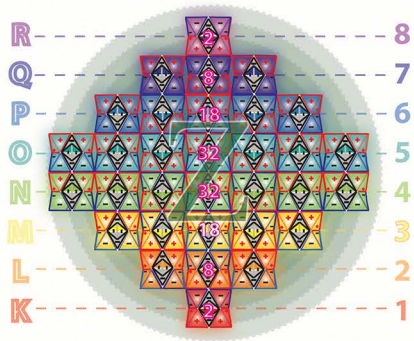


On the non-quantum scale all Matter topologies can be generalised and mathematically modelled as SPHERICAL 4π mass-energy topologies

radiated [K]EM fields have interactive energy momenta [convergent & divergent]

fields of Force

KEM



M

standing-wave topologies

displace vacuum energies creating convergent Gravity

relativistic mass-energies		standing-wave Matter		radiant mass-energies
RE	=	**M**	+	**KEM**
stress energies		topologies		geometries

Stress Energy tensor

In the Einstein field equations [EFE] of general relativity, the stress-energy tensor is the source of gravitational mass
just as Matter is the source of such a field in Newtonian gravity

$T_{\mu\nu}$

In Einstein's general relativity,
the symmetric stress-energy tensor
acts as the source of spacetime curvature

mass *ENERGY* *Matter*

m E M

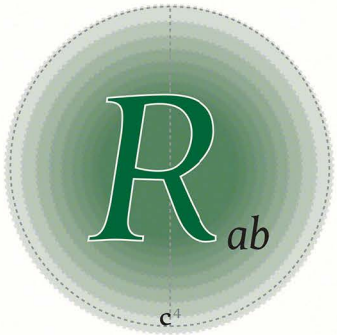
geometries *momenta* *topologies*

Matter

$$\frac{4n\pi}{c^4}\left[\left[m\Omega v^2\right]\right]$$

Planck quanta; mass; velocity

The Tetryonic unified field equation
models all mass-ENERGY geometries
& Matter topologies

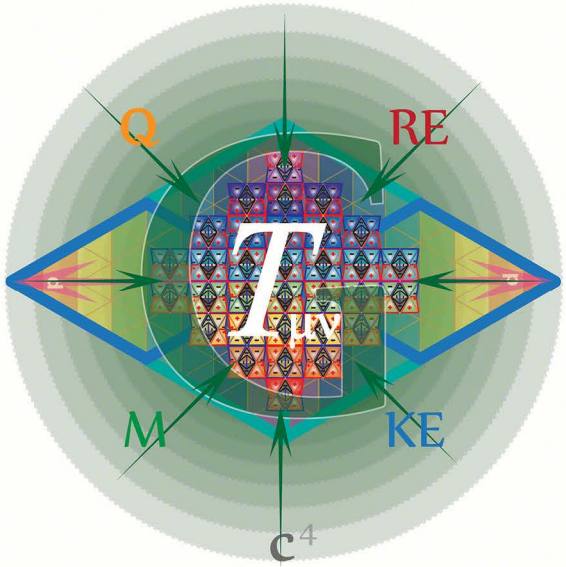


A recognised problem in General Relativity is that the stress tensor models all forms of mass-energy-Matter in the form of a generalised stress energy pressure gradient but fails to differentiate between either mass or Matter and their resulting interactions within the fields

$$n\pi\left[m\Omega v^2\right]$$

Planck quanta; mass; velocity

radiant mass-energies create interactive fields of force



$$T\pi[\rho]$$

standing-wave Matter creates vacuum energy pressure gradients

Gravimetric topologies

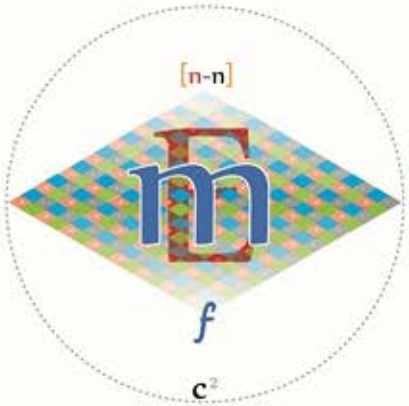
Charges create radiant mass-energy geometries & standing-wave Matter topologies

kg

2D mass geometries

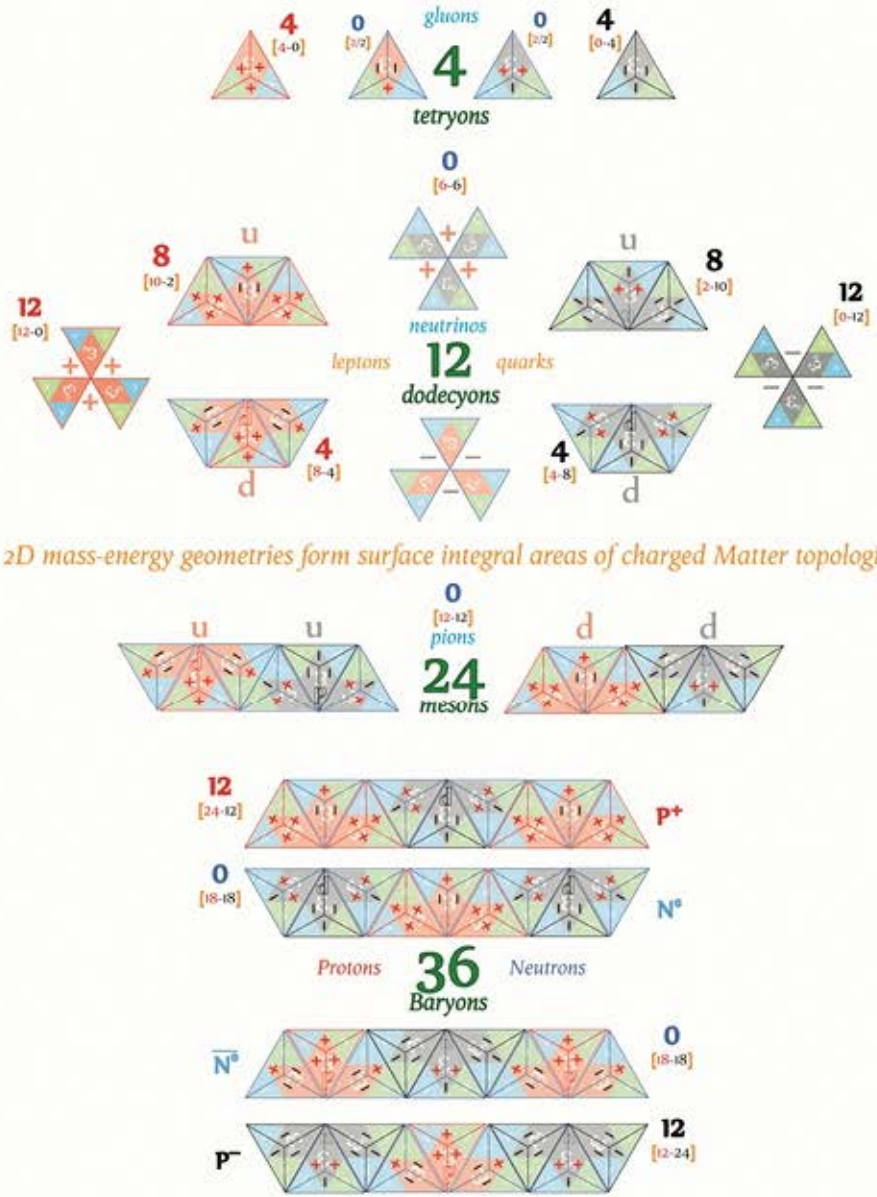
EM mass is not Matter

$$\frac{n\pi}{c^2}\left[\left[m\Omega v^2\right]\right]$$ (mass; Planck quanta; mass; velocity)



Charged energy geometries are the basis for 2D mass

Photons have mass-energy momenta geometries but no Matter topology

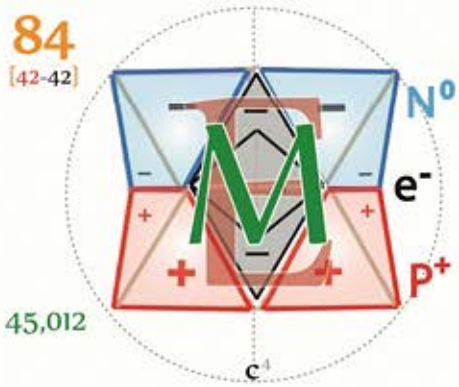


KG

3D Matter topologies

Matter has mass energies

$$\frac{T\pi}{c^4}\left[\left[m\Omega v^2\right]\right]$$ (Matter; Planck quanta; mass; velocity)

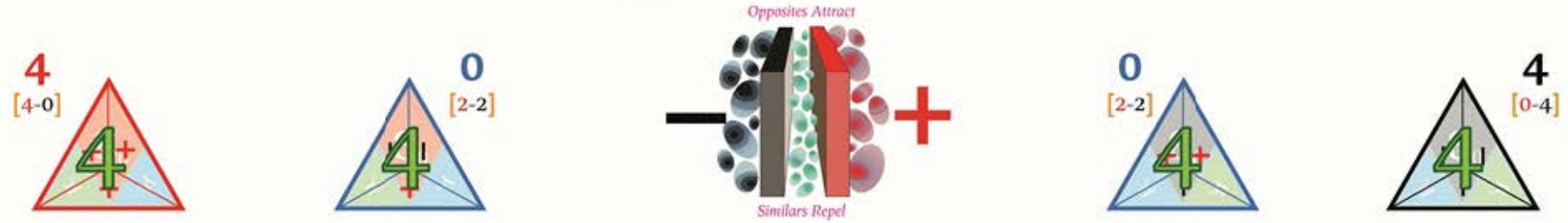


Charged mass-energy topologies are the basis for 3D Matter

Its topology forms a quantum Faraday cage [with a charged surface integral of mass-energies]

Interactive mass-energies vs. gravitational Matter

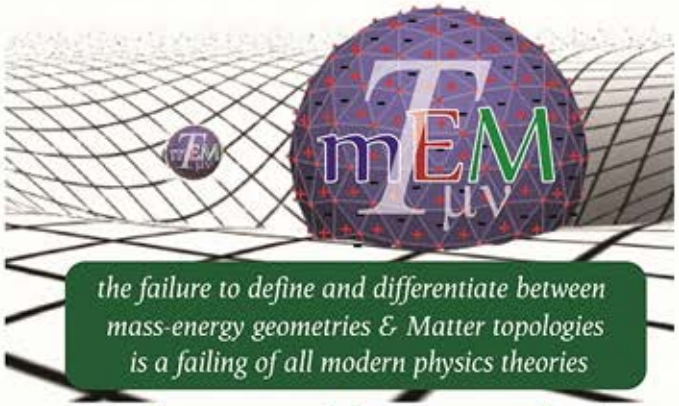
energy in all its forms seeks equilibrium



radiant mass-energy geometries

$$\frac{n\pi}{c^2}\left[\left[m\Omega v^2\right]\right]$$

mass · Planck quanta · mass · velocity



the failure to define and differentiate between mass-energy geometries & Matter topologies is a failing of all modern physics theories

standing-wave Matter topologies

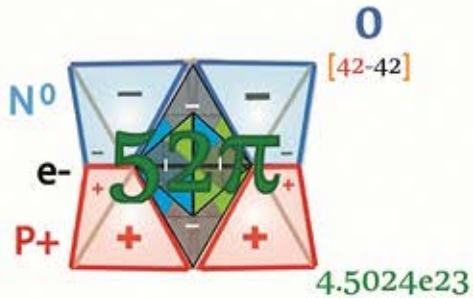
$$\frac{T\pi}{c^4}\left[\left[m\Omega v^2\right]\right]$$

Matter · Planck quanta · mass · velocity

Charged Planck quanta of mass-energy momenta that form topologies displace the vacuum energies surrounding them in turn creating a mass-energy-Matter pressure gradient

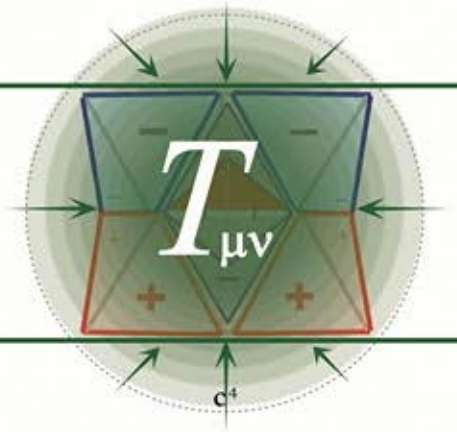
Compton frequency of rest Matter is what creates inertial mass, its Gravitational Matter results from its charged topology

The integral inductive EM mass-energy momenta in Matter fascia create the physical property of inertial mass



$$F_z = \Delta P.\Delta A$$

Pressure is the force per unit area
applied in a direction perpendicular to the surface of an object



The theory of general relativity uses a stress-energy tensor to reflect to the pressure differentials created by Energy in ALL its forms (making no distinction between EM masses & Matter)

In Tetryonics the stress energy tensor is expanded, through geometric terms, to diferentiate between radiant mass-energy interactions and Matter topologies in radial spatial co-ordinate systems defined by the speed of light

Radiant EM masses

$$\frac{n\pi}{c^2}\left[\left[m\Omega v^2\right]\right]$$ mass; Planck quanta; mass; velocity

Photons are often referred to as 'massless particles' are better defined as Matterless EM mass-energy momenta

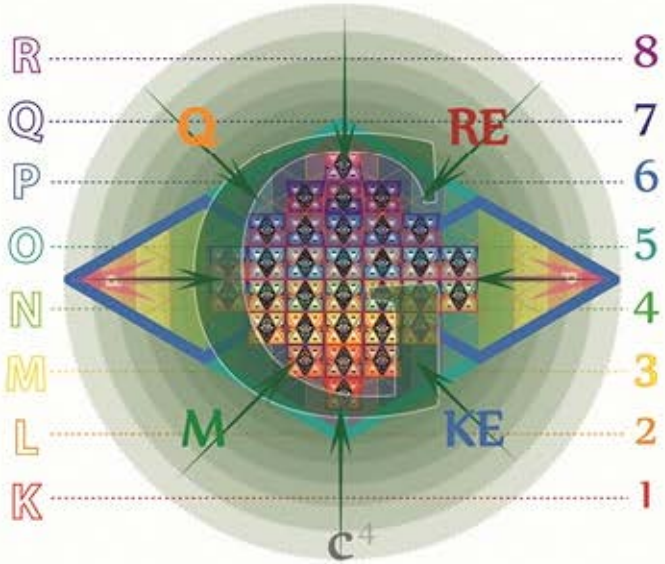
Photons

$$\frac{2\pi}{c^2}\left[\left[m\Omega v^2\right]\right]$$ Planck quanta; mass; velocity

interactive mass-energy momenta geometries

Energy Pressure gradients

The vacuum energy pressure gradient created by the charged topology of Matter is distinct from its intrinsic & radiative mass-energy geometries



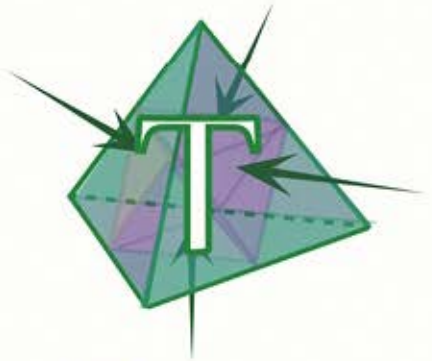
Any theory of gravitation that attempts to model it on any scale must account for energy in all its forms

Standing-wave Matter

Matter

$$\frac{T\pi}{c^4}\left[\left[m\Omega v^2\right]\right]$$ Planck quanta; mass; velocity

Tetryons, the quantum building blocks of Matter have EM mass-energy topologies that create a vaccum pressure gradient



Tetryons

$$\frac{4\pi}{c^4}\left[\left[m\Omega v^2\right]\right]$$ Planck quanta; mass; velocity

gravitational Matter topologies

Convergent mass-energies & Gravitational Matter

m

Spacetime curvature

$$R_{\mu\nu} - \tfrac{1}{2}Rg_{\mu\nu} = \frac{8\pi G}{c^4} T_{\mu\nu}$$

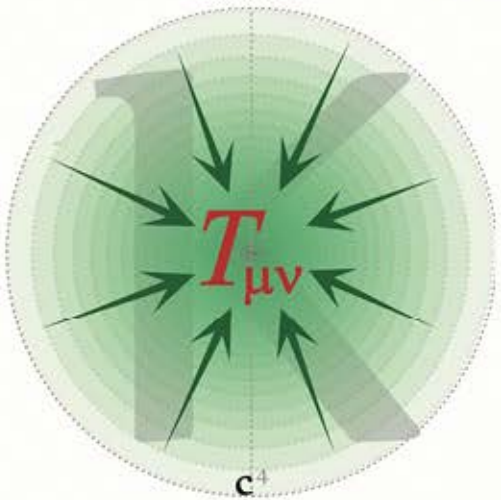
Stress-Energy Tensor

M

The concept of mass in general relativity (GR) is more complex than the concept of mass in special relativity. In fact, general relativity does not offer a single definition for the term mass, but offers several different definitions which are applicable under different circumstances.

Komar mass **Bondi mass** **ADM mass**

Under some circumstances, the mass or Matter components of a system may not even be defined



Einstein Field equation

Spacetime curvature

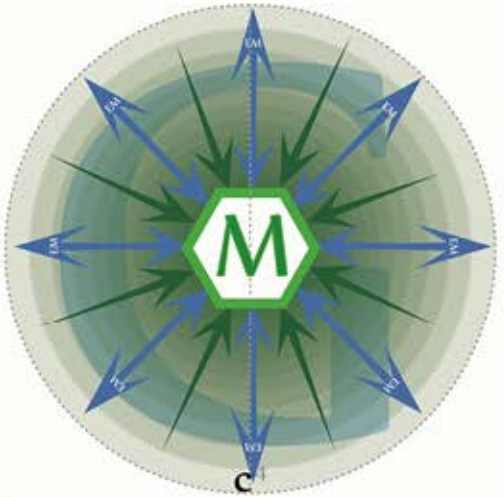
$$R_{\mu\nu} - \tfrac{1}{2}Rg_{\mu\nu} = \underbrace{\kappa}_{\text{gravitation constant}} \frac{n\pi}{c^4}\overbrace{[[m\Omega v^2]]}^{\text{Planck quanta}}$$

mass, velocity

total mass-energy-Matter

per spatial volume

Tetryonic geometries & topologies



In contrast Tetryonic field equations explicitly differentiate all EM mass-energies and Matter via their charged geometries along with their contributions to the total energy density of any spatial region

GR models the convergent force of gravitation as a convergent energy density pressure gradient created by mass-energies

$$\underbrace{M}_{\text{gravitational mass-Matter}} + \underbrace{kEM}_{\text{interactive mass-energies}} = \underbrace{U}_{\text{stress energies}}$$

Tetryonics models gravitation as the result of mass-energy interactions AND Matter topology displacement of vacuum energies

Interactive EM force fields are subject to Lorentz velocity corrections


Faraday

$$\mathcal{E} = -\frac{d\Phi_B}{dt},$$

$$|\mathcal{E}| = N\left|\frac{d\Phi_B}{dt}\right|$$

$$\oint \vec{E}\cdot d\vec{s} = -\frac{d\Phi_B}{dt}$$

$$\oint \vec{E}\cdot d\vec{A} = \frac{q}{\varepsilon_0}$$

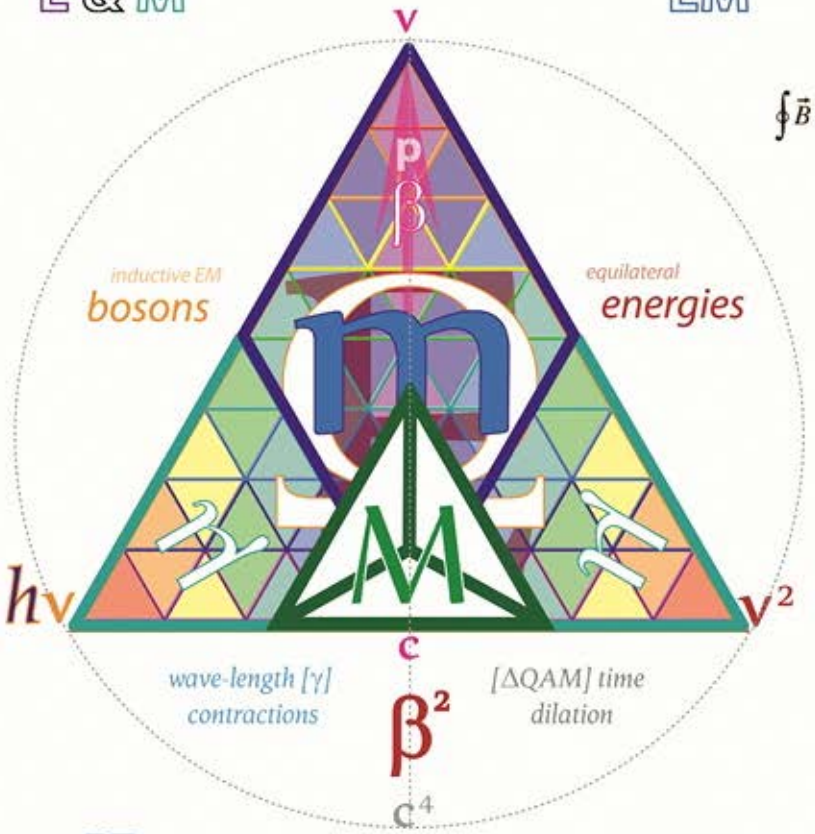
$$\oint \vec{B}\cdot d\vec{A} = 0$$

$$\oint \vec{B}\cdot d\vec{s} = \mu_0 i + \frac{1}{c^2}\frac{\partial}{\partial t}\int \vec{E}\cdot d\vec{A}$$


Maxwell

E & M

EM



SR

GR

Special Relativity was developed from the foundation of Lorentz corrections to EM fields

General Relativity was developed from Special Relativity and incorporates EM field interactions

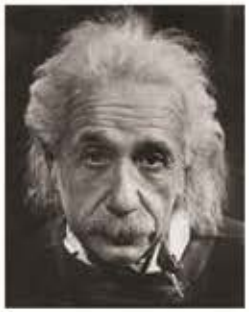

Lorentz

$$L = L'\sqrt{1-\frac{v^2}{c^2}}$$

$$t' = \frac{t}{\sqrt{1-\frac{v^2}{c^2}}}$$

$$G_{\mu\nu} = 8\pi G T_{\mu\nu}$$

$$E = \frac{mc^2}{\sqrt{1-\frac{v^2}{c^2}}}$$

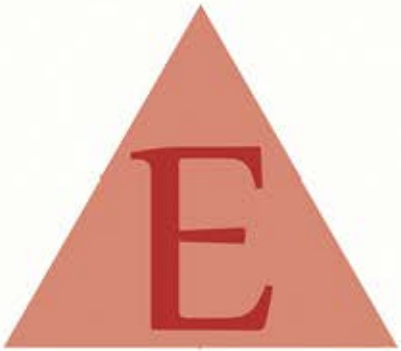

Einstein

Standing-wave Matter topologies are Lorentz invariant

the failure to differentiate between mass & Matter has lead to major misconceptions in physics

Tensor Rankings

Rank 0



scalars

A tensor may consist of a single number, in which case it is referred to as a tensor of order zero, or simply a scalar

An example of a scalar would be the EM mass-energy of a particle or field

A second example of a scalar field would be the value of the gravitational potential energy as a function of position

Rank 1

The next most complicated tensor is the tensor of order one, otherwise known as a vector.

vectors

A vector can be defined as a direction between two points, its strength may vary continuously from point-to-point, thereby defining a vector field.

Next above a vector are tensors of order 2, which are often referred to as matrices.

Rank 2

mass-energy momenta

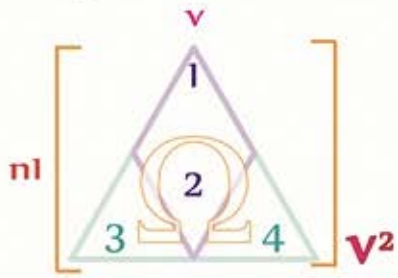
A tensor of rank 2 is defined as a system that has a magnitude and two associated vector directions within the fields that it describes

Rank 3

curved spacetime

Rank 4 Tensors as used in Einstein's General Theory of Relativity, describe the curvature of spacetime [the so-called Riemann curvature tensor].

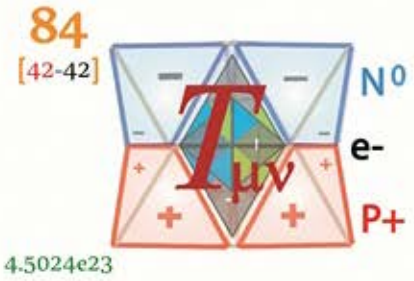
Tetryonic Matrices



EM fields can be represented by Tetryonic Matrices [Tensors] identical to current square Tensor Matrices with the only difference being the change in the geometry of the matrix to better reflect the true geometry of EM fields

This better facilitates the easy recognition of Electric & Magnetic scalar fields and their associated energy-momenta vectors

Rank 4



mass-Matter topology

the total mass-energies of Matter & fields thatcontribute to creating gravity.

ElectroMagnetic field tensor

$$2\pi\left[\frac{1}{c^2}\cdot\left[m\Omega v^2\right]\right]$$ Energy / momenta

The electromagnetic tensor or electromagnetic field tensor (sometimes called the field strength tensor, Faraday tensor or Maxwell bivector) is a mathematical object that describes the electromagnetic field of a physical system in Maxwell's theory of electromagnetism

Photons

$$\frac{2\pi}{c^2}\left[\left[m\Omega v^2\right]\right]$$ Planck quanta: mass, velocity

Visualising EM waves and photons In terms of their Tetryonic geometry the scalar relationships between Electric and Magnetic fields becomes readily apparent.

$$F^{\mu\nu} = -F^{\nu\mu}$$

photons are their own anti-particles

A EM field tensor has six degrees of freedom, representing the three components of each of the electric and magnetic fields

$$c = \frac{1}{\sqrt{\mu_0 \varepsilon_0}}$$

Speed of Light

EM wave factors such as Lorentz's velocity corrections arise naturally from the geometry providing a clear and concise illustration of the relationships between EM mass-energies, Charge, Electric & Magnetic fields and the speed of Light

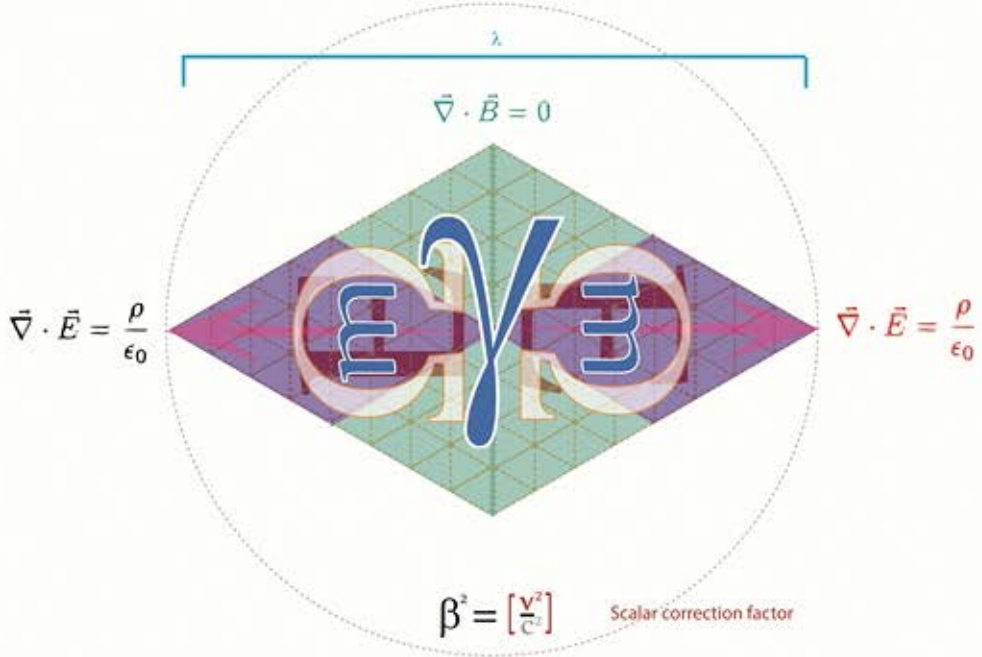
Wavelength contraction

$$L = L'\sqrt{1 - \frac{v^2}{c^2}}$$

speed of Light

$$c = \left[\left[\frac{c^2}{\Omega}\right]\cdot\left[\frac{\Omega}{c}\right]\right]$$ f Frequency, λ Wavelength

velocity of propagation



$$\beta^2 = \left[\frac{v^2}{c^2}\right]$$ Scalar correction factor

Linear correction factor $\beta = \left[\frac{v}{c}\right]$

$$p = \frac{h}{\lambda} = \frac{E}{c}$$

Linear Momentum

$$\varepsilon_0\mu_0 = \frac{1}{c^2}$$

EM Fields

$$\frac{\partial \vec{B}}{\partial t} + \vec{\nabla}\times\vec{E} = 0$$

the change of the magnetic field with respect to time plus the curl of the electric field is equal to zero

$$\vec{\nabla}\times\vec{B} - \frac{1}{c^2}\frac{\partial \vec{E}}{\partial t} = \mu_0\vec{J}$$

The curl of the magnetic field vector minus the change of the electric field with respect to time, is equal to the field's current density

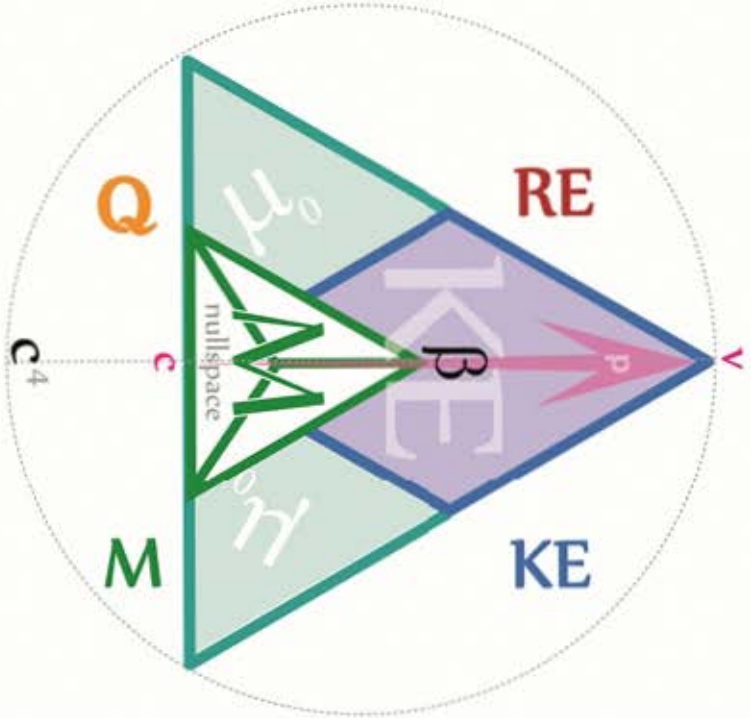
$$\det(F) = \frac{1}{c^2}\left(\vec{B}\cdot\vec{E}\right)^2$$

the electromagnetic tensor may also be written in terms of the 4-vector potential

3D space time

$[\Delta x, \Delta y, \Delta z]$ $\Delta\tau$

In Tetryonics, the relativistic Four vector reflects the changing quantised angular momenta [time] of EM mass-energies & Matter in 3D space



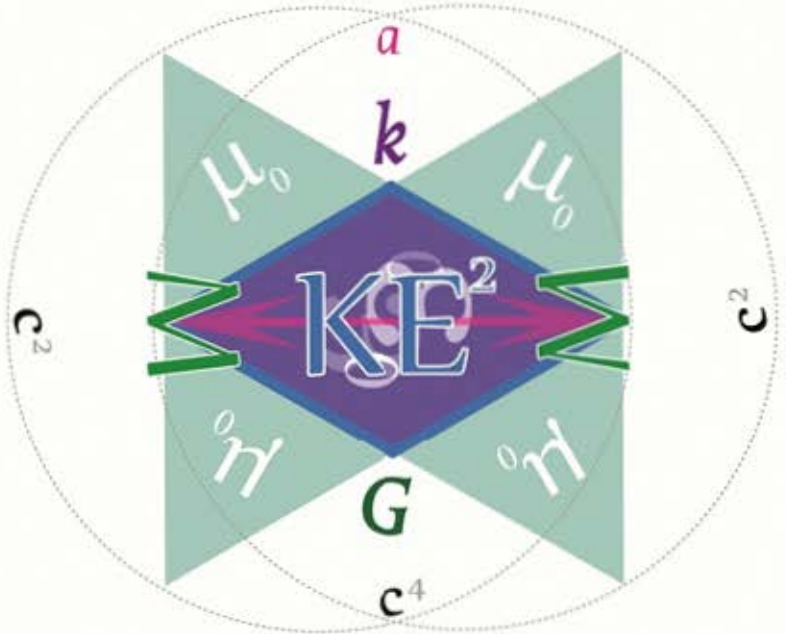
$$M_0 + KE = E$$

Standing-wave four-vector | Lorentz corrected mass-energies | Stress energy momenta tensor

Relativistic Four-vectors

Charged Matter interacts at-a-distance through super-positioned energy momenta fields from which our force constants are derived

The electromagnetic four-potential is a potential from which electromagnetic field can be derived. It combines both the electric scalar potential and the magnetic vector potential into a single space-time four-vector



Inverse sqaured Gravity can be mathematically modeled using the same geometry explaining the similar formulations for charge interaction & gravitation

$$m^2v^4 = KE^2 = p^2v^2$$

EM mass | radiant energies | momenta

Four-vectors are reflective of the total EM mass-energy momenta of superpositioned [K]EM fields where the KE is the interactive force component

Special and General relativity

General relativity was developed by Einstein in an attempt to describe the acceleration forces experienced by graviational Matter (on the foundation of special relativity) which in turn was an extension of Lorentz corrections of EM waves developed to account for the fixed speed of light and established Newtonian mechanics

SR

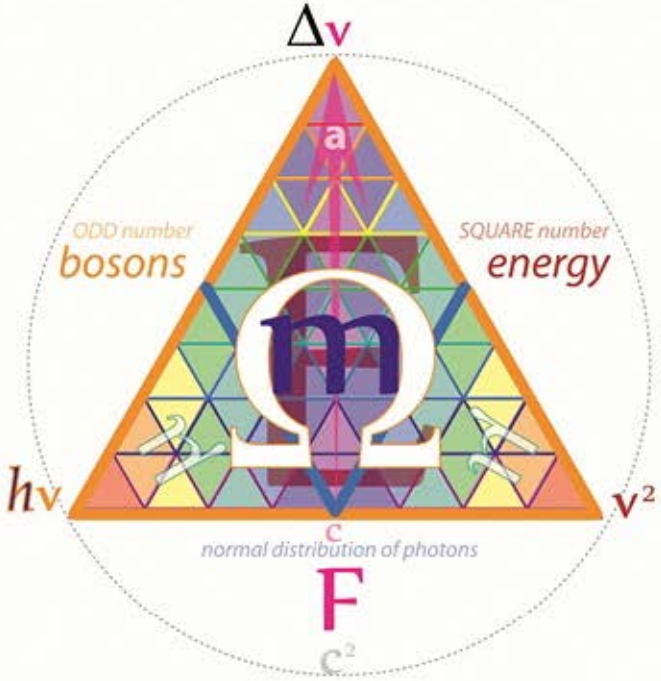
Special Relativity

(describes inertial frames of reference in flat Euclidean spacetime)

GR

General Relativity

(describes accelerating frames of reference in curved Riemannian spacetime)



mass-energy

$$\frac{n\pi}{c^2}\left[\left[m\Omega v^2\right]\right]$$

mass — Planck quanta — mass — velocity

geometries

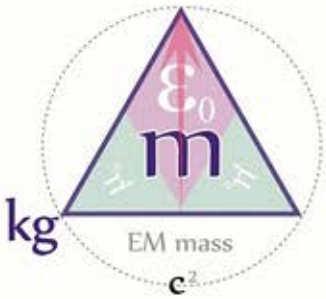
Matter

$$\frac{4n\pi}{c^4}\left[\left[m\Omega v^2\right]\right]$$

Matter — Planck quanta — mass — velocity

topologies

2D



all physical theories to date have failed to explain the mechanics of gravitation at all scales of energy and distance

$$\frac{\rho}{m^2}$$

6.629432351 e-34 J

ENERGY

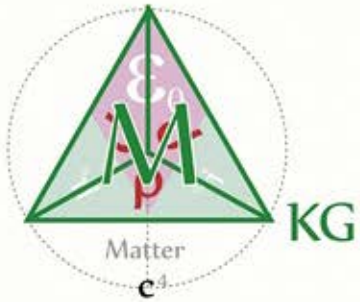
$$n\pi\left[\left[m\Omega v^2\right]\right]$$

Planck quanta — mass — velocity

7.376238376 e-51 kg

$$\frac{\rho}{m^3}$$

3D



The Weak Equivalence Principle

$m_g .a = m_i .g$

Newton

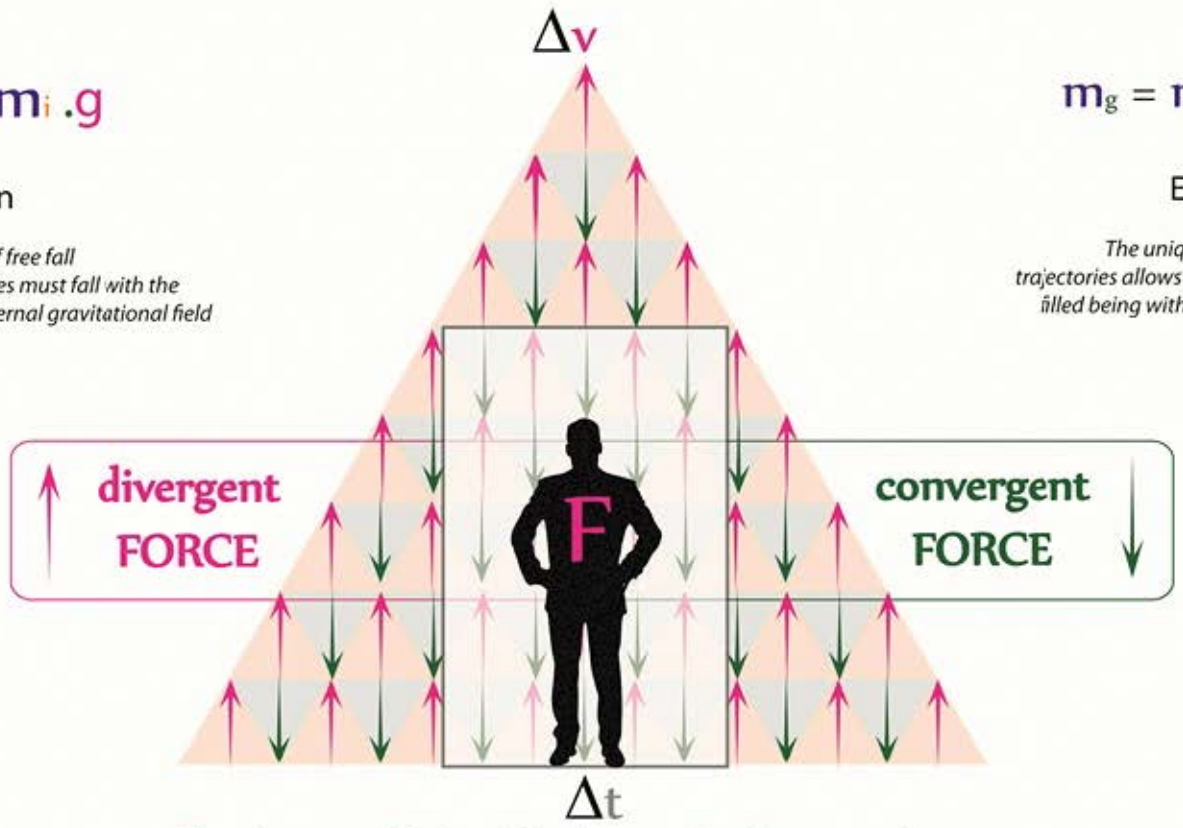
The uniqueness of free fall states than any two test bodies must fall with the same acceleration in a given external gravitational field

$m_g = m_i \sum_A \eta^A \frac{E^A}{c^2}$

Einstein

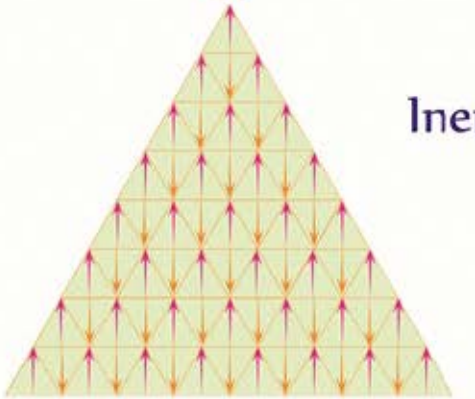
The uniqueness of free fall trajectories allows one to regard spacetime as filled being with curved energy gradients

$F = ma$



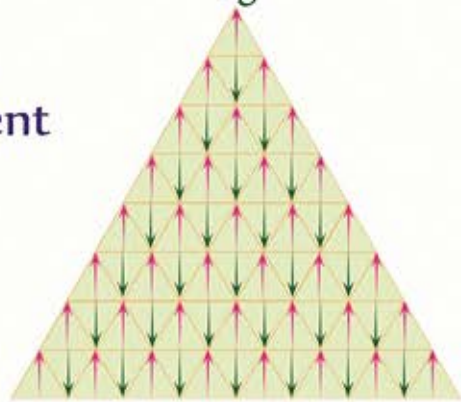
$F = mg$

F_i



acceleration vs inertial mass

F_g



acceleration vs gravitational mass

'There is no way of distinguishing between the effects on an observer of a uniform gravitational field and that of constant acceleration'

Inertial and Gravitational masses are equivalent

Of particular note is the fact that the relativistic formulation of the weak equivalence principle hints at the fact that mass-energies in all their forms must be accounted for and correctly modeled for an accurate picture of the mechanics of gravitiation on all-scales to be developed

Einstein's Gravitational Constant

Newton gave a law for the behavior of objects that experienced gravitational forces:
$F = ma$, where $F = -m\nabla\phi$ for a given gravitational field ϕ

And along with Gauss & Poisson also gave a law determining how φ is generated:
$\nabla^2\phi = 4\pi G\rho$.

Einstein subsiquently re-expressed Newtonian Gravitation as a curvation of spacetime brought about by the presence of all mass-Energies

$$G_{ab} = \kappa T_{\mu\nu}$$

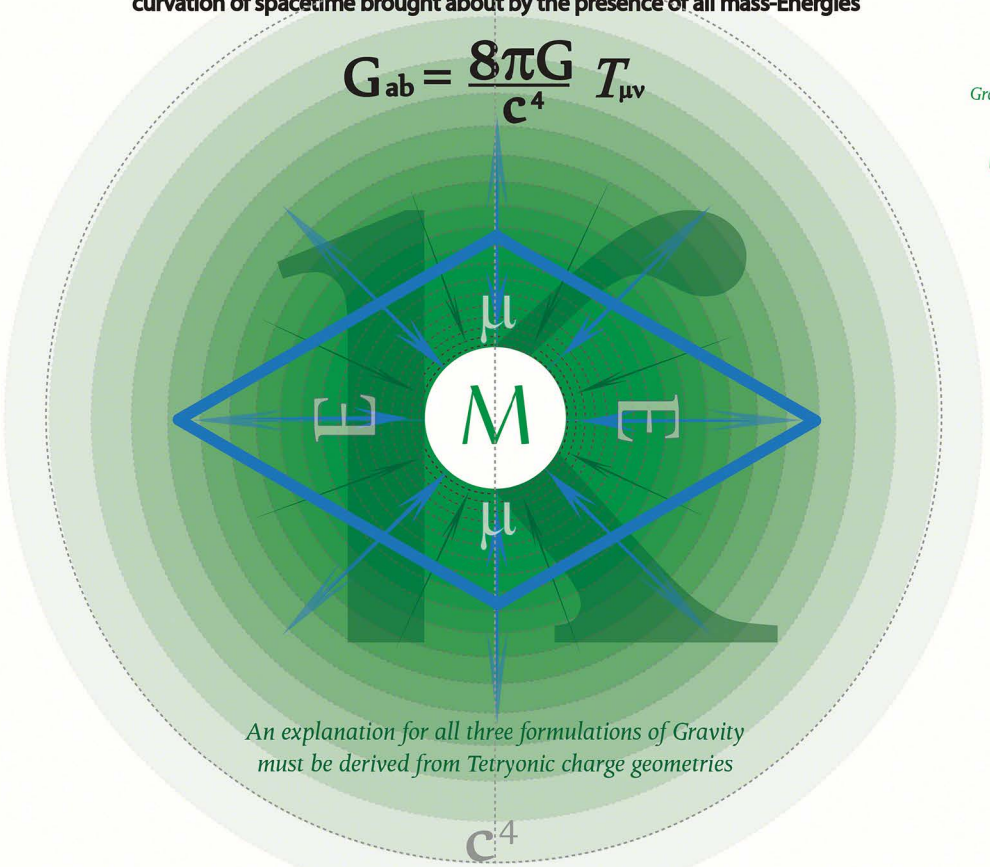
General Relativity

$$G_{ab} = \frac{8\pi G}{c^4} T_{\mu\nu}$$

spactime curvature — *Gravitational constant* — *stress energies*

speed of light

Einstein viewed gravitation as the result of a curvature of spacetime created by a mass-energy-pressure gradiant



An explanation for all three formulations of Gravity must be derived from Tetryonic charge geometries

$$n\pi[mEM]$$

Tetryonic charged geometries

Gravitational Matter topologies — *Interactive mass-energy geometries*

$$T\pi\left[\frac{\rho}{c^4}\right] + n\pi\left[\frac{\rho}{c^2}\right]^2$$

3D spatial region — *2D spatial fields*

Tetryonics differentiates between Matter & interactive mass-energies via their charged geometries and topologies

EM

2D euclidean mass-energy-momenta

Rank 2 tensors

convergent & divergent forces

$$m = \frac{\rho}{c^2}$$

M

3D mass-Matter topologies

Rank 4 tensors

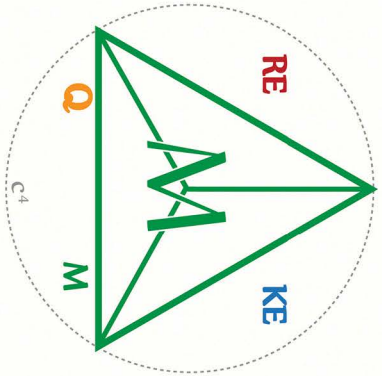
convergent pressure gradient

$$M = \frac{\rho}{c^4}$$

By modeling all mass-energy geometries and Matter topologies as a stress energy tensor General Relativity fails to differentiate between the interactive Forces of mass-energy momenta and gravitational Matter

mass-energy-Matter spatial interactions

**No two Fermions [3D Matter topologies]
can occupy the same physical space
at the same time - Pauli exclusion**



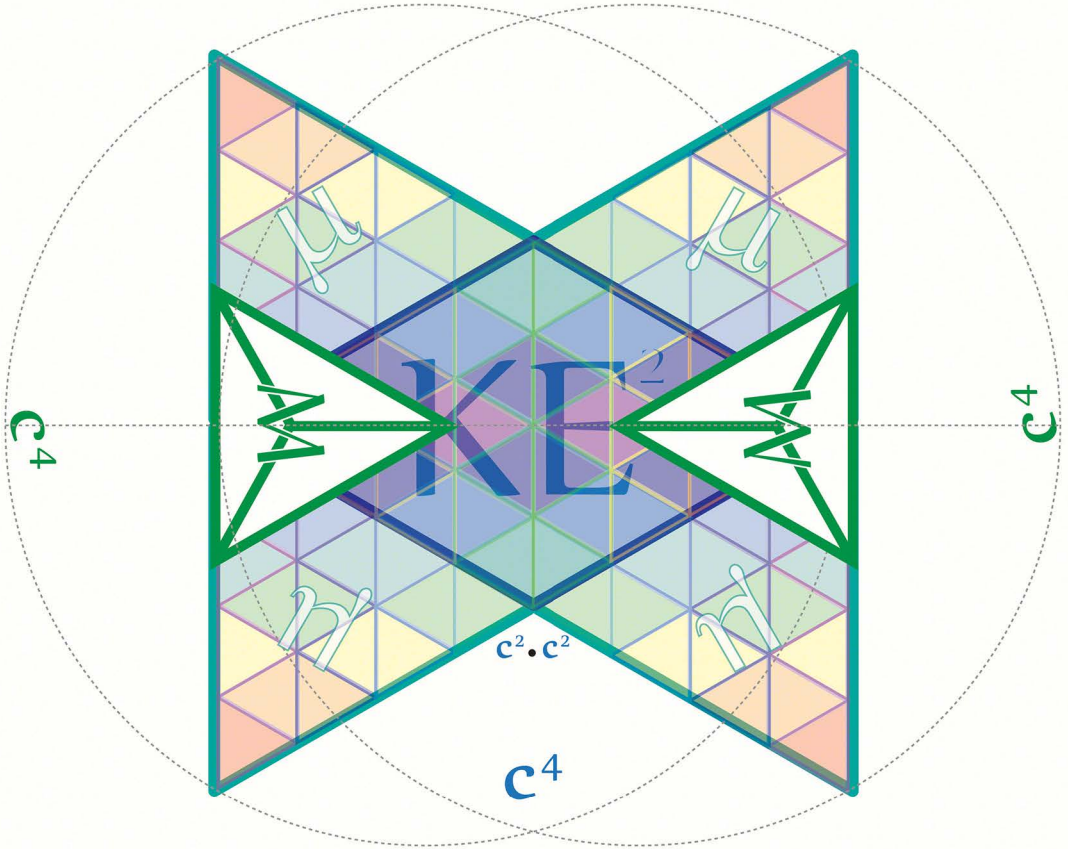
c^4

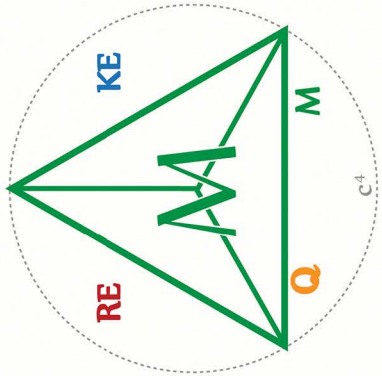
is a volumetric measure
of the amount of space
taken up by Matter

Fermions

$$\frac{4n\pi}{c^4}\left[\left[\underset{\text{mass}}{m}\Omega\underset{\text{velocity}}{v^2}\right]\right]$$

Planck quanta





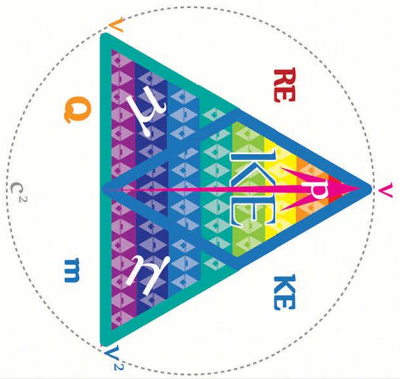
c^4

is also a spatial measure
of two superpositioned
interactive KEM fields

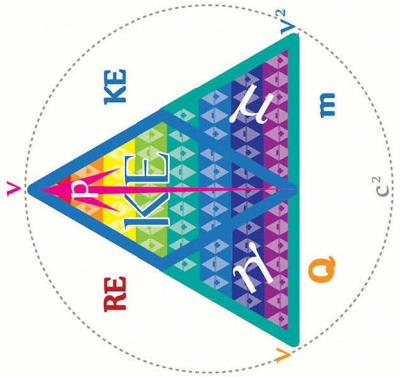
Force interaction

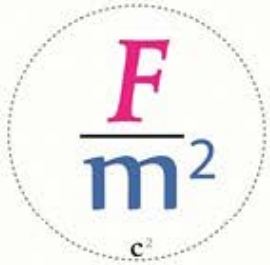
$$\frac{2\pi}{c^2}\cdot\frac{2\pi}{c^2}\left[\left[\underset{\text{mass}}{m}\Omega\underset{\text{velocity}}{v^2}\right]\right]$$

Planck quanta



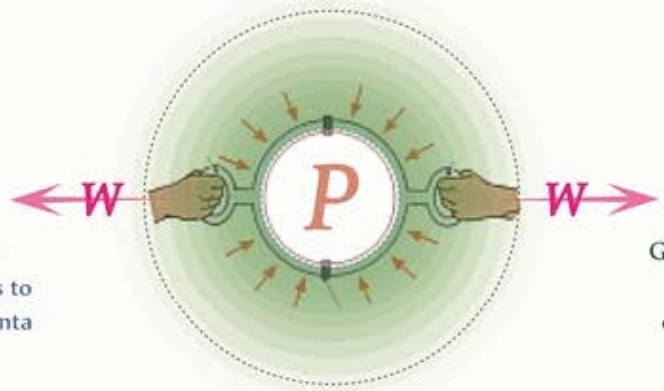
**All separated particles
interact with each other via 2D fields of Force
(superpositioned [K]EM fields)**





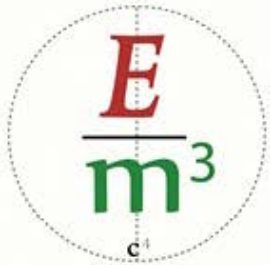
SR

Special relativity applies
Lorentz velocity corrections to
radiant mass-energy momenta



GR

General relativity applies SR
to total energy momenta
density-pressure gradients



Otto von Guericke, (1602-1686), a German physicist, performed a famous experiment: the "Magdeburg Hemispheres".

When two halves of a large, hollow metal ball had all the air removed from the volume they created when joined, two teams of horses couldn't pull them apart, because the pressure of the Earth's atmosphere (external to the volume created) exerted a very large force on the ball as it sought to equalise the pressure gradient created.

Nullspace energy pressure gradients

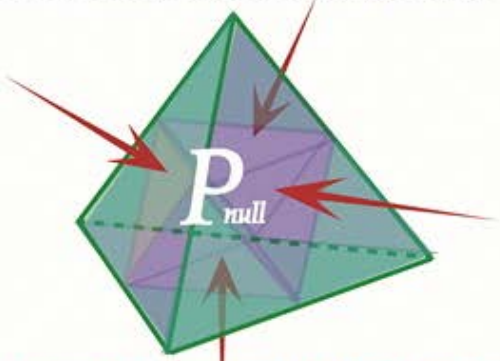
mass-energy geometries

$$P = \frac{Force}{Area} = \frac{F}{A} \Rightarrow \frac{F.d}{A.d} \Leftarrow \frac{W}{V} = \frac{Energy}{Volume} = U$$

mass-Matter topologies

The scalar mass-energies of all Matter topologies are all contained in their charged fascia

$n\pi\left[\frac{\rho}{c^2}\right]$



$T\pi\left[\frac{\rho}{c^4}\right]$

A Faraday cage is a metallic enclosure that prevents the entry or escape of an electromagnetic field (EM field)

All Matter topologies are ideal Faraday cages, quantum standing-waves of EM mass-energies that in turn create regions of nullspace

An ideal quantum Faraday cage consists of an unbroken, perfectly conducting shell. (a Matter topology of scalar mass-energies)

Total stress energies & Matter

The stress energy tensor can be regarded only as a provisional means of representing all of the interactive mass-energies & gravitational Matter in any physical system.

$T_{\mu\nu}$

GR's Stress Energy Tensor does NOT differentiate between EM mass & Matter

Einstein

It is only in present circumstances that we find we have insufficient knowledge of the electromagnetic field of concentrated charges that compels us, provisionally, to leave, undetermined in present theory, the true form of this tensor...

The right hand side the EFE is a formal condensation of all things whose comprehension in the sense of a field theory is still problematic.

Not for a moment... did I doubt that this formulation was merely a makeshift in order to give the general principle of relativity a preliminary closed-form expression.

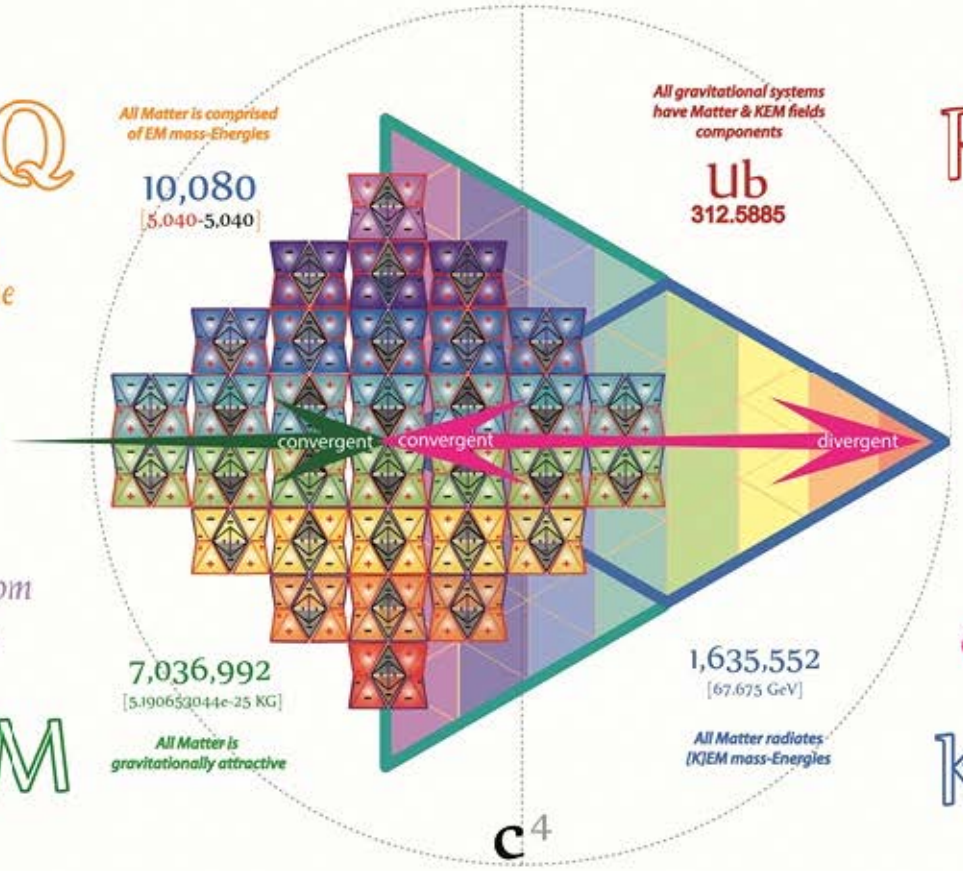
For it was essentially no more than a theory of the gravitational field, which was isolated somewhat artificially from a total field of as yet unknown structure.

Abraham

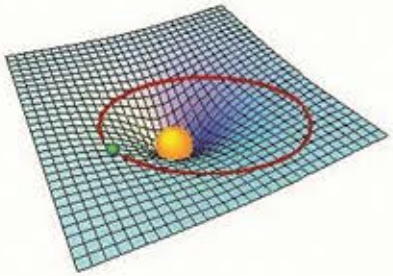
mass $\frac{n\pi}{c^2}[[m\Omega v^2]]$ (Planck quanta: mass, velocity)

ENERGY $n\pi[[m\Omega v^2]]$ (Planck quanta: mass, velocity)

Matter $\frac{T\pi}{c^4}[[m\Omega v^2]]$ (Planck quanta: mass, velocity)



Einstein's Field Equation



"Spacetime tells Matter how to move; Matter tells spacetime how to curve"
John Archibald Wheeler

$$R_{ab} - \tfrac{1}{2}Rg_{ab} = \frac{8\pi G}{c^4} T_{\mu\nu}$$

The solutions of the Einstein field equations are metrics of spacetime

General Relativity was developed to account for the observed perihilion precession of Mercury's orbit around the SUN
[only noticable through detailed observations after Newton developed his law of universal gravitation]

Newtonian G field

4π

the scalar curvature — the cosmological constant — Newton's gravitational constant

Ricci curvature tensor $R_{ab} - \frac{1}{2}g_{ab}R + \Lambda g_{ab} = \frac{8\pi G}{c^4} T_{\mu\nu}$ the stress-energy tensor

the metric tensor

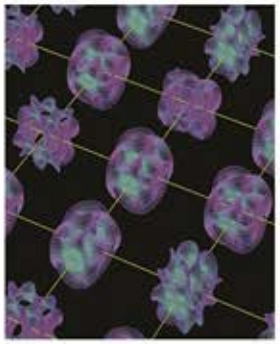
the spatial region of mass-energy-Matter being measured as determined by the speed of Energy in vacuum

Einstein's G field

8π

The EFE is a tensor equation relating a set of symmetric 4 x 4 tensors. Each tensor has 10 independent components

The EFE (based on SR principles) reduces to Newton's law of gravitation where the radiant mass-energy fields are weak and velocities are much less than the speed of light
[highlighting the inability of GR to distingush between radiant mass-energy geometries & the standing-wave Matter topologies comprising the total energies within the stress Energy tensor]



Curved Spacetime — *Einstein's gravitational constant*

$$G_{ab} + \Lambda g_{ab} = \kappa T_{\mu\nu}$$

the cosmological constant — *mass-ENERGY-Matter*

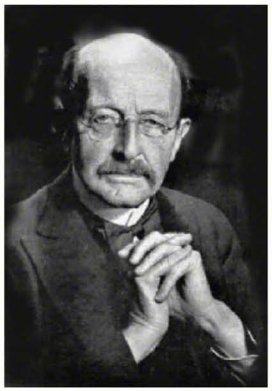
Despite the successes of General Relativity, the problems of quantum gravity and spacetime singularities remain open problems in its formulation of curved spacetime geometries

Gravitation is Universal

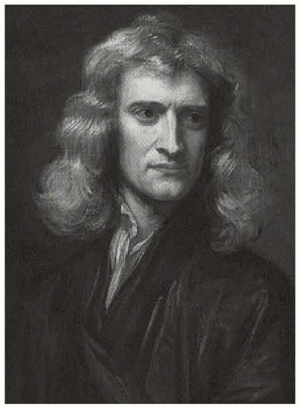
All Energies are quantised

Gravity results from curved spacetime

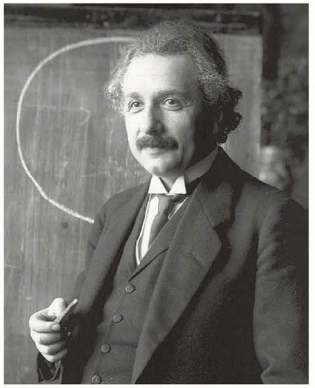
ZPF



m



M



VE

Quantum theory

Newtonian Mechanics

Relativity theory

Quantum gravity is the effort in theoretical physics to create a theory that includes both general relativity and the standard model of particle physics. Currently, these two theories describe different scales of nature and attempts to explore the scale where they overlap yield results that don't quite make sense, like the force of gravity (or curvature of spacetime) becoming infinite.

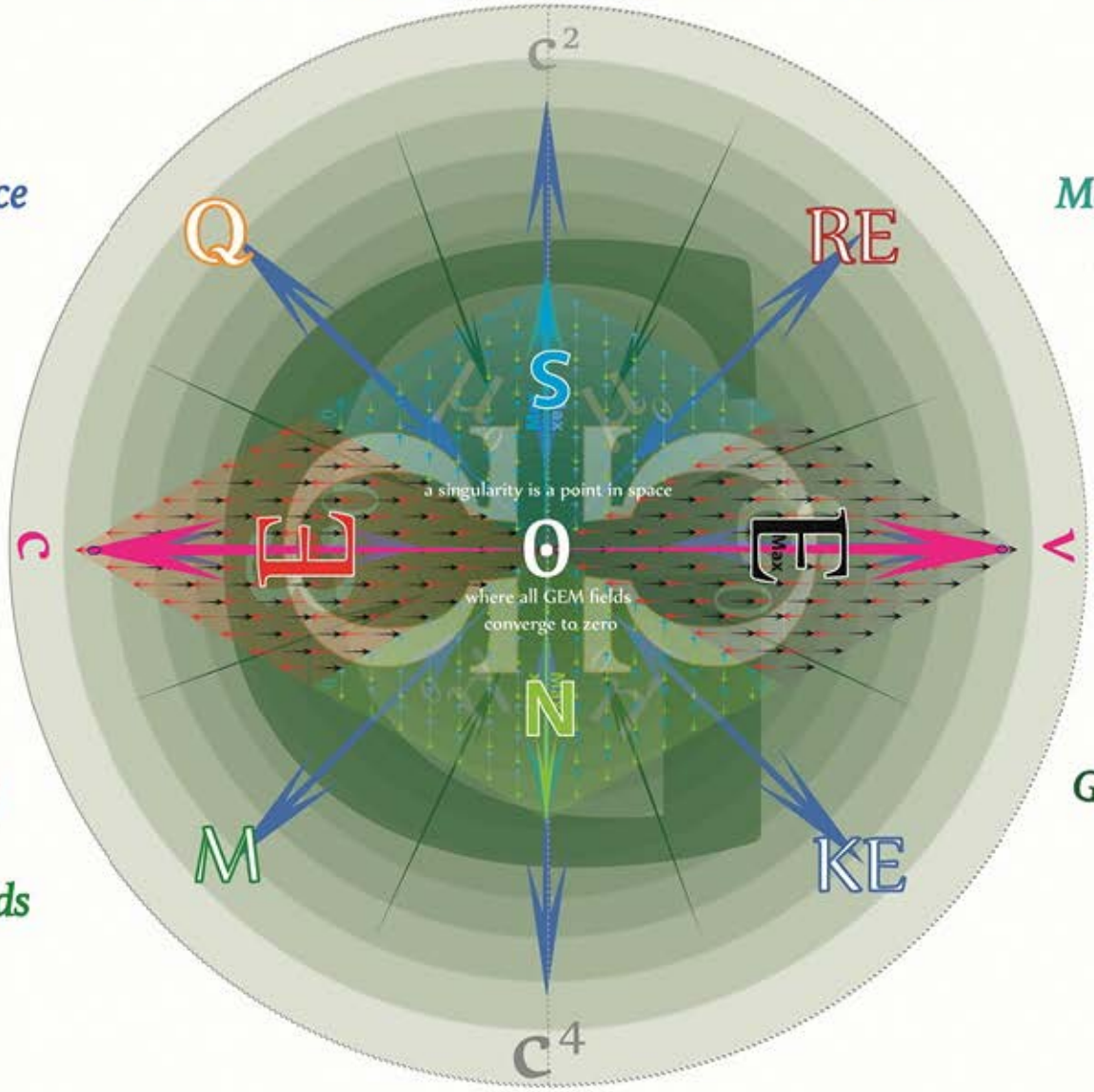
Euclidean quantum gravity
Scalar theories
Modified Newtonian dynamics (MOND)
Einstein–Cartan Bimetric theories
Tensor–vector–scalar
DGP model
Geometrodynamics
Loop Quantum Gravity
Lovelock theory
Kaluza–Klein theory
Induced gravity
Canonical Quantum Gravity
Jackiw–Teitelboim gravity
Liouville gravity
String theory
Quantum gravity
Causal Set theory
Brans–Dicke
Massive gravity
Composite gravity
Gravity as it is currently understood cannot be reconciled with the laws of quantum mechanics.
Scalar–tensor–vector
Teleparallelism
Causal dynamical triangulation
Conformal gravity
Nonsymmetric gravitation
2+1D topological gravity
Gauss–Bonnet gravity
Supergravity
Gauge theory gravity
f(R) gravity
Unified theory

hv	Q	G	SR	GR
1899	1785	1686	1905	1915
Planck's law	*Coulomb's law*	*Newton's law of Gravitation*	*Special relativity*	*General relativity*

Without the aid of Tetryonic's charged geometries
Gravitational & EM fields point to mathematical singularities

Inverse squared Electric fields produce INTERACTIVE fields of force

Inverse squared Magnetic fields produce PURTURBATIVE fields of force



There are NO Black Holes

There are NO point Particles

Matter produces CONVERGENT inverse squared fields of Gravity

Gravitation is the nett convergent force produced by all G-E-M fields

GravitoElectroMagnetic fields

Matter topologies and gravity

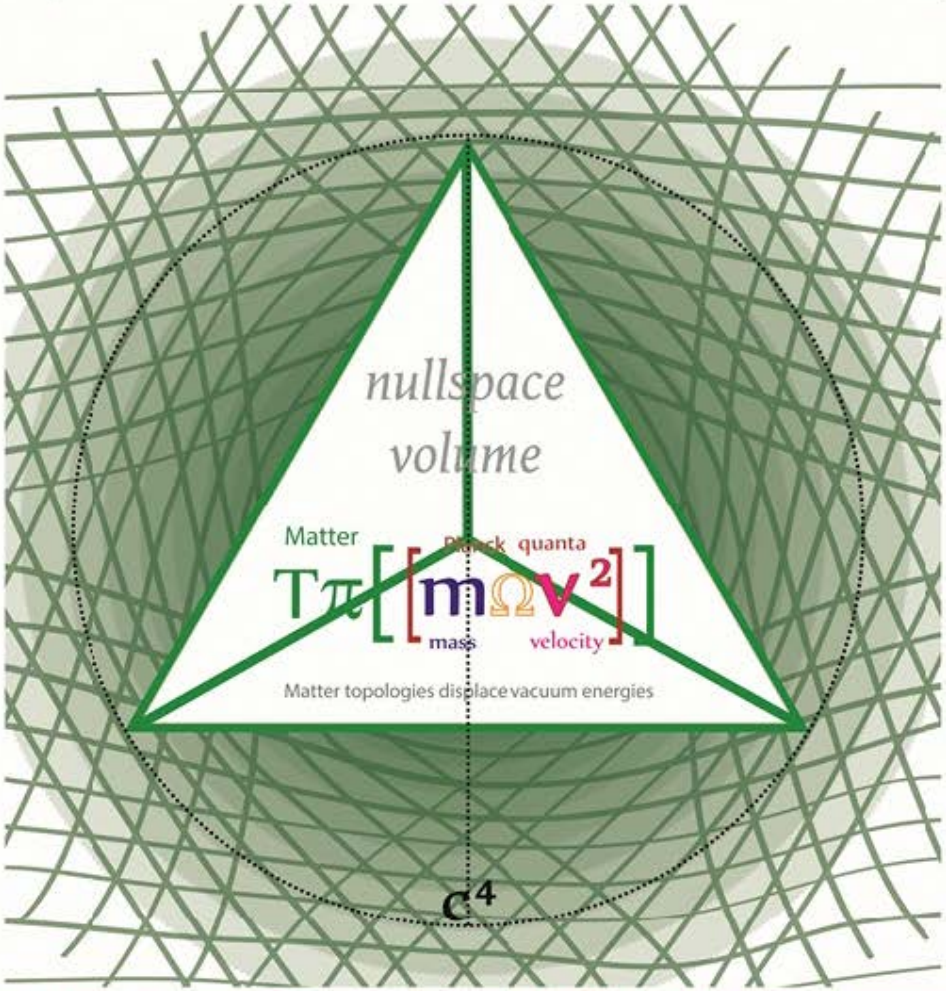
the positive spatial displacements created by tetrahedral standing-wave mass-energies displace vacuum energies found in those regions to create a energy density pressure gradient

A convergent Gravity field is the result of the higher density-pressure vacuum energies in any spatial region seeking to equalise the lower pressure regions of nullspace within Matter topologies

Matter has a Tetrahedral mass-energy quantum topology [non-Spherical]

M

The mass-energies of Matter topologies are stored in the integral surface area geometries of their charged fascia



Gravity itself is the result of vacuum energy pressure gradients not Coloumbic fields

G

Gravitation is the result of the convergent gravity AND interactive [k]EM fields that all quantum Matter topologies create

The resultant density-pressure gradients created by the displacement of vacuum energies by Matter topologies can be modelled using equilateral EM field geometries and a reduced Coloumb constant

Spatial displacement of GEM energies by Matter topologies

The positive 4nπ displacement of vacuum eneriges by Matter topologies creates

Spatial energy density-pressure

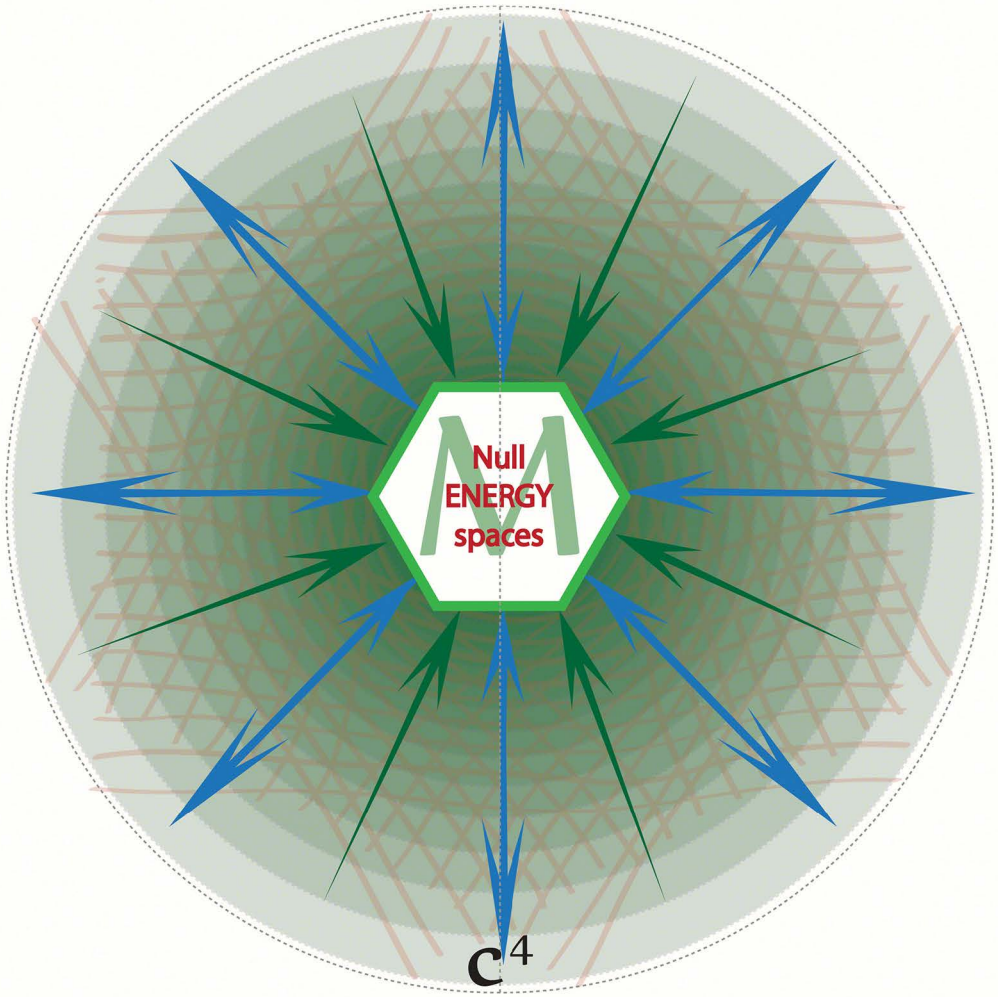
$$F = -G \frac{M_1 m_2}{r^2}$$

Planets orbit around the SUN

Newtonian fields models the resultant attraction as gravity

EM fields accelerate charged Matter

$$F = k \frac{Q_1 Q_2}{r^2}$$



$$G_{ab} = 8\pi G T_{\mu\nu}$$

All EM mass & Matter create stress energies

Einstein models the GEM energy densities as curved spacetime

Orbital precessions must be accounted for

Newton Einstein

4π vs. 8π

G G+SR

Convergent Gravitational fields

Newtonian Gravity

model the observed, long range attraction between two bodies of Matter
[exclusive of the close range electromagnetic interactions of each body]

A gravity field is produced by the charged topology of mass-Matter
as it displaces vacuum energies and creates intrisic nullspace energy differentials

The strength of a Gravity field produced by Matter is proportional
to the total EM mass-energy geometry/topology of any body
and its convergent force can be modelled with
equilateral Tetryonic geometries

Single Body
Gravitational Field

$$F = -G\frac{M_1}{r^2}$$

G

Single Body
Gravitational Field

$$F = -G\frac{m_2}{r^2}$$

Two Body
Gravitational Field

$$F = -G\frac{M_1 m_2}{r^2}$$

However, unless it is at absolute zero all Matter topologies produce interactive EM fields that contribute to gravitational forces
as evidenced with the perihelion of Mercury where later observations revealed inaccuracies in Newton's formulation
for the motion of material bodies subject to convergent G forces & interactive EM fields

Gravitational energies as a geometric mean

the geometric mean of two numbers is the square root of their product

EM standing waves [Matter] can be created and destroyed

EM mass-energies can be neither created or destroyed

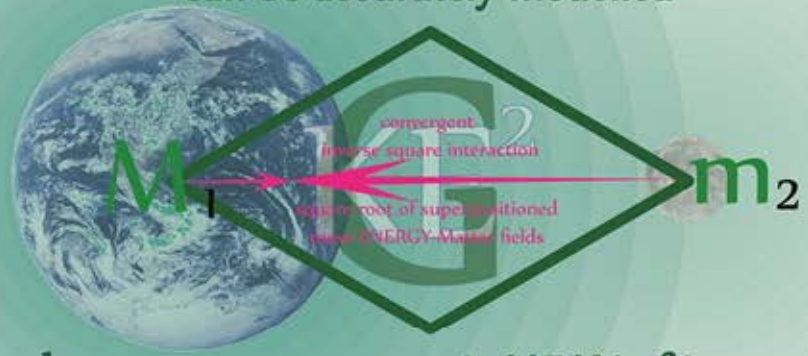
Sir Issac Newton was the first to realise that gravity could be modelled as an inverse square Force

$$F = -G\frac{M_1 m_2}{r^2}$$

M

E

The Force of Gravity can be accurately modelled



Gravitational field of mass-Matter only

$$F_G = 4\pi G\rho$$

[ignoring EM interactions]

Gravitational energy of Matter in motion

$$G_{ab} = 8\pi G T_{\mu\nu}$$

[including KEM field interactions]

as the convergent geometric MEAN of interactive superpositioned E-fields that represent the total mass-energies of the gravitational Matter

$$F_G = \frac{M_1 . m_2}{r^2}$$

$$F_G = \sqrt{M_1 . m_2}$$

Gravity is the result of spatial energy density differentials created by the internal null-space volumes of Matter.
Energy (in all its forms) will seek to fill areas of lower pressure in search of universal equilbrium

Newton modelled the attractive forces between objects of Matter

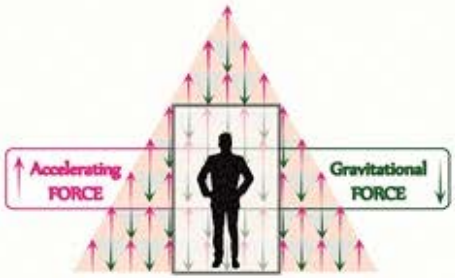
GR models the energy density created by mass-Matter

Matter topologies are non-conservative and as they are destroyed the low pressure nullspace gradient [convergent gravitational Force] they created is replaced with conservative forms of radiative EM energy [interactive vacuum energies-photons]

Gravitational Tidal Forces

The tidal force is a secondary effect of the force of gravity resulting from the geometry of massive bodies attracting each other.

Its geometric effects allow acceleration fields to be distingushed from pure graviation fields



Over a small area on the surface of a Gravitating body, gravitational attaction is often modelled as a uniform field acting downwards across the whole area.

The Gravity of a material body of mass-Matter has historically been defined as a strictly attracitve force between bodies

$$F = -G \frac{M_1 m_2}{r^2}$$

Tetryonics reveals Gravitation to be the nett result of 3 distinct interactions:
Convergent G-fields
Interactive E-fields and
Perturbative M-fields

mass-Matter topologies displace vacuum energies to create stress energy densities

All Gravitational fields accelerate objects towards the Centre of any Gravitational field produced by mass-Matter topologies

radiated [K]EM fields create vacuum energies

The directional pull of Gravity to the centre of Matter topologies (along with the increase in g forces as the radius of attraction decreases) creates Tidal forces on the body being accelerated

M

r^2

Satellite [moon]

m

In accordance with Newton's 3rd law there is an equal but opposite Force on the Earth produced by the Moon's graviational field resulting in Tides

In addition to Gravity all Matter radiates [K]EM fields that accelerate incident EM masses and Matter

Tetryonic Gravitation

is the result of the combined interactions
of radiant EM geometries & Matter topologies
in any spatial region of measurement

[k]EM fields & Vacuum energy gradients
create energy momenta pressure differentials
that accelerate Matter

3D mass-Matter topologies
create nullspace
vacuum energy differentials

Radiant EM mass-energy densities
create [k]EM and Vacuum Energy fields

$$F = -G\frac{M_1 m_2}{r^2}$$

$$\frac{\text{Matter}}{c^4}T\pi\left[\left[\underbrace{m\Omega v^2}_{\text{mass}\quad\text{velocity}}\right]\right]_{\text{Planck quanta}}G$$

All massive bodies create interactive GEM fields
through their mass-energy geometries & Matter topologies
with convergent and divergent vectors of acceleration

$$\frac{\text{EM mass}}{c^4}n\pi\left[\left[\underbrace{m\Omega v^2}_{\text{mass}\quad\text{velocity}}\right]\right]_{\text{Planck quanta}}E^2$$

[k]EM energy fields INTERACT
to provide additional acceleration to
EM mass-Matter close to material bodies

Gravity
ATTRACTS Matter
over large distances

$$G_{ab} = \kappa T_{\mu\nu}$$

EM masses & Gravitational Matter

$\frac{\rho}{m^2}$

The core problem preventing the unification of Classical gravitation with QM & Relativity theory
is the imprecise formulation, definition and differentiation between mass & Matter

$\frac{\rho}{m^3}$

$$F = ma$$

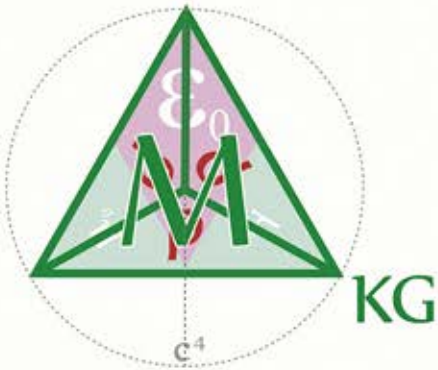
mass is a conserved quantity
Matter is not a conserved quantity

$$F = -G\frac{M_1 m_2}{r^2}$$

inertial mass
active gravitational mass
passive gravitational mass

$$G_{ab} = \kappa T_{\mu\nu}$$

Even GR offers no clear distinction



$$E = mc^2$$

radiant mass-energy geometry

$$E = Mc^4$$

standing-wave Matter topology

General relativity has been heralded as a highly successful model of gravitation and cosmology, which has so far passed every unambiguous observational and experimental test.

Even so, there are strong indications the theory is incomplete

Without a clear, concise understanding and accurate models of the relationship between mass & Matter [and their interactions] a Unified Field theory is impossible

$$\frac{n\pi}{c^2}\left[\left[m\Omega v^2\right]\right]$$

mass: Energy; Planck quanta; mass; velocity

mass is a geometric measure of a field's planar energy momenta content per unit Time

2D masses
bosons photons

$$mc^2 = E = Mc^4$$

Note: in both cases the amount of Energy described is identical
It is the changing spatial co-ordinate systems used to measure Energy in all it forms
that allows for the differentiation betweeen mass-energy geometries & Matter-energy topologies

$$\frac{T\pi}{c^4}\left[\left[m\Omega v^2\right]\right]$$

Matter: Energy; Planck quanta; mass; velocity

Matter is a topological measure of an object's planar mass-energy content per unit of Time

3D Matter
Fermions, Baryons

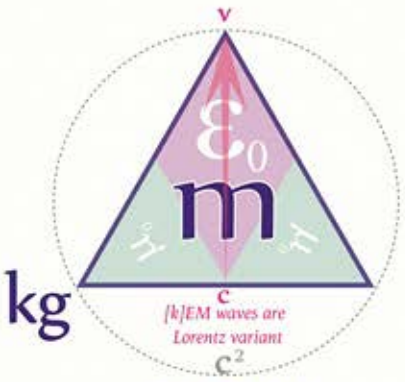
mass-ENERGY-Matter equivalence

Einstein's mass-energy equivalence can be further refined and differentiated through charge geometries [in turn creating a symetric mass-ENERGY-Matter equivalence formulation]

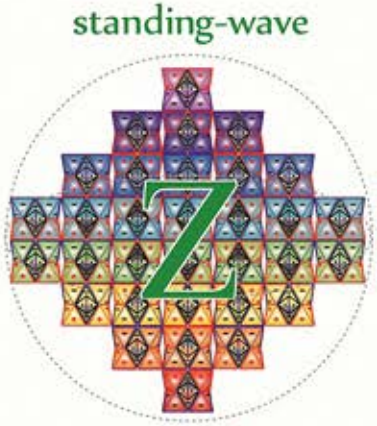
The mass-energies of EM waveforms is contained within its charged geometry

$$E = mc^2$$

EM mass-energy is a property of Matter



mass



topologies

radiant EM mass geometry

$$\frac{m}{c^2} = M$$

standing-wave Matter topology

$$m = \frac{E}{c^2}$$

$$\frac{E}{c^4} = M$$

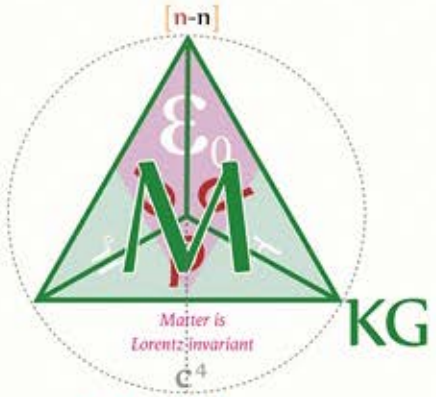
radiant

geometries

Matter is NOT a property of EM mass-energy

$$E = Mc^4$$

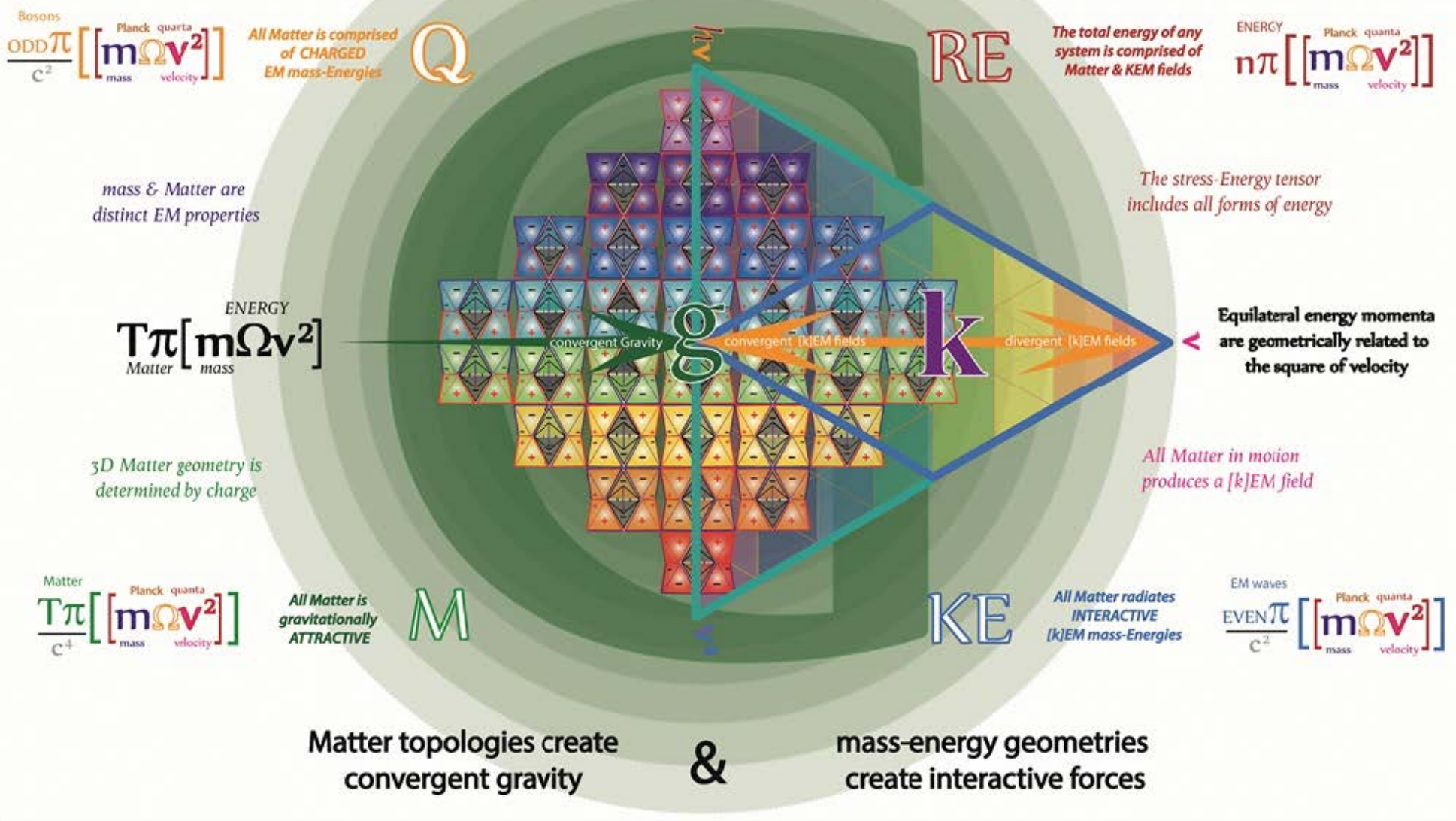
The mass-energies of Matter is contained entirely within its charged fascia topology



Matter

Tetryonic unified GEM fields

Equilateral Tetryonic geometry/topology provides a unified quantum field equation to model all Gravito-Electro-Magnetic mass-ENERGY-Matter interactions



Quantum Gravity

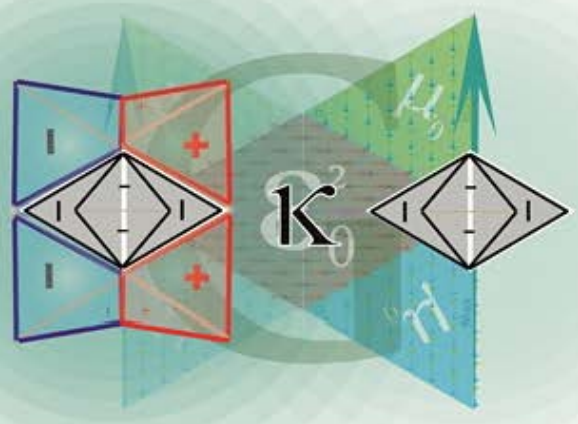
At present, one of the deepest problems of modern theoretical physics is the unification of General Relativity, which describes gravitation, and applies to large-scale structures (stars, planets, galaxies), with Quantum Mechanics, which describes the other three fundamental forces acting on the atomic scale

M

Newtonian Gravitation models observed motions of large-scale MATTER

G

The large scale Cosmos is ruled by GRAVITY



$T_{\mu\nu}$

Einstein's GR models interactions of all mass-energy-Matter

k

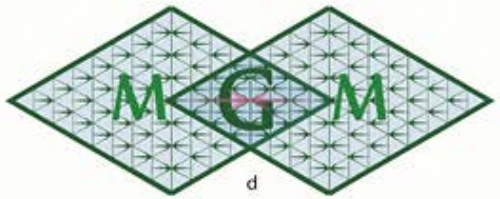
The Quantum world is ruled by ELECTROMAGNETISM

There are major points of tension between Quantum mechanics and General relativity.

Firstly, classical general relativity breaks down at singularities, and Quantum mechanics becomes inconsistent with general relativity in the neighborhood of singularities

Secondly, it is not clear how to determine the gravitational field of a particle, since under the Heisenberg uncertainty principle of Quantum mechanics its location and velocity at any instant of Time cannot be known with certainty.

Thirdly, there is the Problem of Time in Quantum gravity. Time has a different meanings in Quantum mechanics and General relativity and hence there are subtle issues to resolve when trying to formulate a theory which combines the two.



Gravitational attraction is a convergent Force between Matter

Newton

Gravitation results from energy density-pressure gradients

Einstein

Attempts to generalize ordinary quantum field theories, used in elementary particle physics to describe the fundamental interaction of gravity have to date led to serious problems.

Gravitons

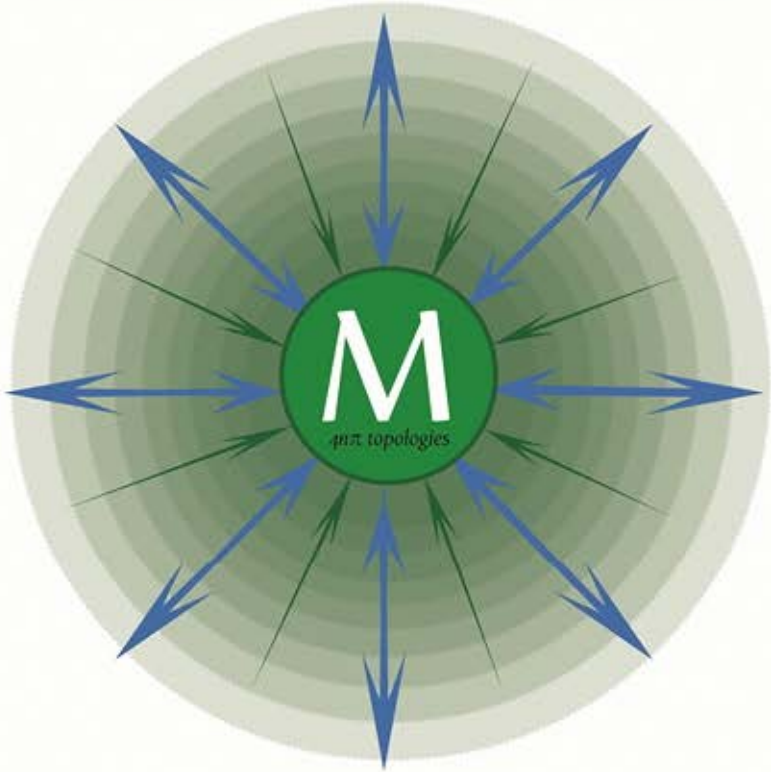
Gravitons are not required in Tetryonic theory as gravitational attraction is a convergent force created by the EM energy differential produced by 3D Matter topologies in a vacuum energy field

All standing-wave Matter geometries create Gravity

G

CONVERGENT Gravitation

Gravitons are the hypothetical carriers of the attractive Gravitational FORCE



Radiant EM fields are produced by all Matter in motion

EM

DIVERGENT ElectroMagnetism

Photons are the carriers of the interactive ElectroMagnetic FORCE

Gravitons were proposed as the gravitational equivalent of the Photon in ElectroMagnetic theory but have never been detected

$4\pi G$

They were postulated because of the great success of quantum field theory (in particular, the Standard Model) at modeling the behavior of all other known forces of nature as being mediated by elementary particles: electromagnetism by the photon, the strong interaction by the gluons, and the weak interaction by the W and Z bosons.

$8\pi G$

The hypothesis was that the gravitational interaction is likewise mediated by a – yet undiscovered – elementary particle, dubbed the graviton. In the classical limit the theory would allow Newton's law of gravitation in the weak-field limit to conform with Einstein's field equations of General relativity

Laplacian field interactions

$$Z = \frac{\rho}{c^2} = \varepsilon_0 \mu_0$$

impedance of a medium; energy density; field geometry; electric permittivity; magnetic permeability

$$G_P = \kappa \frac{\rho}{c^4}$$

Einstein's constant; energy density; energy density pressure gradient; spatial volume

The planar two-dimensional Laplacian is given by

$$\Delta = \nabla^2 = \nabla \quad \nabla = \frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2}$$

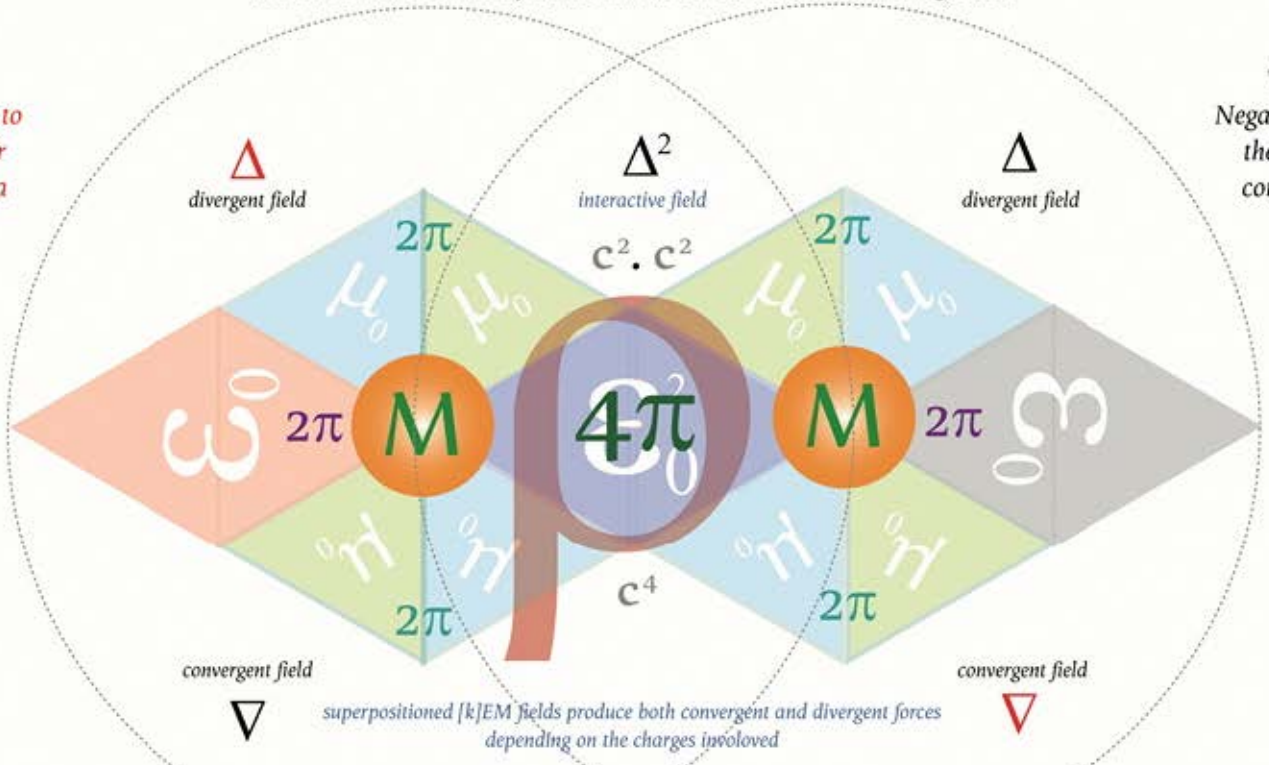
This fundamental differential operator of Applied Mathematics was introduced by Laplace in his 1782 study of the force of gravitational attraction exerted by spheroids and was named after him by Maxwell in his 1873 treatise on electromagnetism.

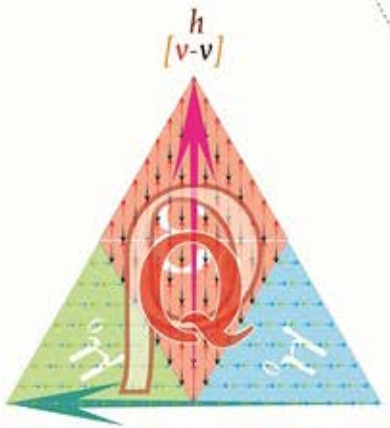
The net divergence of Positive charge fields is due to the anti-symmetry of their component Planck quanta

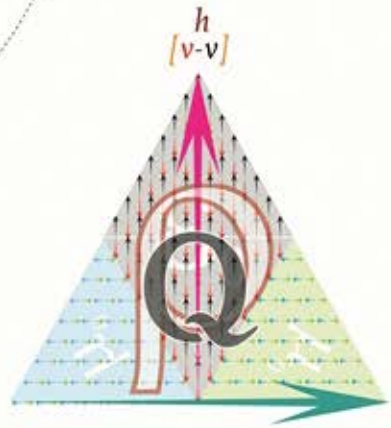
The net divergence of Negative charge fields is due to the anti-symmetry of their component Planck quanta

$$E = \frac{\rho}{c^2 \mu_0}$$

$$B = \frac{\rho}{c^2 \varepsilon_0}$$







The Laplacian of any scalar field is interpreted as being the limit of the net outward flux per unit enclosed area of this field through a closed contour surrounding the point of evaluation

$$\Delta\phi = \lim_{A \to 0} \frac{1}{A} \oint_{\partial D} \frac{\partial \phi}{\partial \nu} \, dl, \quad A = \text{area}(D)$$

co-ordinate-free representation of the Laplacian

Newton's Gravitational Constant has been shown to be a greatly reduced version of Coulomb's Electric interaction Constant

$$\frac{Q\,k\,\rho\,G\,M}{r^2\,\kappa\,c^4}$$

Newtonian Gravitation models the observed convergent force of GEM interactions that results in the motion of large-scale Matter

Any compete Unified field equation for Gravitation must take into account both the Nullspace gravitation resulting from Matter topologies as well as the Coulombic 2D interaction fields that result from charge and the motion of Matter through the aether

Combined Interactive & Gravitational Forces

mass-energy-Matter

$$G_P = \kappa \frac{\rho}{c^4}$$

spatial volume

[24-12] KE [1-0] KE [0-1] [0-12]

Coulomb's Law

$$P+\left[\frac{2\pi[mv^2]}{c^2}\right] k \left[\frac{2\pi[mv^2]}{c^2}\right] e-$$

$$\frac{Q_1\,k\,Q_2}{c^4}$$

Coulombic [k]EM fields

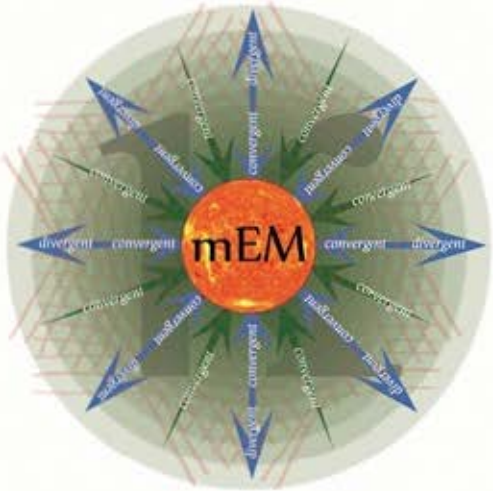
Divergent [Interaction] radiative EM Fields

[k]EM interactive superpositioned EM fields of Force [k]EM

$$P+\left[\frac{T\pi[m]}{c^4} + \left[\frac{n\pi[mv^2]}{mass}\right] \kappa \left[\frac{n\pi[mv^2]}{mass}\right]\right] + \frac{T\pi[m]}{c^4}\Bigg] e-$$

Matter — *convergent gravitational field of Force* — *Matter*

Einstein's constant



Newton's Law

$$P+\left[\frac{4n\pi[mc^2]}{c^2}\right] G \left[\frac{4n\pi[mc^2]}{c^2}\right] e-$$

$$\frac{M_1\,G\,M_2}{c^4}$$

[2,25e23] [1.2e20]

Gravitational Matter

Convergent [Attractive] Gravity Field

The observed net convergent force between objects of mass-Matter are the result of convergent G & interactive EM fields

vacuum impedance $Z = \frac{1}{c^2} = \varepsilon_0 \mu_0$ (electric permittivity, magnetic permeability)

mass-energy density $G_P = \kappa \frac{\rho}{c^4}$ (spatial region)

The energy density pressure gradient produced by the positive dispacement of vacuum energies by 3D standing-wave mass-Matter topologies is a strictly convergent force

$P = \frac{kT}{V}$

CHARGED mass-energy geometries create Matter topologies

Q

RE

mass-Matter-Vacuum energy displacements contributes to STRESS energies

M

All Matter is gravitationally ATTRACTIVE

m

Gravity fields produce a convergent inverse square force

mass-Matter topologies displace vacuum energies to create gravity

M

KE

All Matter radiates INTERACTIVE [k]EM mass-energy momenta

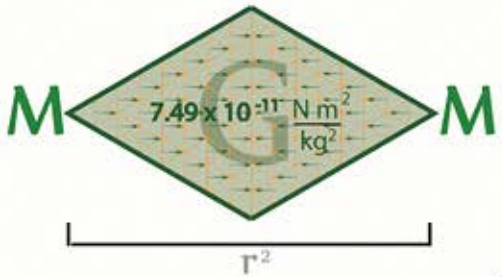
$\nabla\phi\, grav = 4\pi G\rho$

The pressure Force of Gravity is proportional to the amount of mass-Matter in a system and can be modelled with weak superpositioned E-field geometries

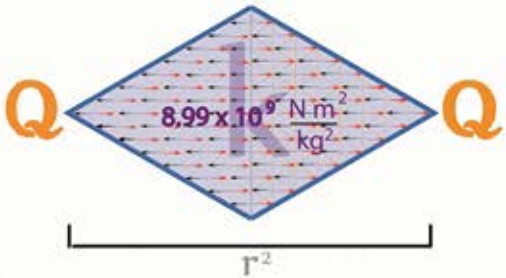
$F = -G \frac{M_1 m_2}{r^2}$

$G = \frac{8\pi G}{c^4} T_{\mu\nu}$

Inverse squared interactive E-fields

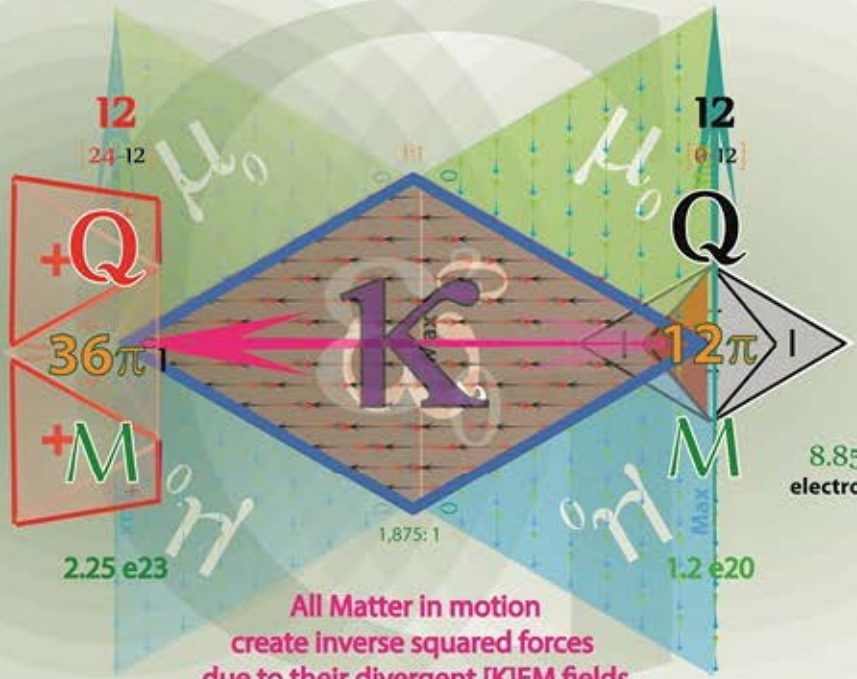


wherever mass-energies create standing-wave topologies they also create Gravity



wherever there exists mass-energy imbalances energy will seek equilibirum via radiant EM fields

Although present, the Gravitational Attraction between quantum scale Matter particles is vastly overwhelmed by the Coulombic Interaction field resulting from the nett Charge imbalances of Matter and its fields of motion



Protons have Stronger G fields than electrons but weaker [k]EM fields

P+

1.6596×10⁻²⁷ KG
proton mass-Matter

e–

8.8514×10⁻³¹ KG
electron mass-Matter

electrons have Weaker G fields than Protons but stronger [k]EM fields

All Matter in motion create inverse squared forces due to their divergent [K]EM fields

KEM

superpositioned kEM fields create forces of attraction & repulsion

Gravity creates a strictly convergent force of attraction

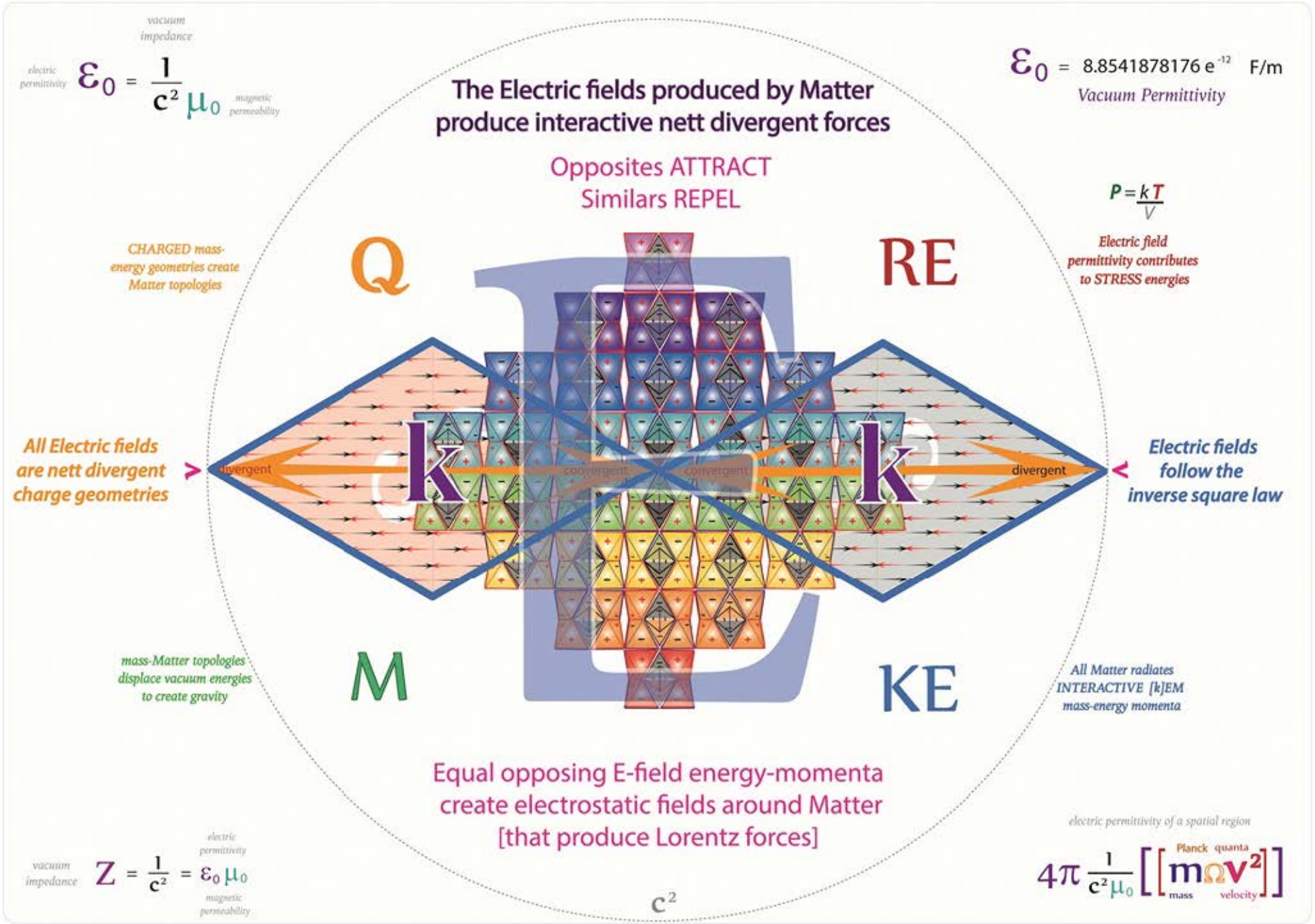
$$\frac{G}{c^4}$$

M — *Matter* *mass-energy*: $36\pi * 25n^2$ (*topology* * *geometry*)

[k]EM — *Matter* *mass-energy*: $12\pi * 1n^2$ (*topology* * *geometry*)

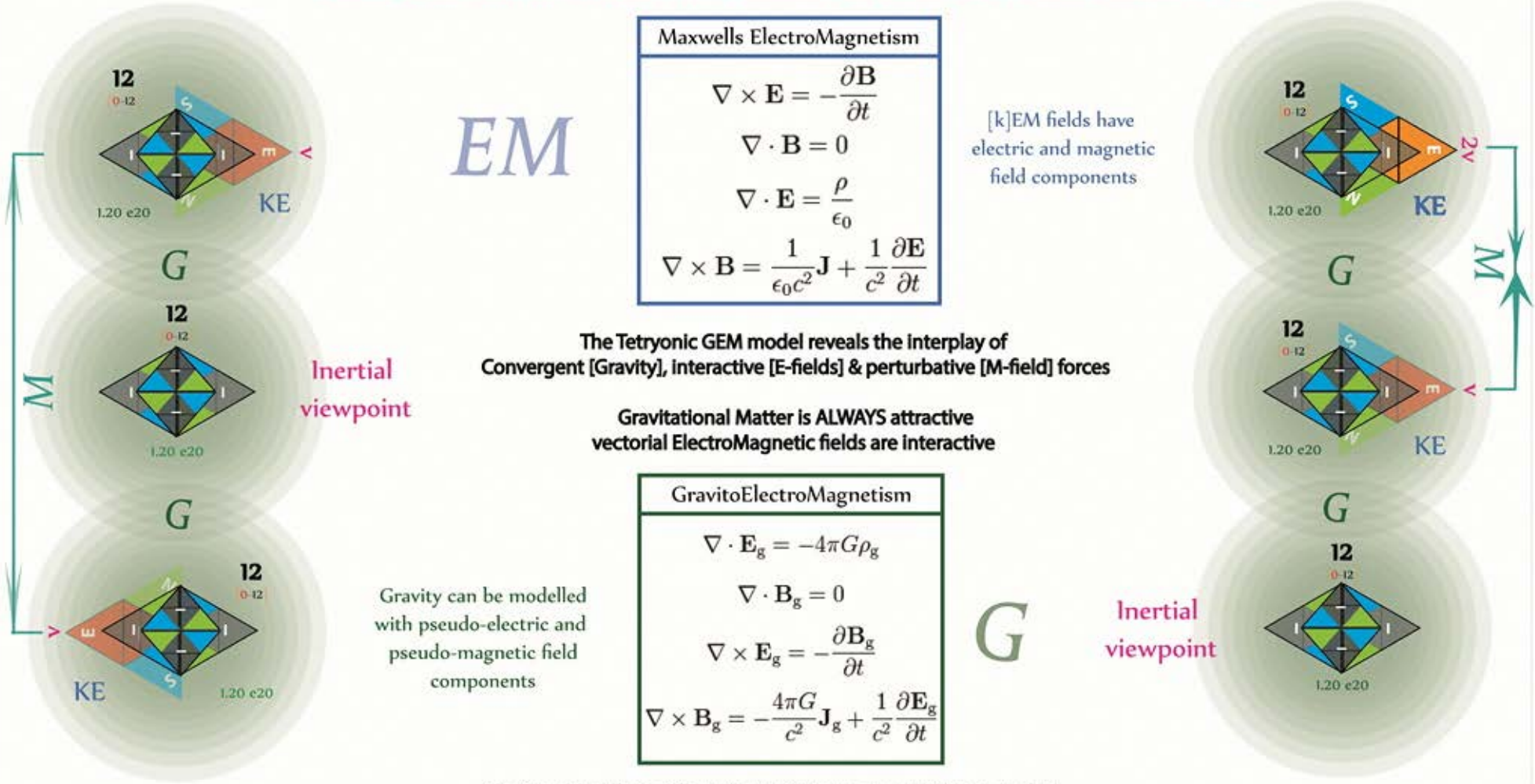
mass-Matter topologies displace vacuum energies to form convergent gravity

Equilateral [k]EM mass-energies contribute to the total stress energies of any region



Perturbative M-forces

ElectroMagnetism is a velocity dependent vector interaction that dominates the Gravitational attraction of Matter



The Gravitational forces on the central particle are always equal irrespective of the inertial viewpoints

The sign of the effect is different (attraction in one case, repulsion in another), but this is just because in electromagnetism the sign of the electric part of the acceleration is opposite that of gravity: electric charges of the same type repel each other, while in gravity two massive objects attract.

Apart from this sign, there is such a close analogy to magnetism that this velocity-dependent gravitational effect is often termed Gravito-magnetism

The ElectroMagnetic forces resulting from inertial motion in a different frame of reference produces different KINETIC [EM] forces

vacuum impedance

magnetic permeability $\mu_0 = \frac{1}{c^2 \varepsilon_0}$ electric permittivity

$\mu_0 = 1.2566370614\ e^{-12}$ N/A^2

Vacuum Permeability

The Magnetic fields of Matter produce perturbative interactions

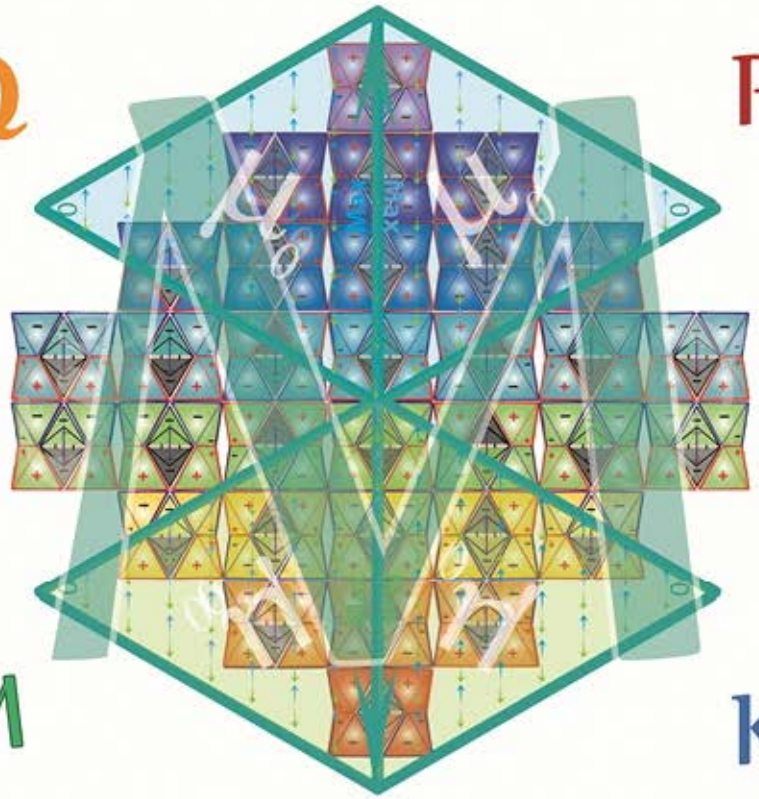
$P = \frac{kT}{V}$

Magnetic field permeability contributes to STRESS energies

CHARGED mass-energy geometries create Matter topologies

Q

RE



Magnetic dipoles follow the inverse cubed law

Magnetic fields follow the inverse square law

mass-Matter topologies displace vacuum energies to create gravity

M

KE

All Matter radiates INTERACTIVE [k]EM mass-energy momenta

Matter posesses a secondary magnetic moment that is subject to Lorentz forces

vacuum impedance $Z = \frac{1}{c^2} = \varepsilon_0 \mu_0$ magnetic permeability; electric permittivity

c^2

magnetic permeability of a spatial region

$4\pi \frac{1}{c^2 \varepsilon_0} [[m \Omega v^2]]$ (Planck quanta; mass; velocity)

Gravitational & EM fields

Any unified Field equation that attempts to accurately model celestial scale gravitational attraction must also take into account KEM field interactions between the bodies resulting from their respective motions

Q

RE

1:0.0123

Gravity is created by vacuum energy displacement produced by Matter topologies in vacuum energy fields

along with displaced Vacuum energy gradients

Interactive E-fields and perturbative M-fields

also contribute to the nett convergent gravitational field

M

KEM

All Matter produces a nett Gravitational [convergent] force as a direct result of its mass-Matter topologies & KEM mass-energies

mass-Matter

5.9736×10^{24} KG

Earth

2.8673e26 π

displacement topology

interactive KEM field mass-energy momenta

$$\left[\frac{4n\pi}{c^4}[\rho]_{mass} + \left[2n\pi\frac{[\rho]_{EM\ mass}}{c^2}\ \kappa\ 2n\pi\frac{[\rho]_{EM\ mass}}{c^2}\right] + \frac{4n\pi}{c^4}[\rho]_{mass}\right]$$

$$r^2$$

Gravitational gradients can be modelled as weak KEM fields

mass-Matter

7.3477×10^{22} KG

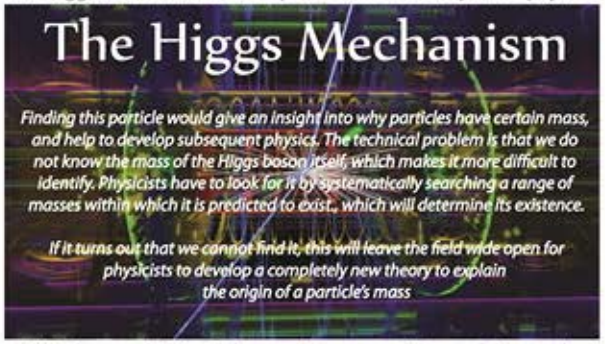
moon

3.526e24 π

displacement topology

Independently and almost simultaneously in1964 three groups of physicists proposed the proposed the Higgs mechanism thorugh which the inertial mass properties of Matter are created:
François Englert and Robert Brout; by Peter Higgs (inspired by ideas of Philip Anderson); and by Gerald Guralnik, C. R. Hagen, and Tom Kibble.

The Higgs mechanism was incorporated into modern particle physics



by Steven Weinberg and Abdus Salam, and is an essential part of the standard model.

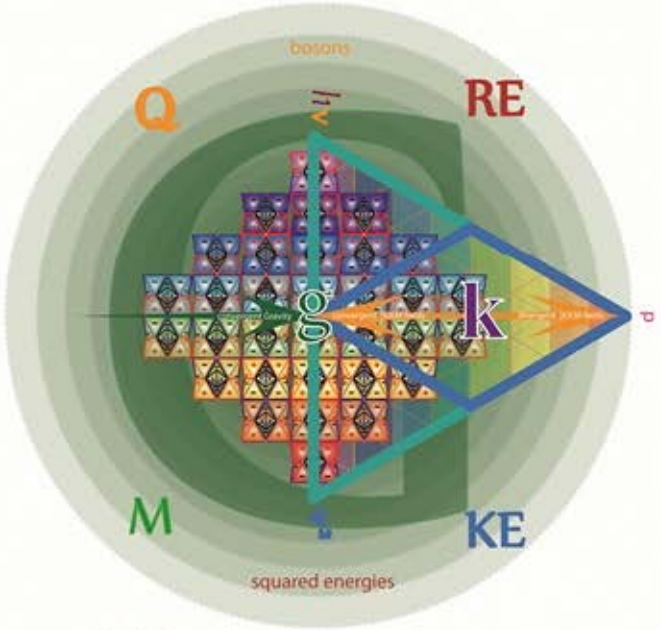
As the Universe cooled and the temperature fell below a critical value, an invisible force field called the 'Higgs field' was formed together with the associated 'Higgs boson'

The Higgs mechanism is a process by which vector bosons can obtain mass

M

TETRYONS / FERMIONS / BARYONS
3D tetrahedral standing-waves
[4nπ EM mass-Matter topologies]
interact with the vacuum energy aether

Matter



m

BOSONS / PHOTONS
2D planar matterless fields
[nπ EM mass-energy geometries]
'slice' through the vacuum energy aether

EM masses

Tetryonics is a full relativistic unified theory of electromagnetic mass-ENERGY & Matter and motion in which the classical properties of inerital mass and quantum mechanical quantised energy momenta are explained as being direct result of the geometric properties of inductive equilateral energies moving through external electromagnetic fields

Applying the Unified Field Equation

for ElectroMagnetic masses & Matter interactions

All Matter has a 4π standing-wave mass-energy topology

Matter topologies

$$G_{ab} = 8\pi G T_{\mu\nu}$$

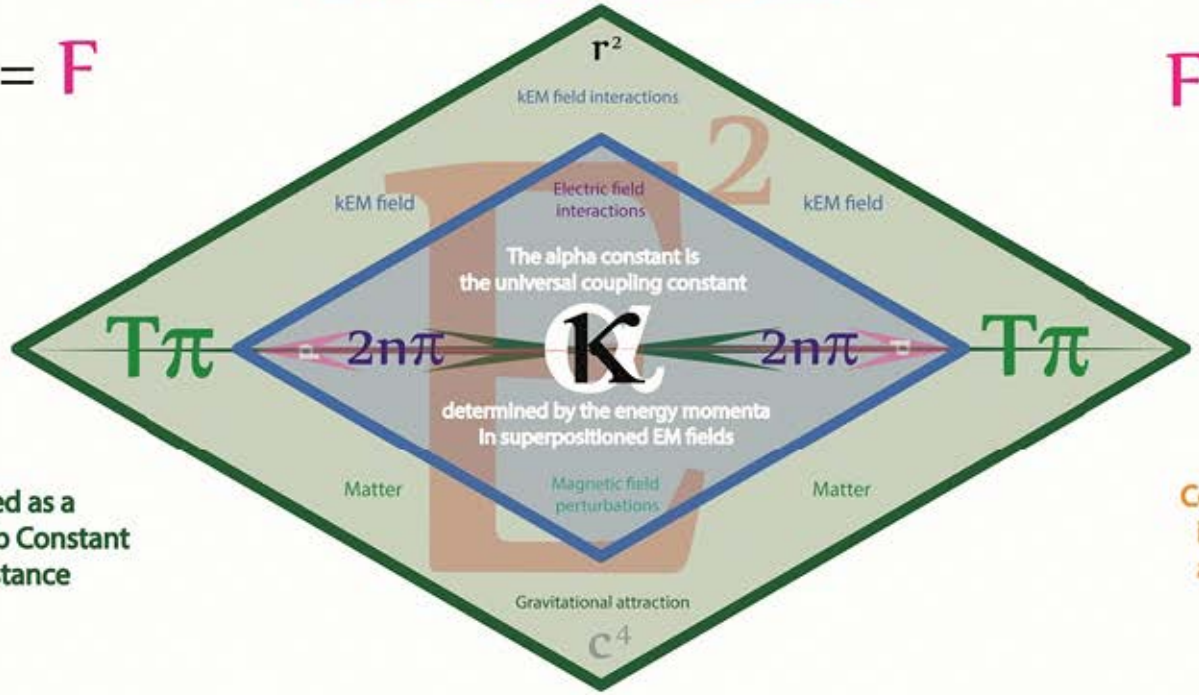
The net gravitational force is the geometric mean of all EM mass-ENERGY-Matter interactions

All kEM waves have 4π superpositioned mass-energy geometries

mass-ENERGY geometries

$$-G\frac{M_1 m_2}{r^2} = F$$

$$F = k\frac{Q_1 Q_2}{r^2}$$



G

k

Gravity can be modelled as a reduced negative Coloumb Constant acting over a large distance

Coloumb's Constant is a large interactive Electric constant acting over a short distance

Tetryons - 4π
Leptons - 12π
Quarks - 12π
Mesons - 24π
Baryons - 36π

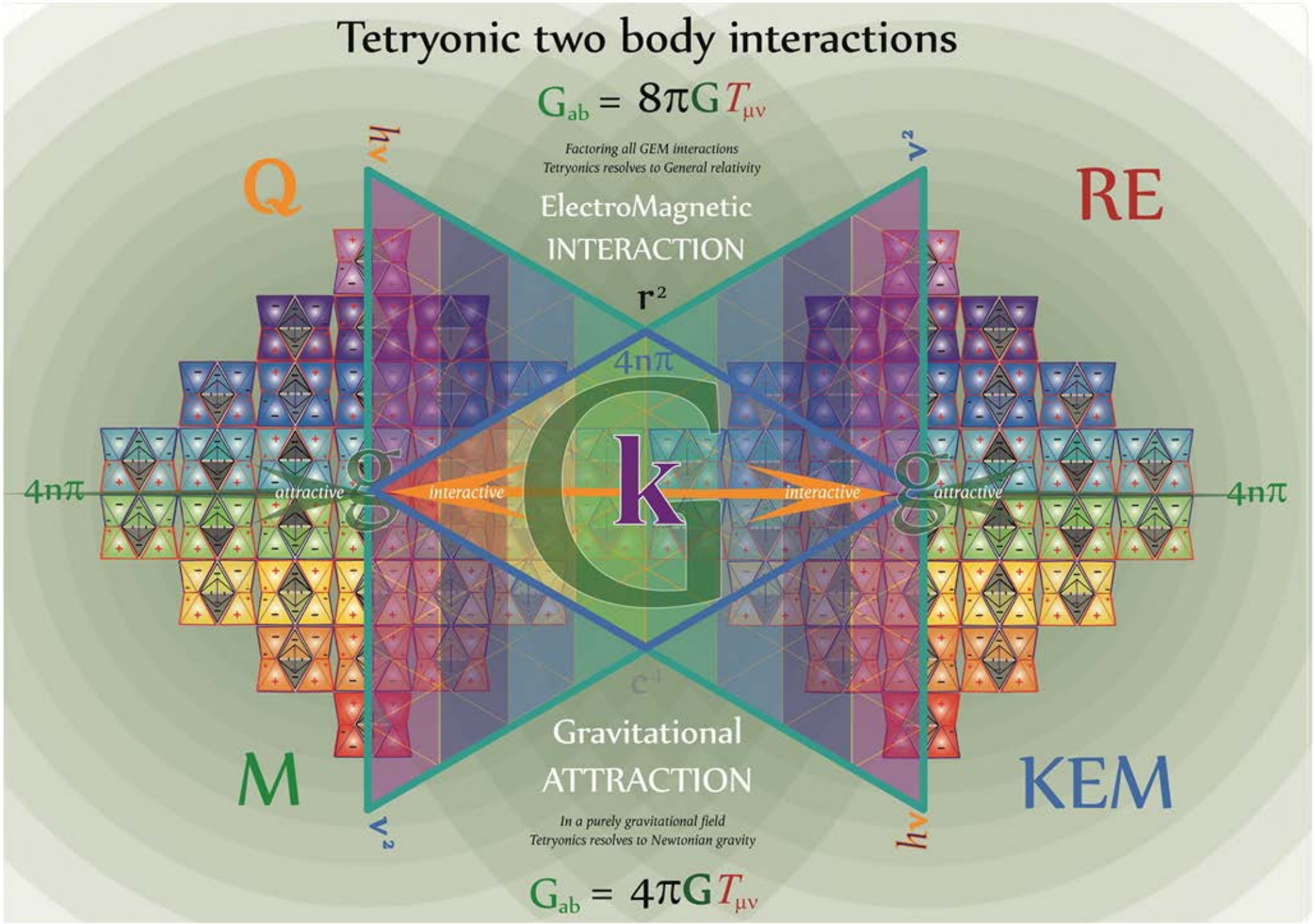
Ignoring interactive [k]EM field interactions reduces GR [k] to Newtonian [G]

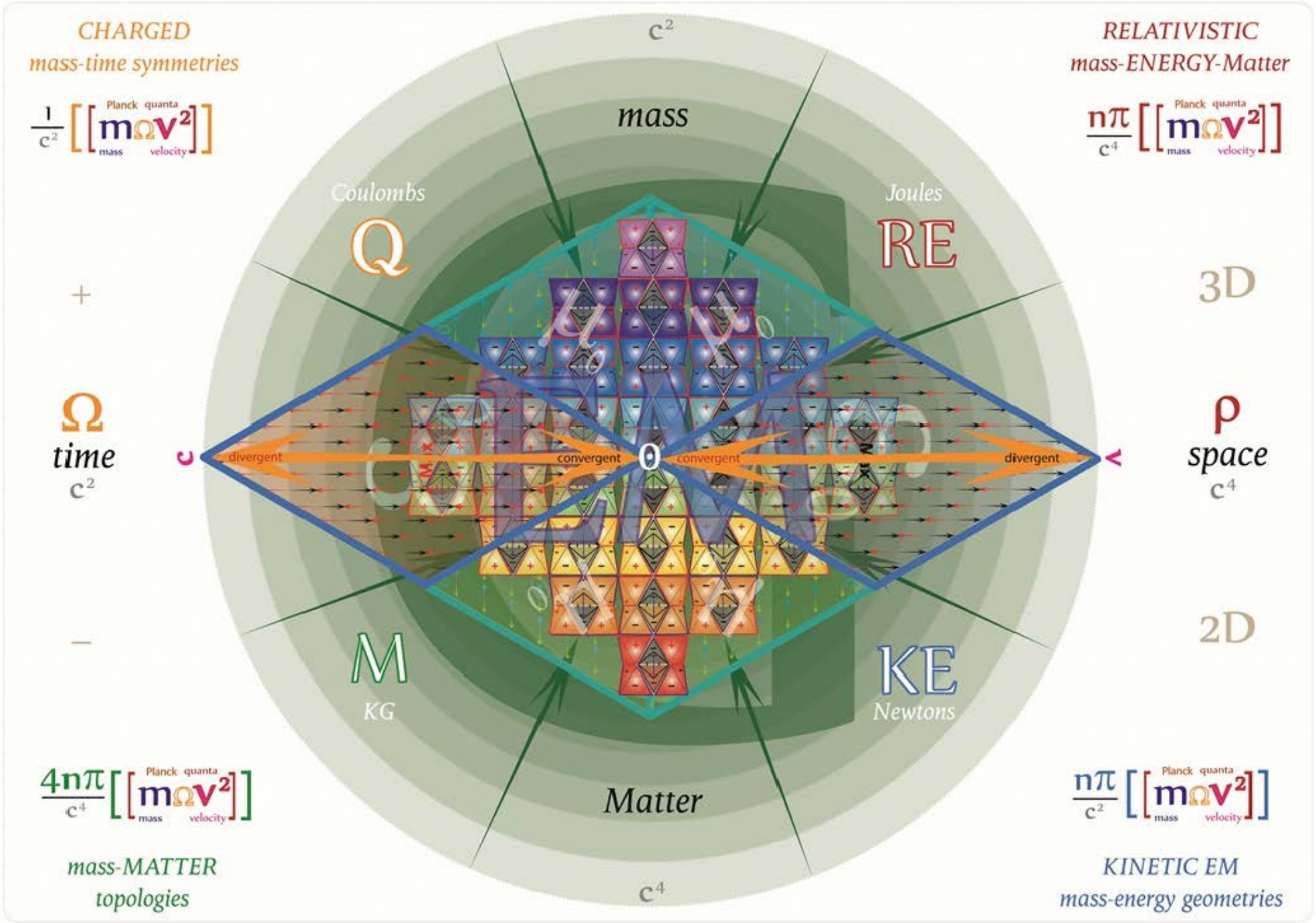
Charges - 1π

Photons -2π

EM Fields - 2nπ

$$G_{ab} = 4\pi G T_{\mu\nu}$$



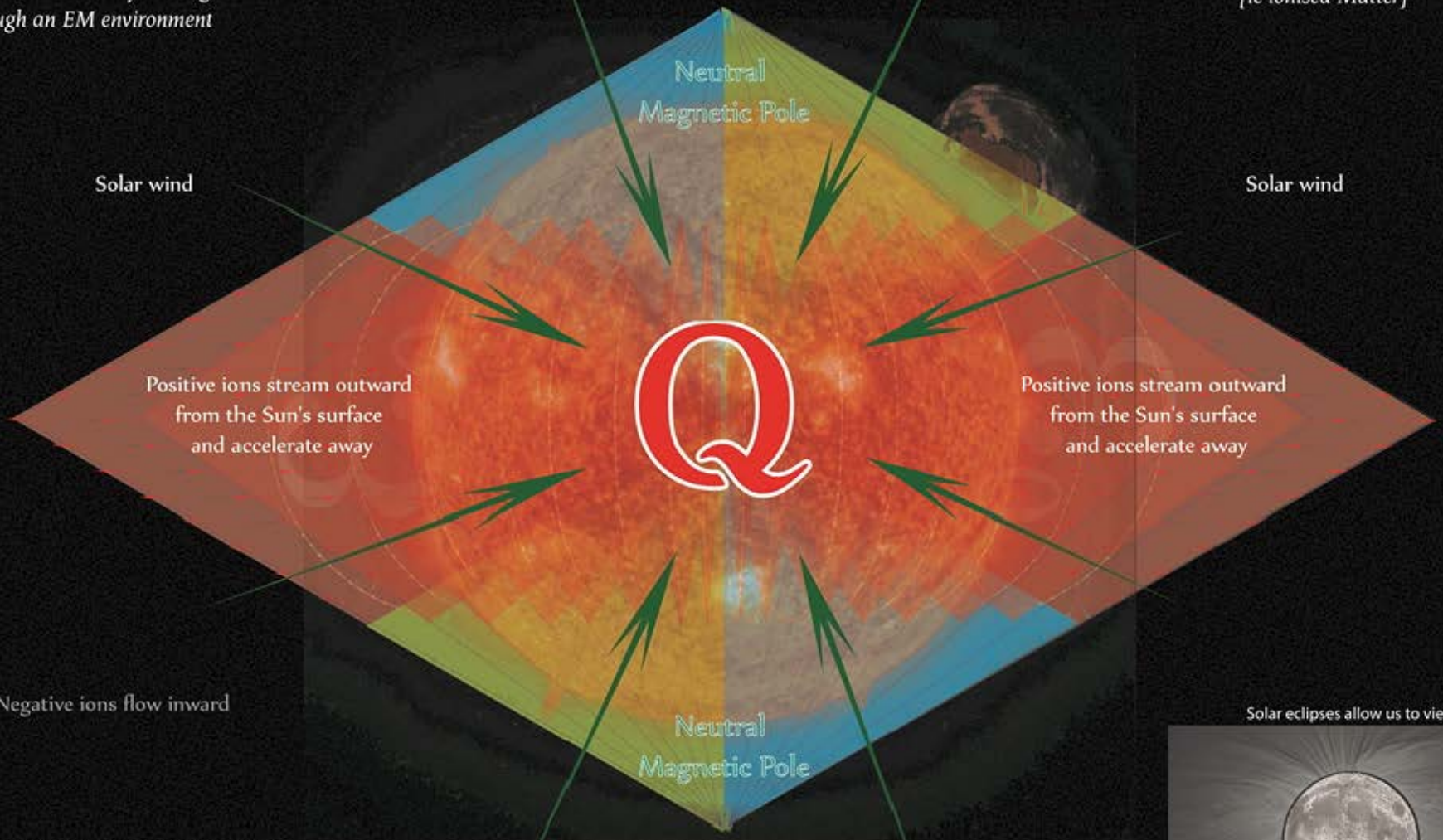


Our EM SUN

The SUN (like the Planets) is a CHARGED body moving through an EM environment

G & E fields obey the inverse SQUARED laws

The nett Charge of a body is the result of an excess of one type of energy quanta and is reflective of their charged topologies [ie ionised Matter]



The charged E field [heliosphere] of our SUN interacts with other charged planetary bodies

Magnetic dipole fields follow the inverse CUBED law

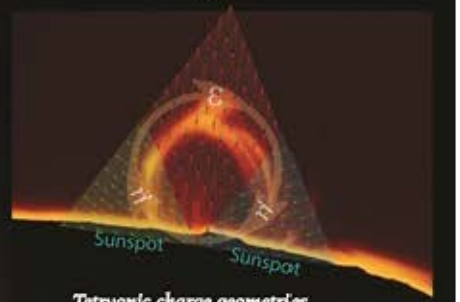
Solar eclipses allow us to view

the SUN's EM corona in detail

Prominences

Flares, Prominences and CMEs are the result of Electro-Magnetic geometries

Solar Dynamics



Tetryonic charge geometries explain Solar EM field dynamics

The SUN is a ElectroMagnetohydrodynamo

When multiple charged fascia interact they flare produce and CMEs

Prominence

Maximum E field strength
1 million Kelvin

6000 Kelvin

Sunspot
Sunspot
Sunspot
Sunspot

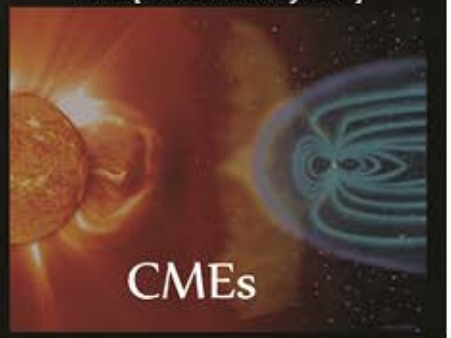
Positive ions stream outward from the Sun's surface and accelerate away

The SUN (like the Planets) is a CHARGED body moving through an EM environment

Where Solar EM loops breakdown or interact flares result

Solar Flares

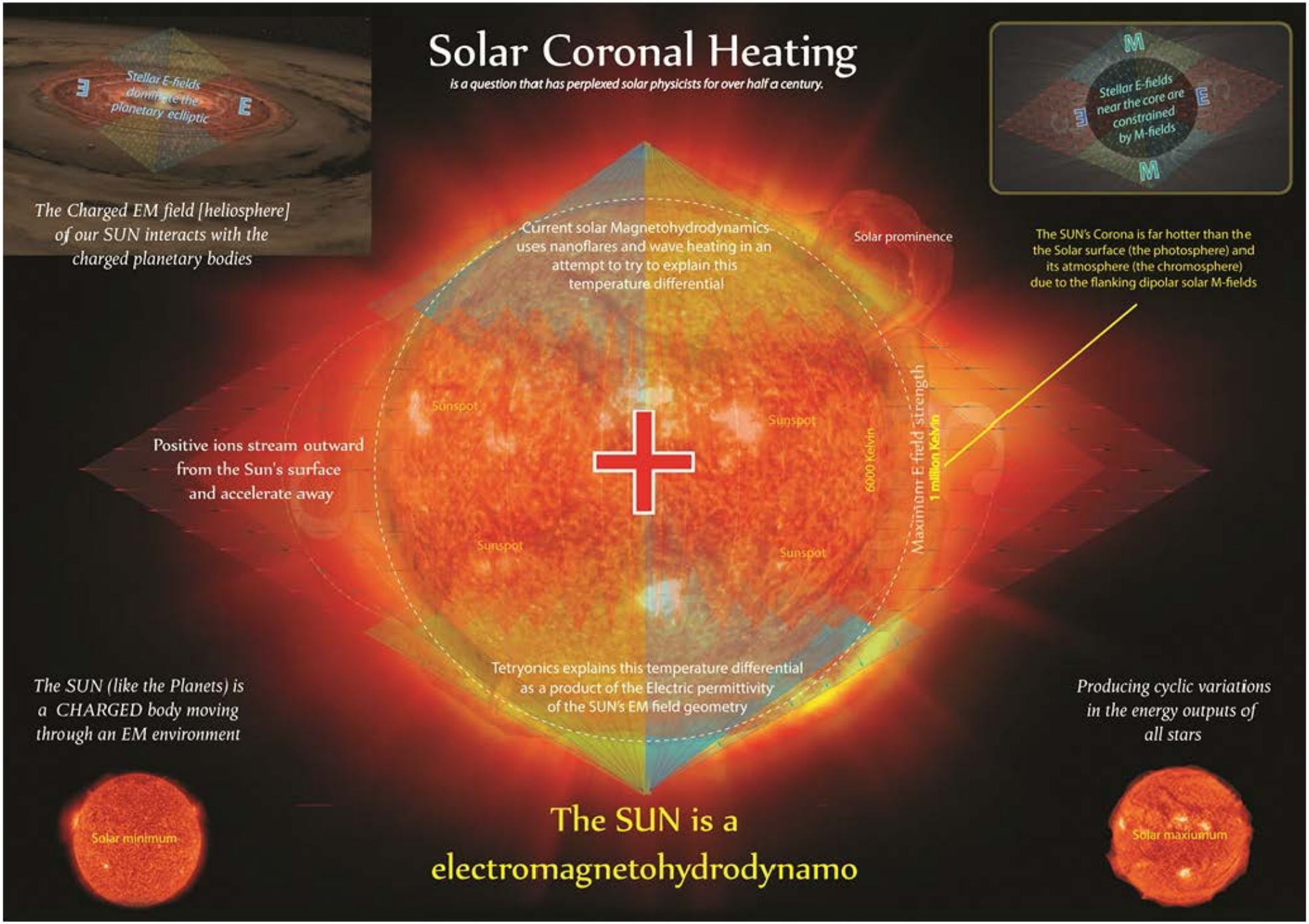
The breaking of large inductive EM loops creates CMEs [Coronal Matter Ejections]

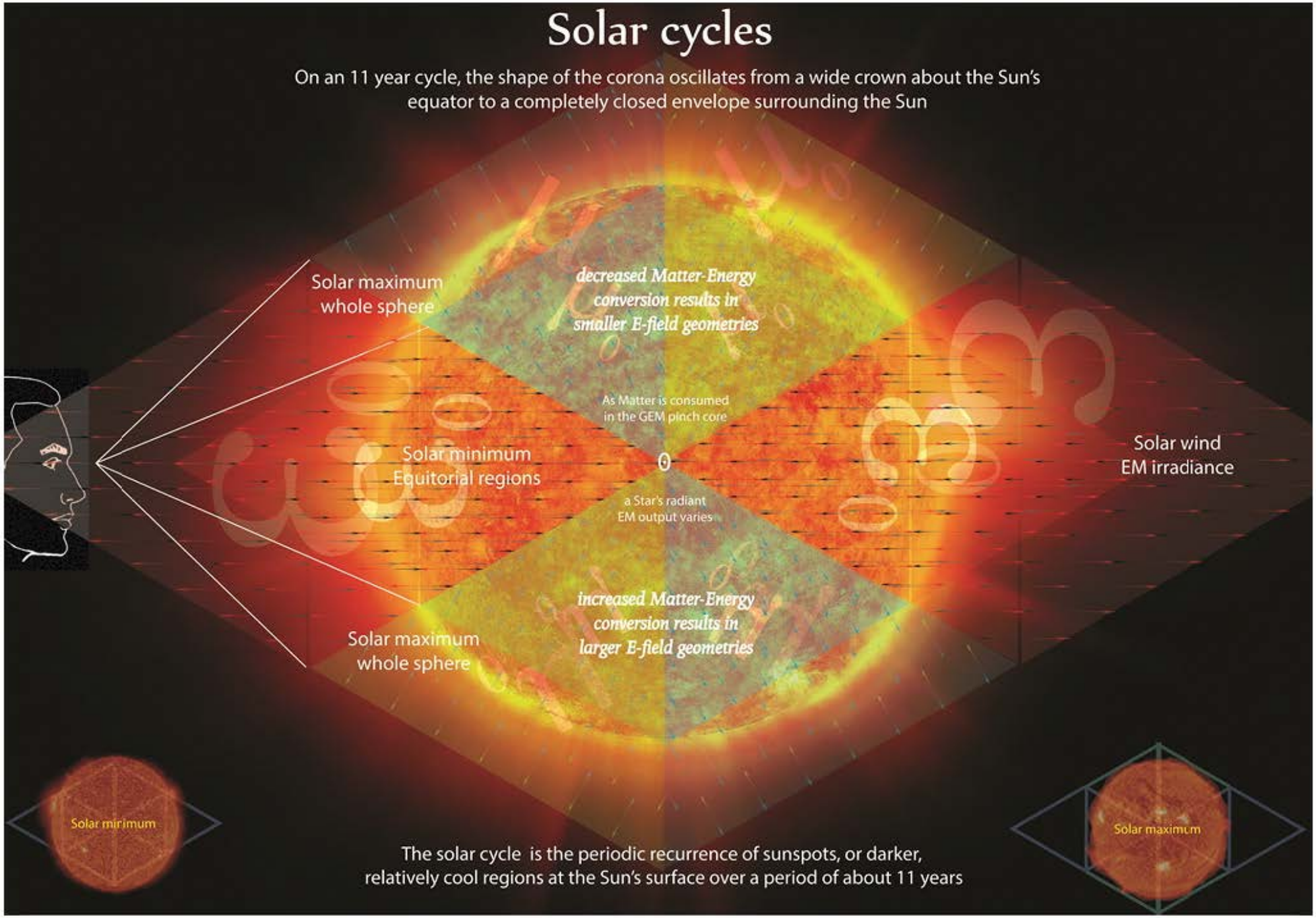


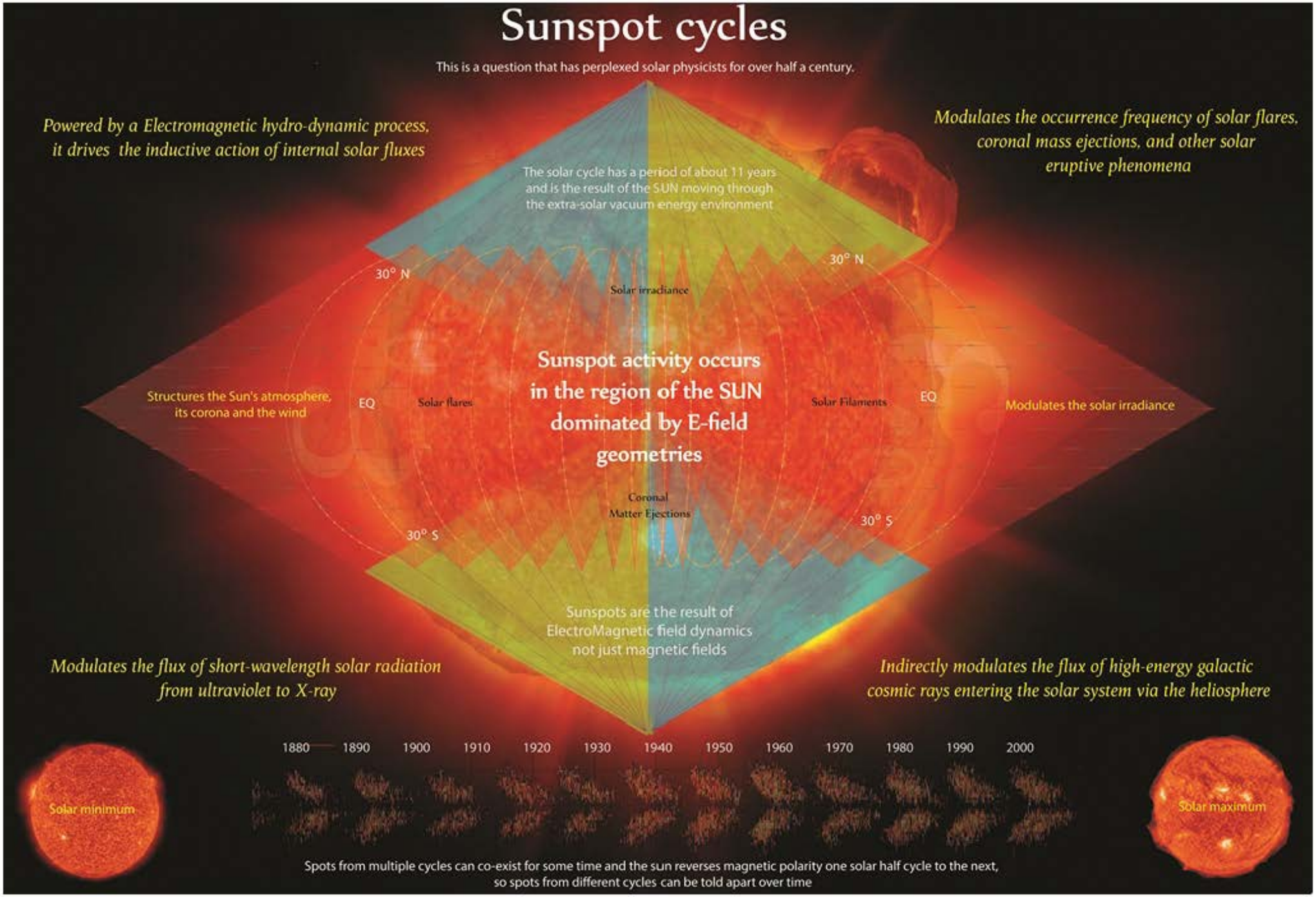
CMEs

The Earth is located at an average distance of about 150 million kilometers [1AU] from the Sun
It takes sunlight travelling at the speed of Light [c] about 8.3 minutes to cross this distance and reach the Earth.

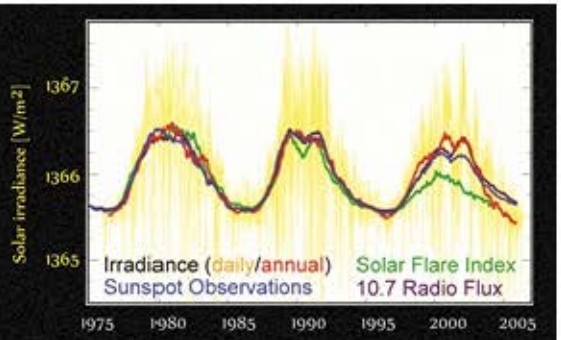
BUT due to the nature of Longitudinal waves emitted by the SUN mechanical momenta impulses [action-at-a-distance] can be transfered from the SUN to the planets nearly instantaneously providing the mechanism for Newton's instataneous pull of Gravity on planetary bodies







Solar irradiance



Solar EM mass-energy irradiation

is a measure of the total incident levels of solar EM radiation recieved by the Earth's upper atmosphere in a given unit of time.

It is not the same as measuring the amount of EM radiation emitted from the surface of the SUN.

It can be stated that solar irradiation is the amount of EM energy transmitted from the SUN to the Earth's outer atmosphere.

This measurement is normally done in square units per units of time.

Solar irradiance [W/m²]

The set amount of solar energy recieved by the Earth's atmosphere is called the solar constant.

The most recent value measured for the Solar Constant is 1368 Watts per meter squared.

The Solar constant has an inverse relationship to the solar irradiance of the SUN's surface reflective of Earth's distance from the SUN.

It shows how the massive amouts of EM energies emitted by the sun is scaled down to what is used by every biosystem on the planet.

The SUN is an ElectroMagnetic pinch reactor

The Sun emits longitudinal EM radiation across most of the electromagnetic spectrum.

The basic causes of the solar variability and solar cycles are still under debate, Tetryonics dictates a EM mechanism for the energies produced at the core of Stars and that the variability of the stellar outputs may be due to changes in the ElectroMagnetic environment that Stars [and their planetary systems] move through

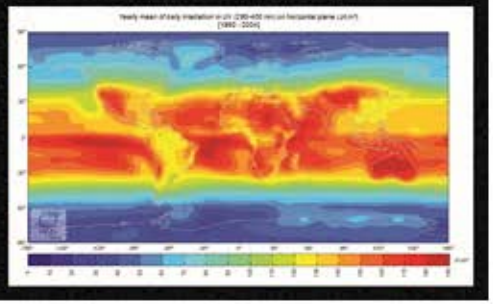
The spectrum of the Sun's solar radiation is close to that of a black body with a temperature of about 5,800 K.

Solar irradiation produces Carbon 14

An extremely long stretch of low activity in recent years has left scientists baffled and searching for a better model of the SUN's interal processes and how to forcast its output in order to establish a better link between the solar cycle and global climate flucuations

The total solar irradiance (TSI) is the amount of solar radiative energy incident on the Earth's upper atmosphere

Changes in the SUN's EM output can have a direct effect on the weather and electrical activity of the Earth and other planets



Stellar refraction of EM waves

Any test of General Relativity using photons (or EM waves) will only measure SR interactions
[ie Gravitational red-shifting is a SR effect on EM masses not graviational Matter]

G

The motion of Matter is affected by gravitational attraction and EM interactions

EM

The motion of EM masses is affected by EM interactions and creates refraction

Photons are NOT 'bent' by Gravitational fields
they are refracted by propagation velocity changes
resulting from their EM interactions
with the solar corona

$$\alpha[\text{einstein}] = \frac{8\pi GM}{c^2}$$

According to Einstein's general theory of relativity published in 1916, light coming from a star far away from the Earth and passing near the Sun will be deflected by the Sun's gravitational field by an amount that is inversely proportional to the star's radial distance from the Sun

1.745" at the Sun's limb
(this is the result of EM refraction NOT Matter gravitation)

$$\alpha[\text{newton}] = \frac{4\pi GM}{r}$$

Photons are not massless they are 2D radiant EM mass-energy momenta geometries

r

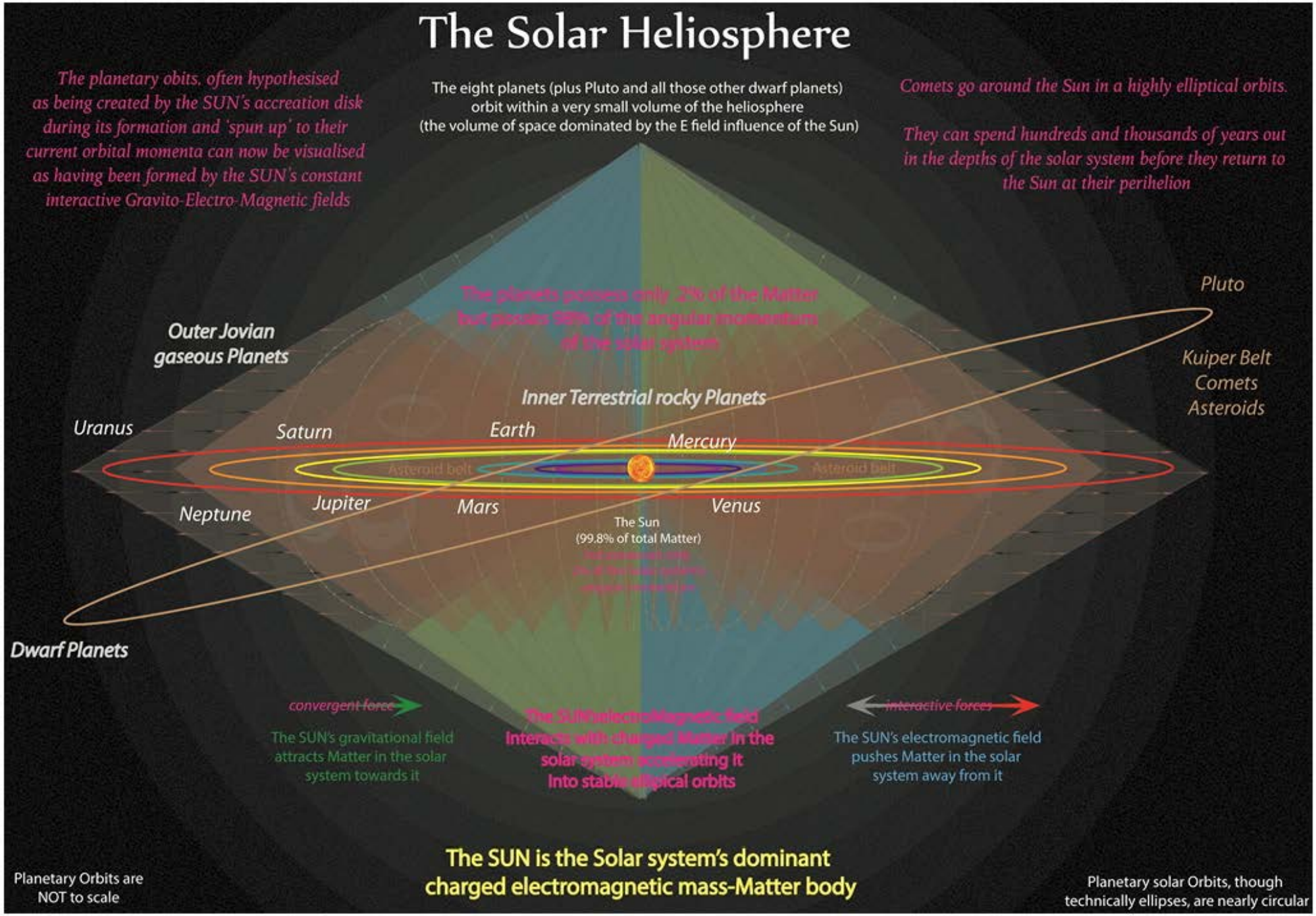
The additional 'bending' of light rays as they pass by a Gravitational body as predicited in Einstein's general relativity is caused by refractive EM interactions not by the force of gravity

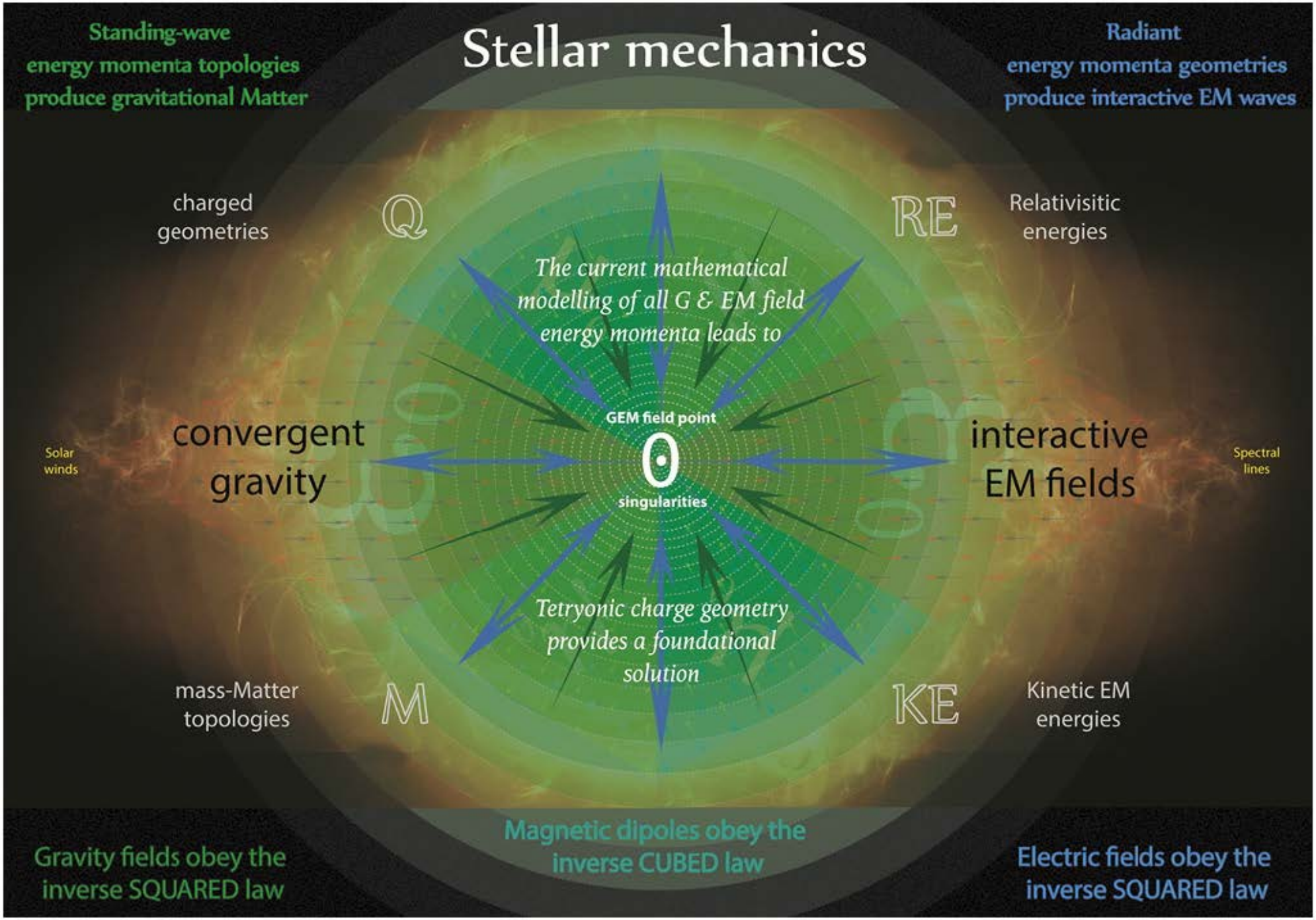
4π

4π

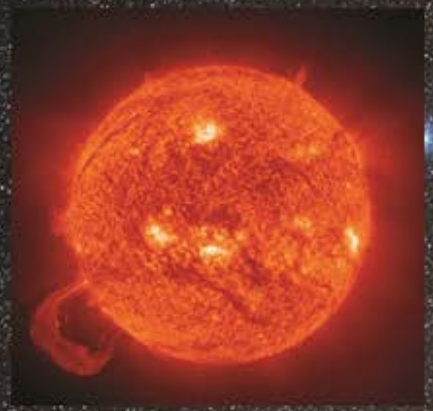
c^2

Gravitation in General relativity is Newton's Gravity with SR corrections





Anti-Matter Stars



$\bar{N}^0 = dud$

anti-Neutron 18-18

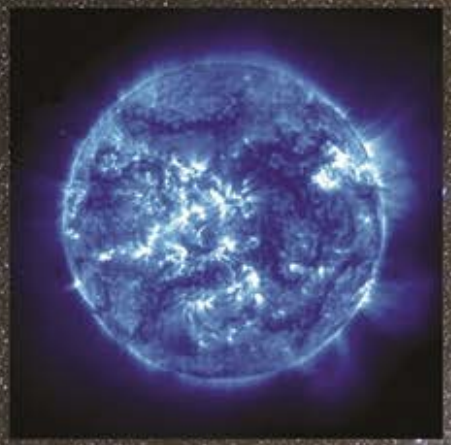
positron 12-0 [42-42]

Negatron 12-24

$P^- = udu$

anti-Matter stars have the opposite charge topology to Matter stars

Neutron Stars



Colours used are illustrative of Matter types only

$N^0 = dud$

Neutron 18-18

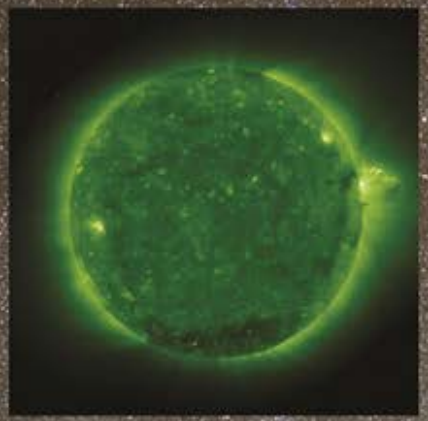
neutrino 6-6 [42-42]

anti-Neutron 18-18

$\bar{N}^0 = dud$

All stars types emit Neutral Photons

Matter Stars



$N^0 = dud$

18-18 Neutron

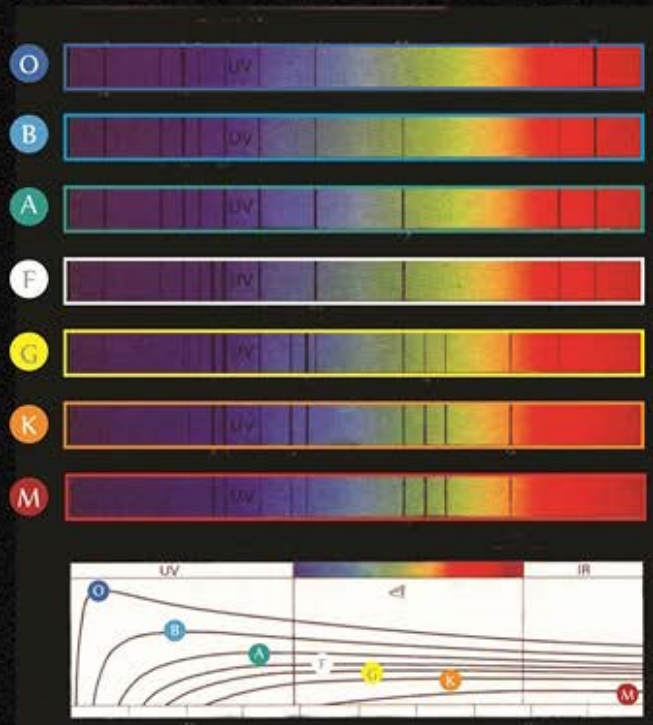
[42-42] 0-12 electron

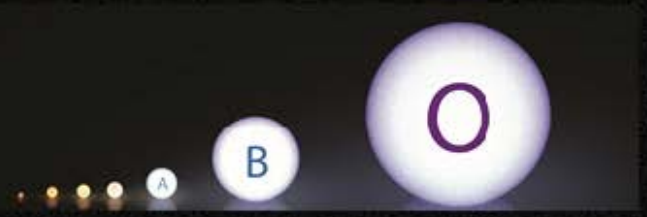
24-12 Proton

$P^+ = udu$

Matter stars have the opposite charge topology to anti-Matter stars

Star classifications





The greater the EM mass-energies radiated in a given volume of space the higher the Temperatures

White dwarves

Average Matter in Small volumes

The greater the voume for a given amount of radiated EM mass-energy the 'cooler' the Frequency of light produced from stellar processes

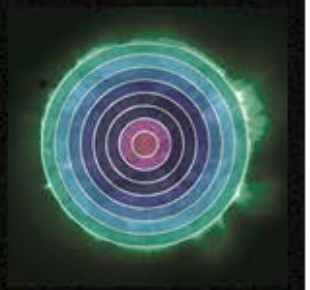
Blue giants

Greater mass-Matter in Larger volumes

O
≥ 16 M

B
2.1–16 M

A
1.4–2.1 M



Red giants

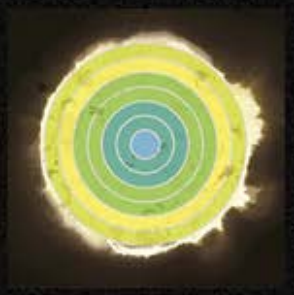
Less mass-Matter in Larger volumes

M
≤ 0.45 M

K
0.45–0.8 M

G
0.8–1.04 M

F
1.04–1.4 M



Main sequence

Average mass-Matter in medium volumes

Nucleosynthesis

The goal of nucleosynthesis is to understand the vastly differing abundances of the chemical elements and their several isotopes as being a result of natural history

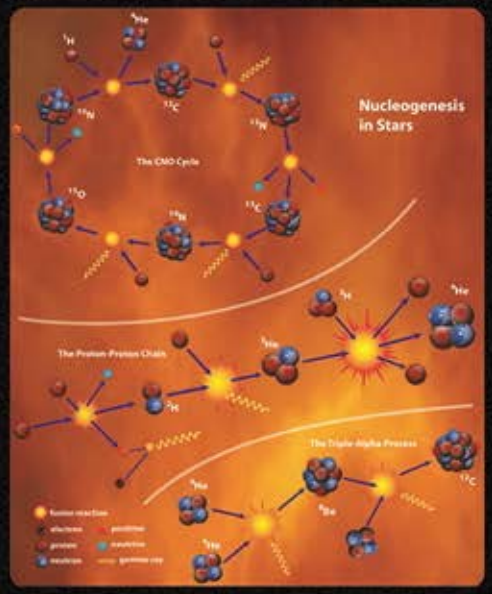
Nucleosynthesis is the process of creating new atomic nuclei from pre-existing nucleons (protons and neutrons)

All Stars have a dominant spectral colour and emit a multitude of spectral lines

All Stars emit various colour spectra that combine to form spectral lines reflective of the star's energy output

The CNO cycle describing element creation inside Stars is erroneous .....

All spectral lines can be produced by the excitation of stellar nuclei by photons released by GEM pinch Matter-Energy conversion



Elements in the Sun

Element	% of total atoms	% of total mass
Hydrogen	91.2	71.0
Helium	8.7	27.1
Oxygen	0.078	0.97
Carbon	0.043	0.40
Nitrogen	0.0088	0.096
Silicon	0.0045	0.099
Magnesium	0.0038	0.076
Neon	0.0035	0.058
Iron	0.030	0.014
Sulfur	0.015	0.040

In 1920, Arthur Eddington was the first to suggest that stars obtained their energy from nuclear fusion of hydrogen to form helium.

The P-P Chain describing the FUSION of elements to release energy is erroneous .....

All Matter-Energy conversion inside Stars is the result of ElectroMagnetic Pinches

Nucleosynthesis problems such as the abundances of observed elements & low mass element synthesis remain open problems for the current theory

Despite intense efforts to create suitable conditions, FUSION as described in nuclear theory, remains an ellusive source of Energy

The CNO cycle and P-P reactions are incorrect theorical models, developed to explain the SUN's GEM pinch dynamics and broad spectral line emissions

Solar Arc lamp spectra

spectral lines are produced by accelerating electrons

Energy-momentum relationship

$$E = mv^2$$

Q

RE

M

KE

Elemental Spectra

Stellar core

1 2 3 4 5 6 7 8 9 Ni Fe Si Mg O N C He H

Quantum Energy levels [layers]

$$\Delta hf = \Delta Mv = \Delta p$$

Spectral line transitions

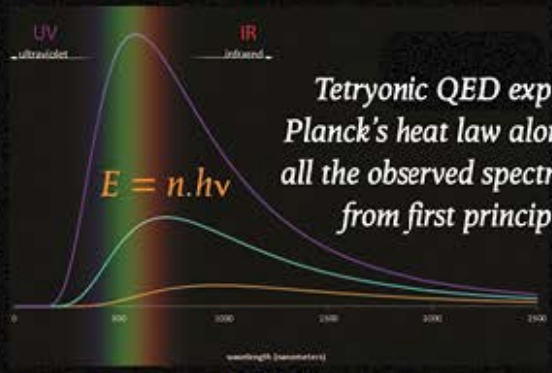
hν, R, β, p, KE
Planck, Rydberg, Lorentz, Newton, Leibniz

Spectral lines

KEM	
48	*Lyman*
108	*Balmer*
192	*Paschen*
300	*Brackett*
432	*Pfund*
588	*Humphries*
768	*un-named*

classical physics and relativity united through equilateral geometry

Astrophysicists and astronomers use arc lamps as spectral line reference sources for many elemental emission and absorption lines



Tetryonic QED explains Planck's heat law along with all the observed spectral lines from first principles

Planck's quantum radiation Law gives a energy distribution that peaks at a certain wavelength, Wien's Law explains the peak shifts to shorter wavelengths for higher temperatures, and the Stefan-Boltzman law explains the growth in the height [the area under] the curve with increasing temperatures

Stellar spectral lines

$E = Mc^4$

Energy-mass-Matter equivalence

Z#
All elements have equal number nuclei components [P-e-N]

Q

$\Delta mv = \Delta hf$
Excitation of photo-electrons in atomic nuclei produces spectral line emissions

RE

Quantum Energy levels [layers]

n

0

Elemental Spectra

M

KE

Energies released from the collapse of mass-Matter topologies in stellar cores is radiated as spectral mass-energies [GEM pinch]

mass-Energy equivalance

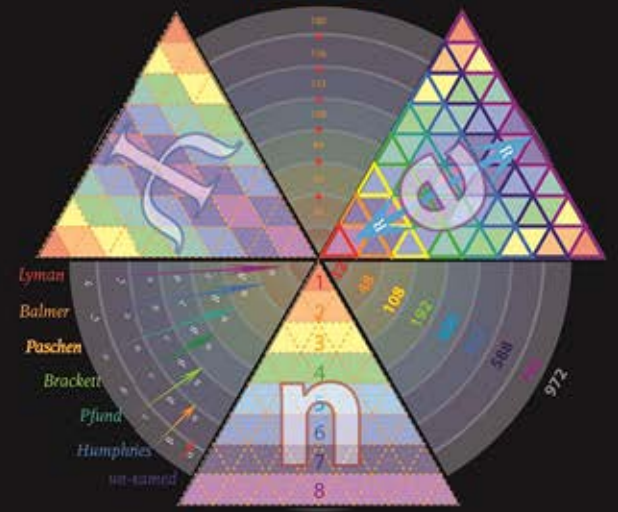
$E = mc^2$

The emissions from GEM pinch processes produce broad spectral lines that range from UV to IR rays *[& include white light]*

The spectral lines of all elements can be mimicked by Deuterium nuclei with rasied energy levels undergoing energy transitions

Tetryonic Electrodynamics

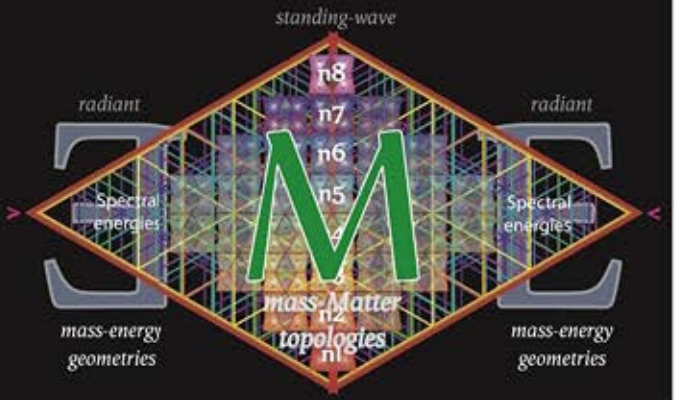
Δhv
Quantum differentials



$hf = \Delta Mv = \Delta p$

spectral lines are produced by accelerating electrons

As energy is 'released' by the collapse of mass-Matter topologies in the stellar core they radiate outward raising the nuclear energies of the surrounding Matter which in turn radiate spectral series photons



Joseph von Fraunhofer

(6 March 1787 – 7 June 1826)

n1
standing-wave
n2
n3
n4
n5
n6
mass-Matter topologies
n7
n8

radiant
radiant
Quantum levels
Spectral energies
mass-energy geometries
mass-energy geometries

Annie Jump Cannon

(December 11, 1863 – April 13, 1941)

SPECTRAL SERIES

Lyman
Balmer
Paschen
Brackett
Pfund
Humphries

Stellar spectroscopy

Astronomical spectroscopy is the technique of spectroscopy used in astronomy.
The object of study is the spectrum of electromagnetic radiation, including visible light,
which radiates from stars and other celestial objects.

ATOMIC SHELLS

K
L
M
N
O
P

Spectral absorption lines are often referred to as Fraunhofer lines

QUANTUM LEVELS

In 1901 Annie Cannon improved upon the 1897 work of Harvard associate Antonia Maury to produce the Harvard spectral class

STELLAR CLASSIFICATIONS

Spectroscopy can be used to derive many properties of distant stars and galaxies, such as their chemical composition, and motion through Doppler shift measurements.

Radiant electromagnetic waves propagate

at the speed of light in a vacuum [c]
taking 8.3 minutes to reach Earth

$$E = hf$$

X-rays, visible light, heat

GEM pinch core

E

ENERGY

MOMENTUM

action-at-a-distance

$$p = mc$$

Square root linear momenta present in
all longitudinal EM waveforms from rigid rods

and once established propagate impulses of momenta
near-instantaneously along the longitudinal waves
arriving 8.3 minutes before visible light

mass-ENERGY-Matter

Energy from the SUN

EM energies released by the collapse of standing-wave Matter topologies in the SUN radiate through space as mass-energy momenta and interact with Matter

All atoms are comprised of Deuterium nuclei

The Earth receives a broad spectrum of energies from the SUN
[with visible light falling into the Balmer spectral series]

$$hf = \underset{366.859\ \text{nm}}{\text{kEM}} = \frac{hcR}{n^2}$$

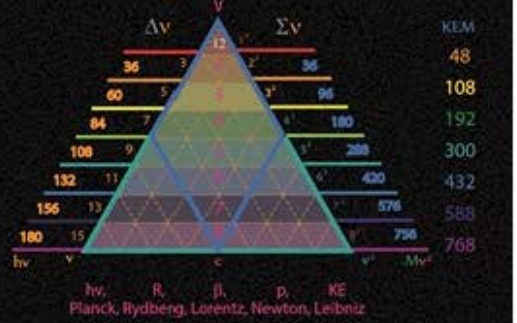
By inductively coupling to the raised quantum KEM fields of the bound electrons their energies can be extracted and utilised

Deuterium nuclei are quantum synchronous convertors of electromagnetic energies

$$\text{kEM} = Mv^2$$

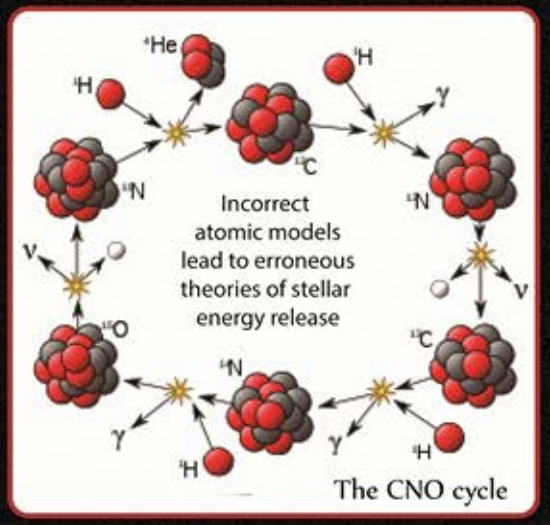
As energy momenta is recieved the energy levels of the Baryons increases in turn affecting and raising the KEM field energies of bound electrons

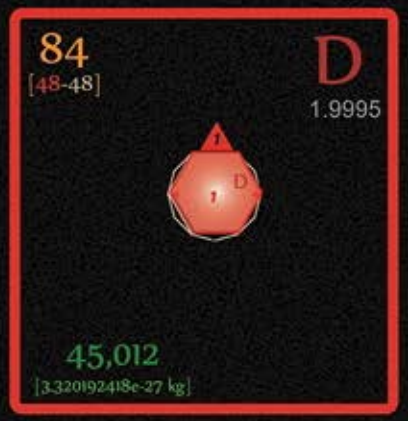
spectral lines, atomic transitions, photo-electric effect

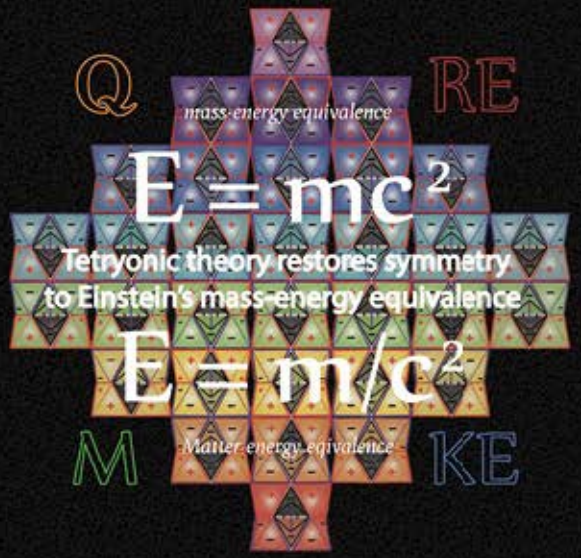


changing spectral emissions $\Delta hf = \Delta Mv = \Delta p$ accelerate photo-electrons

Stellar Energies







ENERGY

$$mc^2 = E = Mc^4$$

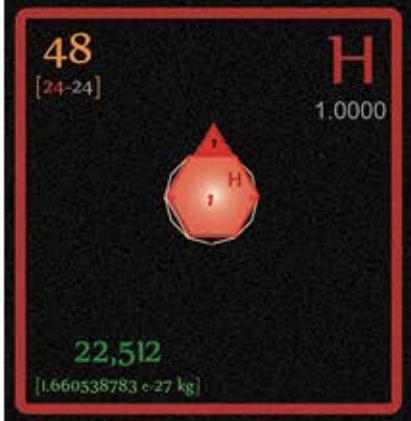
mass — Matter

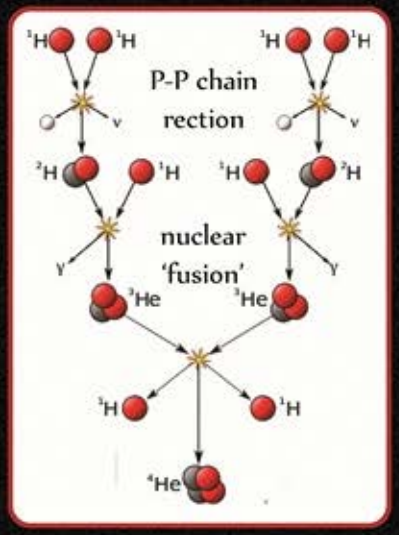
mass-ENERGY-Matter equivalence shows that a tiny amount of mass-Matter can be converted into a tremendous amount of radiant EM mass-energy

The energy released hypothesised by 'Fusion' is 1/200th that of the Tetryonic collapse of Matter into radiant EM mass-energies

All mass-ENERGY-Matter topologies are modelled in Tetryonic theory and Baryon decay is instigated by neutrinos

Neutrons are NOT Protons with an absorbed electron inside their charge topology

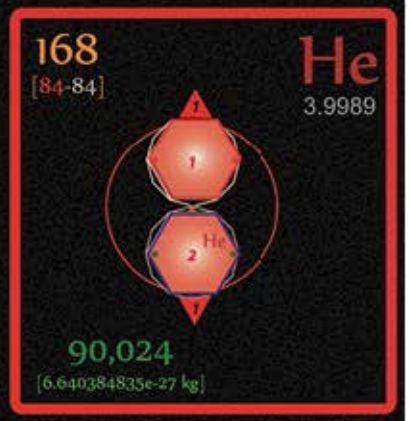




High pressure tunneling through the Coulomb barrier does NOT occur

The P-P fusion chain of Hydrogen->Helium is completely erroneous

The neutrino production of Proton-Proton chain reactions is 1/3 of what is detected



The SUN's energy comes from Tetryonic Matter collapse NOT the fusion of atomic nuclei

Stellar Nuclear Fusion

is the process of fusing of light atomic nuclei in order to facilitate energy releases

Long sought after, but never realised, Fusion energies remain an ellusive source of clean limitless energy.

'COLD fusion'

can be realised through the fragmenting of large atomic nuclei thus releasing stored nuclear [K]EM waveform energies

The much-maligned 'COLD fusion' of Palladium is in fact a form of atomic fission that releases the stored chemical [kEM] energies of atomic nuclei and is 12-13% efficient

Tetryonics reveals the true mechanics behind the cold 'fusion' observed by Drs. Pons & Fleischmann and corrects the model of stellar processes to reveal new energy sources for the future

'HOT fusion'

is a fallacy, Stars release energy by collapsing standing-wave Matter into radiant EM mass-energy geometries in electromagnetic pinches

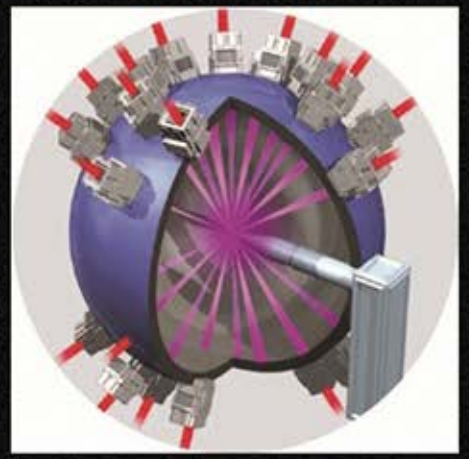
The hypothesised 'HOT fusion' of elements in stars is the Tetryonic conversion of mass-Matter within the star into radiant mass-energies requiring an electromagnetic pinch reaction but is 100% efficient

Where Fusion went Wrong

The conversion of standing-wave Matter into radiant mass-energy constitutes a sustainable, virtually unlimited environmentally compatible long-term source of energy that can meet all of Humanity's needs.

The toriodal design of Tokamak reactors does not allow for the formation of plasma pinches at their cores

Inertial confinement fusion produces brief shockwaves, excessive heating and no sustained EM field



Of the two designs only inertial confinement offered the best chance of creating the conditions required to effectively collapse Matter topologies in order to release the EM energies it contains.

However a far superior approach would be the electromagnetic pinching of Matter (as present in all stellar cores)

Tokamak design

Among a small number of approaches, the concept of toroidal magnetic confinement of fusion plasmas has achieved the most impressive scientific and technical progress towards energy release by thermonuclear burn of deuterium-tritium fuels.

The plasma consists of charged nuclei and electrons, which move in tight spirals around the lines of force of strong magnetic fields.

The basic problems in attaining useful nuclear fusion conditions are

(1) to heat the gas to these very high temperatures and

(2) to confine a sufficient quantity of the reacting nuclei for a long enough time to permit the release of more energy than is needed to heat and confine the gas.

A subsequent major problem is the capture of this energy and its conversion to electrical energy for work

Inertial confinement

In inertia confinement the fuel—tritium or deuterium is contained within a tiny glass sphere that is then bombarded on several sides by a pulsed laser or heavy ion beam.

This causes an implosion of the glass sphere, setting off a thermonuclear reaction that ignites the fuel but offer no self-regualation and relase of radiant mass-energies.

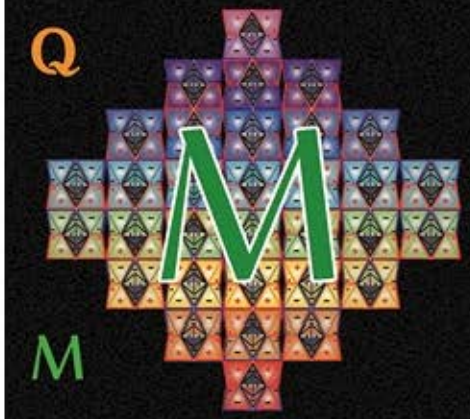
E_{in}

In any useful fusion device, the energy output must exceed the energy required to confine and heat the plasma

E_{out}

ElectroMagnetic Pinch technology

can serve as the gateway to realising new forms of clean, safe, efficient Energy production through the conversion of any Matter into various forms of EM radiation utilising electromagnetic pinch geometries developed from Tetryonic theory



mass-Matter-ENERGY conversion

$$Mc^2 = E = hv^2$$

is the collapse of mass-Matter topoplogies into radiant mass-energy geometries

Charged Matter topologies are standing wave EM mass-energies

Radiant mass-energies form kEM wave geometries

An electromagnetic pulse (sometimes abbreviated EMP) is a burst of electromagnetic radiation that results from an explosion (usually from the detonation of a nuclear weapon) and/or a suddenly fluctuating magnetic field. The resulting rapidly changing electric fields or magnetic fields may couple with electrical/electronic systems to produce damaging current and voltage surges.

Stellar GEM Pinches

The century old theoretical mechanism of FUSION from which the SUN generates its broad radiative EM energies must be replaced with Gravito-Electro-Magnetic pinches

M

Gravity fields obey the inverse SQUARE law

E

Electric fields obey the inverse SQUARE law

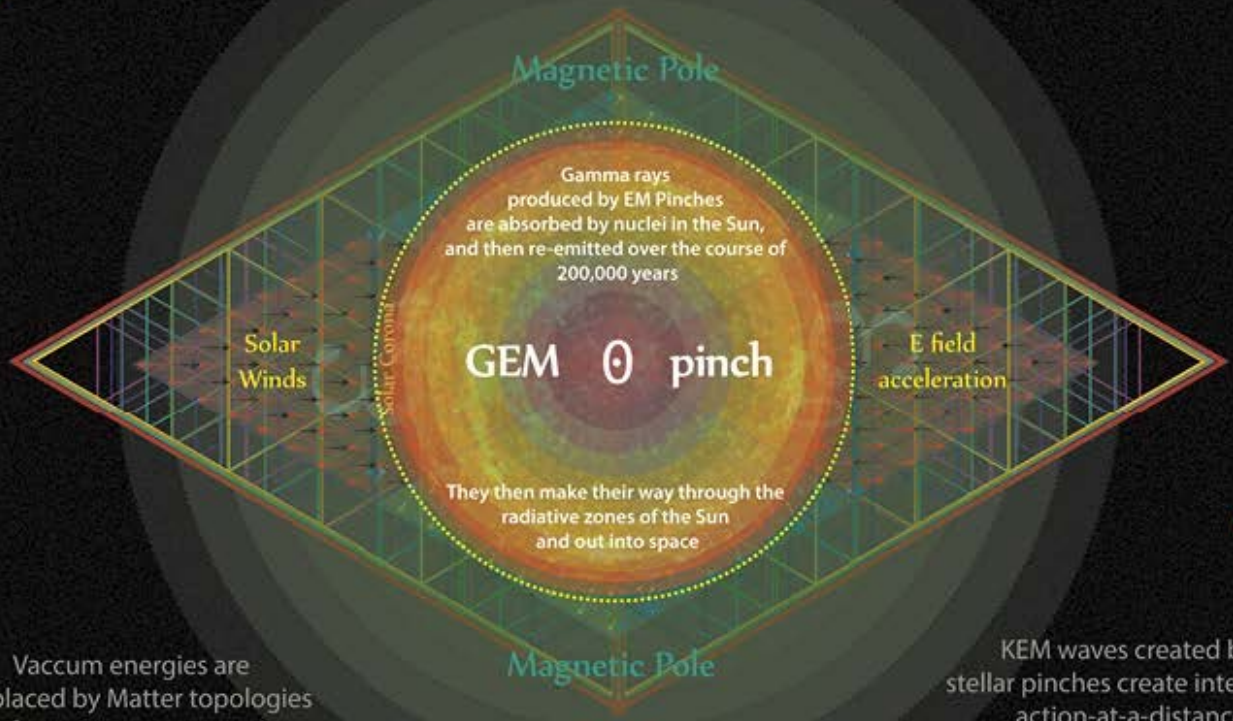
Polar Magnetic fields obey the inverse SQUARED law
Magnetic dipoles obey the inverse CUBED law

3D standing-wave topologies

$E = Mc^4$

Energy-mass-Matter equivalence

mass-Matter creates Gravity



2D radiant geometries

$E = mc^2$

mass-Energy equivalance

mass-energies create kEM fields

Vaccum energies are displaced by Matter topologies to form convergent gravity

KEM waves created by stellar pinches create interactive action-at-a-distance

The conversion of Matter to Energy in stellar GEM pinches is 100% efficient

The Fusion of elements is NOT the energy source of Stars

mass-Matter-ENERGY conversion

Stars emit broad spectra LONGITUDINAL electromagnetic waves

GEM Pinch efficiency

GEM Matter-Energy conversion is the 100% efficient dimensional transformation of 3D Matter into 2D mass-energy

M

Theorised Proton-Proton chain reactions of Stellar fusion release <1% of the total Matter as EM energies

3D mass-Matter topologies

c^4

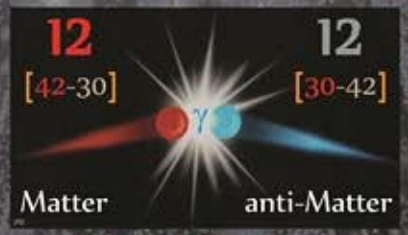
m

Matter to energy conversion by EM pinches releases 100% of the total Tetryonic Matter as radiant EM mass-energies

2D mass-energy geometries

c^2

The collapse and conversion of 3D mass-Matter topologies into radiant mass-energies releases as much energy as



annihilation

12 [0-12]

dud

N°

0 [18-18]

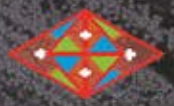
p⁺

12 [24-12]

udu

12 [24-0]

e⁺



0 [18-18]

N°

dud

12 [12-24]

N

udu

EM Pinch reactors

The technology required to create clean, limitless energy and meet all of humanity's future energy requirements has existed since the 1900's.

The basic steps to build a EM Pinch reactor are

(1) design and build a EM pinch field into which a fuel pellet can be injected

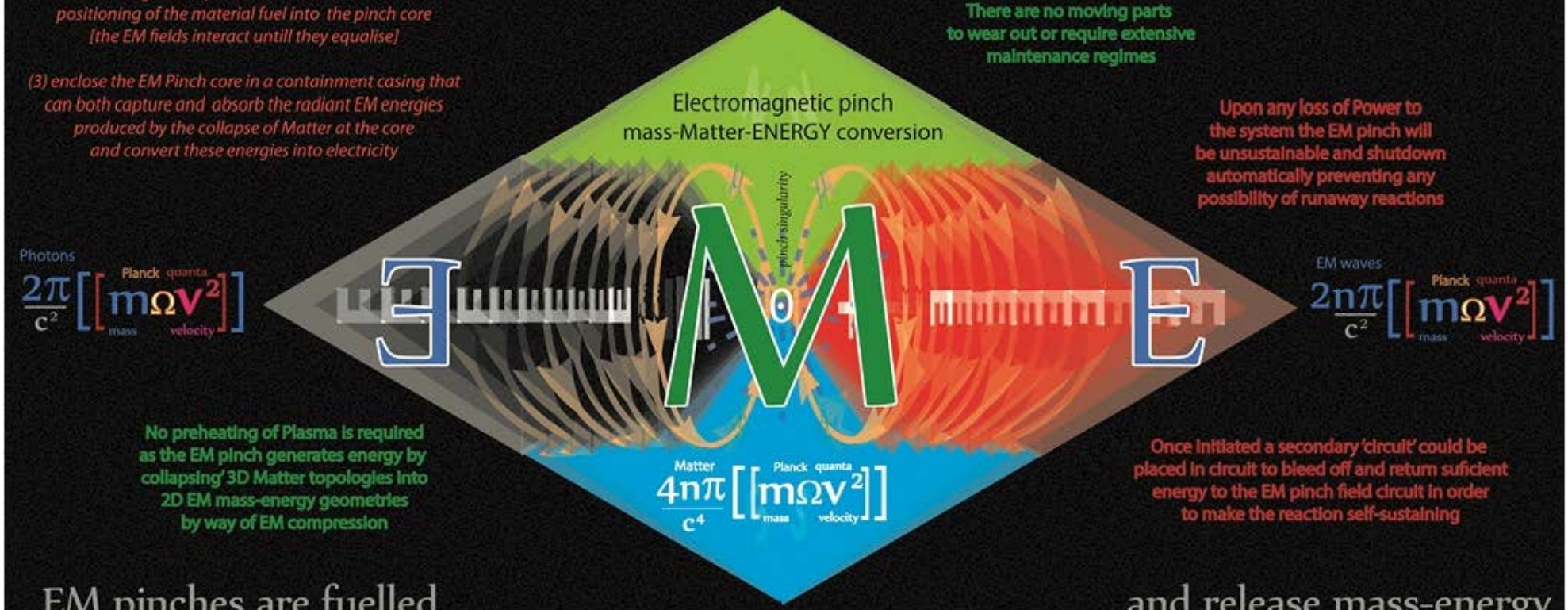
(2) the fuel can be any form of Matter that exhibits both Electric & Magnetic dipoles to facilitate the automatic positioning of the material fuel into the pinch core [the EM fields interact untill they equalise]

(3) enclose the EM Pinch core in a containment casing that can both capture and absorb the radiant EM energies produced by the collapse of Matter at the core and convert these energies into electricity

Th efficiency of the containment vessel along with energy storage and distribution can all be improved through the use of various Tetryonic field geometries to capture and re-circulate all EM energies produced

There are no moving parts to wear out or require extensive maintenance regimes

Upon any loss of Power to the system the EM pinch will be unsustainable and shutdown automatically preventing any possibility of runaway reactions



No preheating of Plasma is required as the EM pinch generates energy by collapsing' 3D Matter topologies into 2D EM mass-energy geometries by way of EM compression

Once initiated a secondary 'circuit' could be placed in circuit to bleed off and return suficient energy to the EM pinch field circuit in order to make the reaction self-sustaining

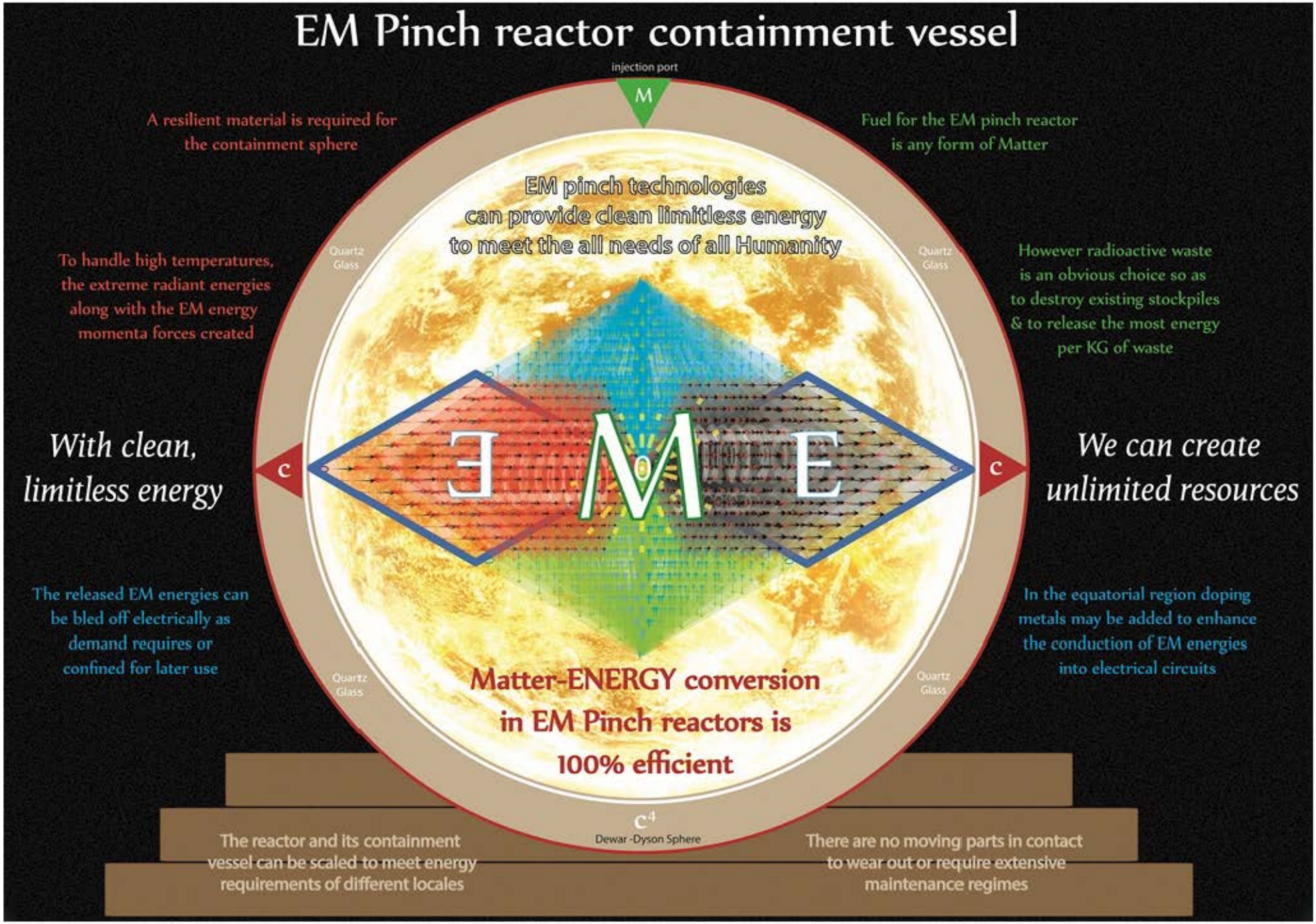
EM pinches are fuelled

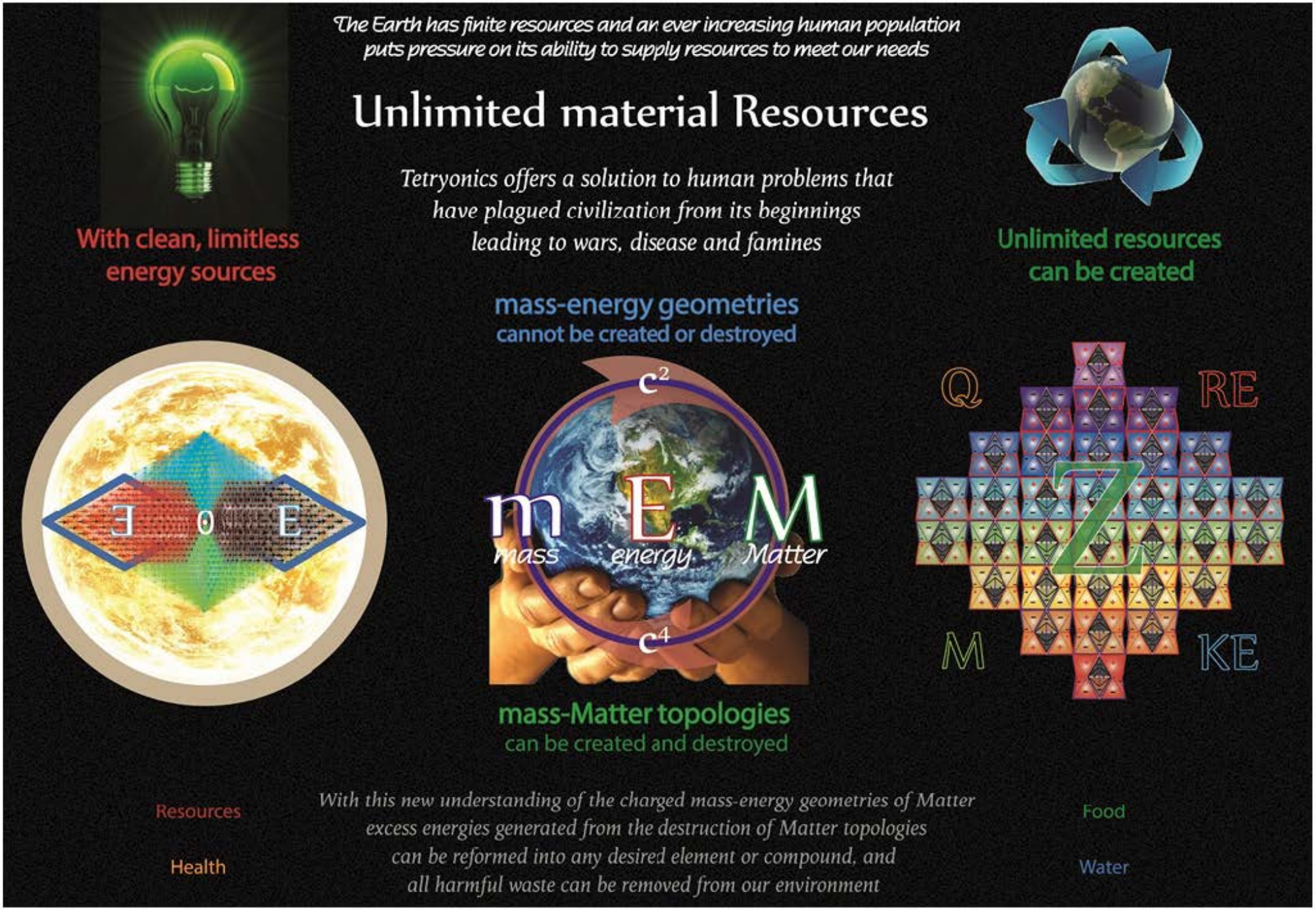
by any form of Matter

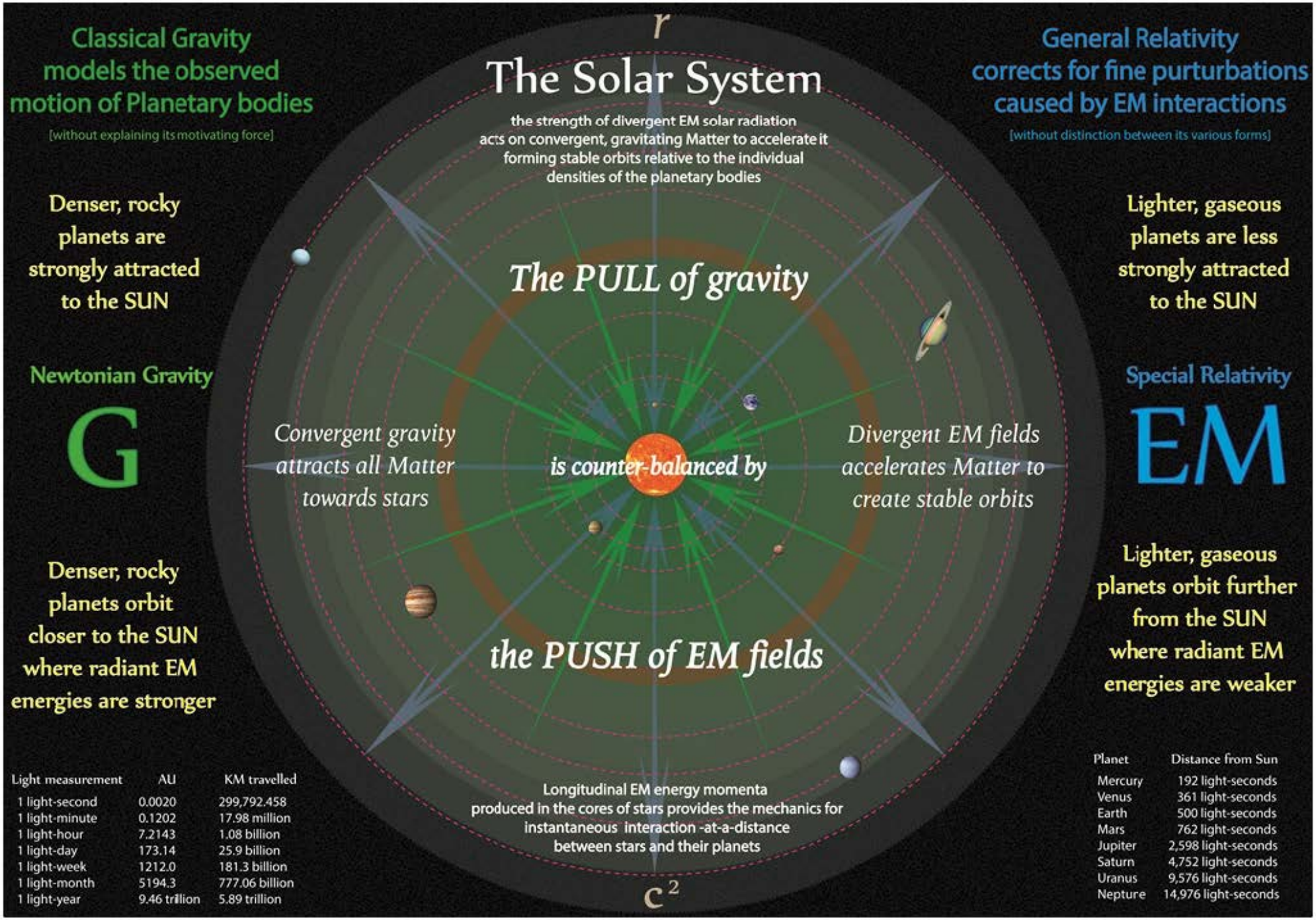
The electromagnetic pinching of Matter (as utilised in Nature in all stellar cores) produces only EM radiation [light & heat] as a by-product - there are no harmful wastes - as the Matter is converted with 100% efficiency

and release mass-energy

as radiative KEM fields







Kepler's Laws

Kepler's three laws of planetary motion can be described as follows:

The path of the planets about the sun is elliptical in shape, with the center of the sun being located at one focus. (The Law of Ellipses)

An imaginary line drawn from the center of the sun to the center of the planet will sweep out equal areas in equal intervals of time. (The Law of Equal Areas)

The ratio of the squares of the periods of any two planets is equal to the ratio of the cubes of their average distances from the sun. (The Law of Harmonies)

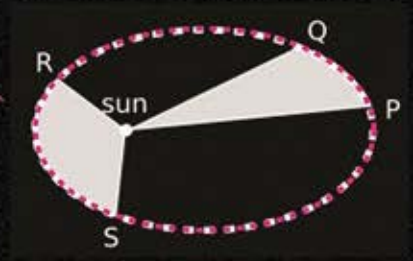
$$T^2 = k\, a^3$$

The square of the orbital period of a planet is directly proportional to the cube of the semi-major axis of its orbit.

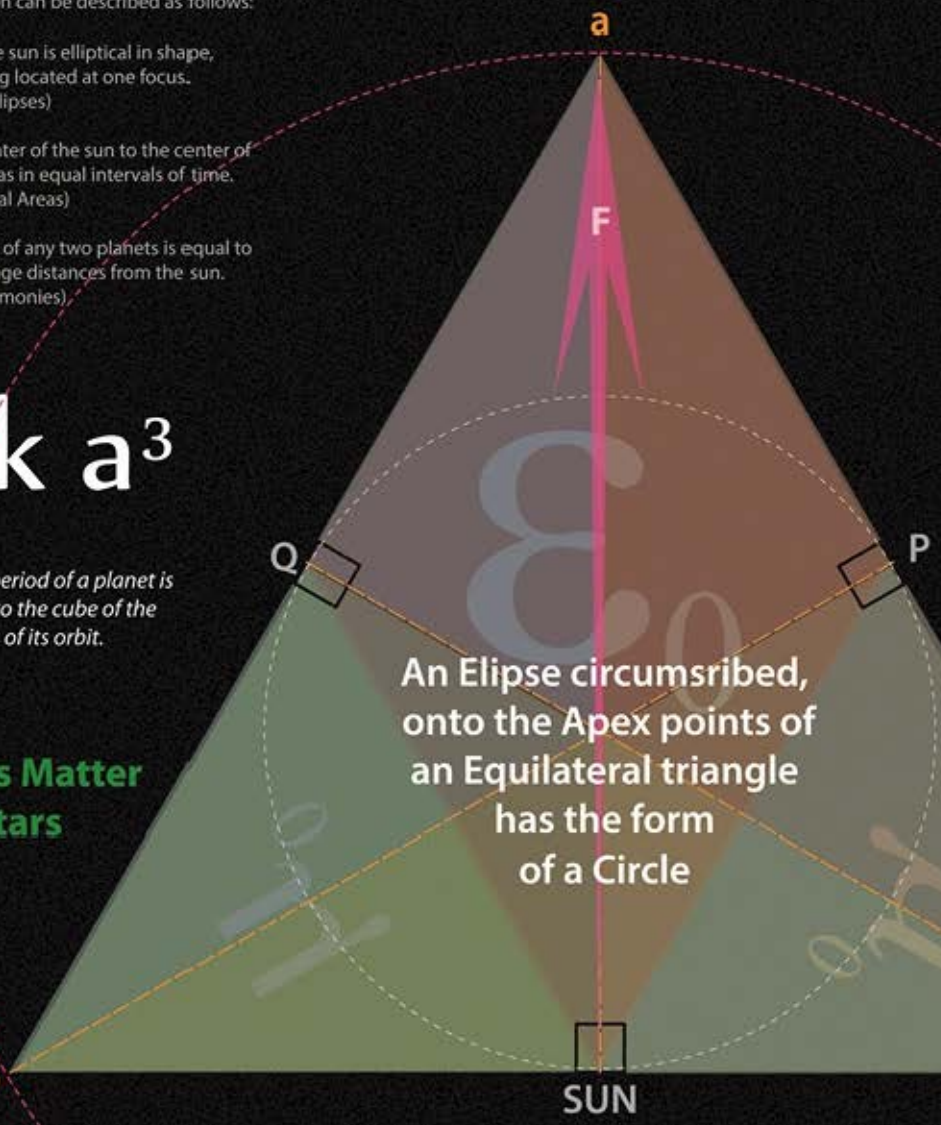
Gravity attracts Matter towards stars

The divergent energy momenta of kEM fields create an acceleration FORCE on material bodies

The orbit of every planet is an ellipse with the Sun at one of the two foci.



A line joining a planet and the Sun sweeps out equal areas during equal intervals of time.



An Elipse circumsribed, onto the Apex points of an Equilateral triangle has the form of a Circle

A Star's kEM field accelerates Matter away from it creating stable ellipical orbits

With an equilateral triangle, draw lines from the center of the circle to each vertex and each midpoint, creating six right triangles, as shown with six different colored triangles. Each right triangle has a radius of the circle for one leg, and half of a side of the original triangle for another. Any two right triangles sharing one of the radial lines must therefore be congruent, and that implies that the hypotenuses of the triangles are all equal. This in turn shows that the six right triangles are all congruent, and so the large triangle they combine to form is equilateral

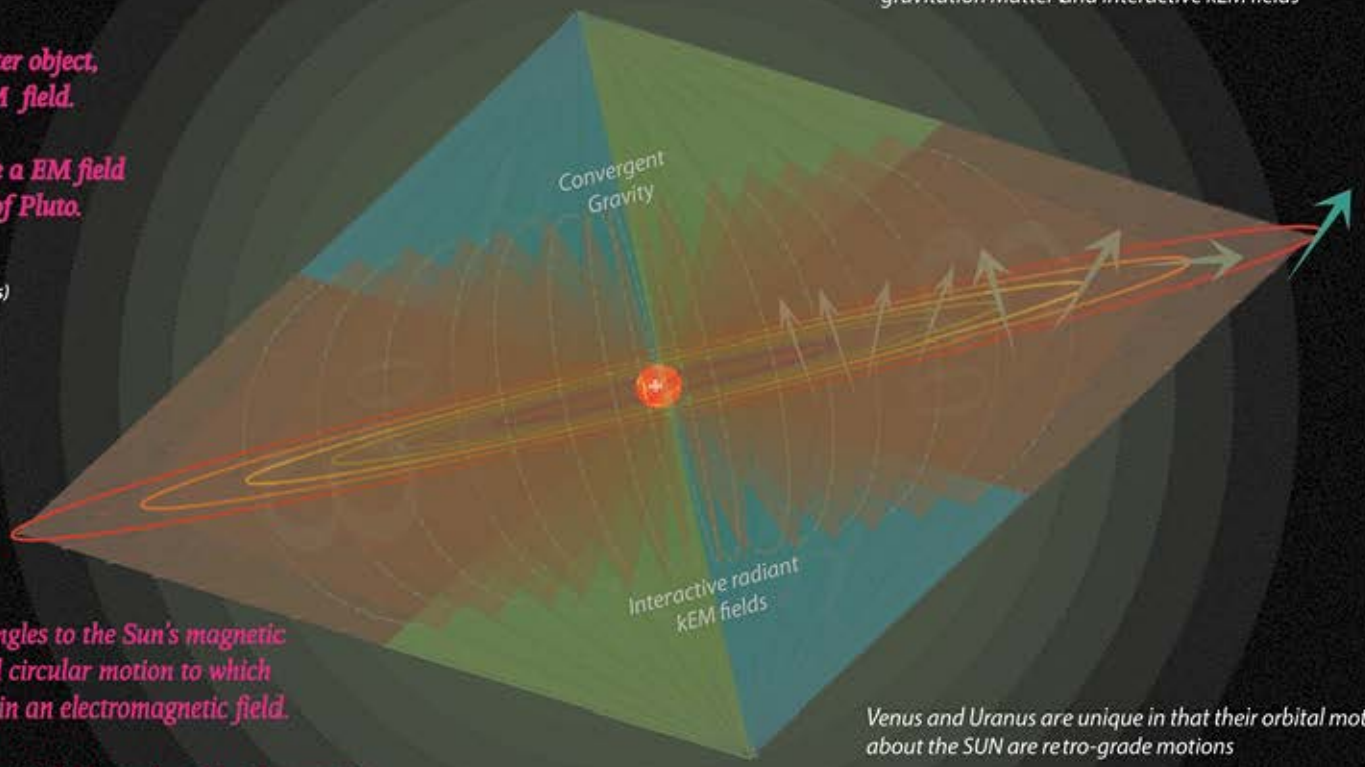
The Major celestial bodies

All planetary orbits are the result of a balance between gravitation Matter and interactive kEM fields

The sun is a rotating charged mass-Matter object, and it creates a solar system-wide kEM field.

The solar mass is large enough to produce a EM field with lines of Force reaching the orbit of Pluto.

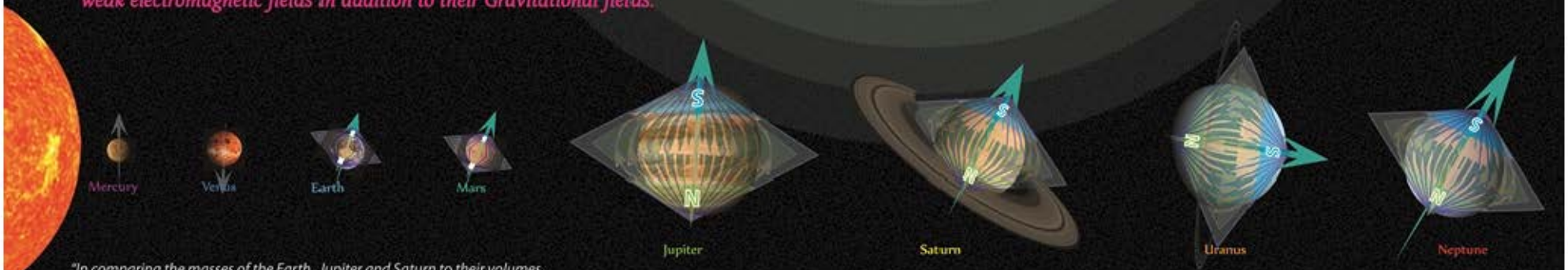
Planet	Object Axial tilt (°)	Axial tilt (radians)
Mercury	~0.01	0.00
Venus	177.4	3.10
Earth	23.44	0.41
Moon	1.5424	0.03
Mars	25.19	0.44
Jupiter	3.13	0.06
Saturn	26.73	0.47
Uranus	97.77	1.71
Neptune	28.32	0.49
Pluto	119.61	2.09



The charged planets move at right angles to the Sun's magnetic lines of force and describe the usual circular motion to which moving charged bodies are subject to in an electromagnetic field.

Venus and Uranus are unique in that their orbital motions about the SUN are retro-grade motions

Satellites, in turn, revolve in the smaller magnetic fields produced by the rotation of the planets. Mercury and Venus have no satellites as they produce extremely weak electromagnetic fields in addition to their Gravitational fields.



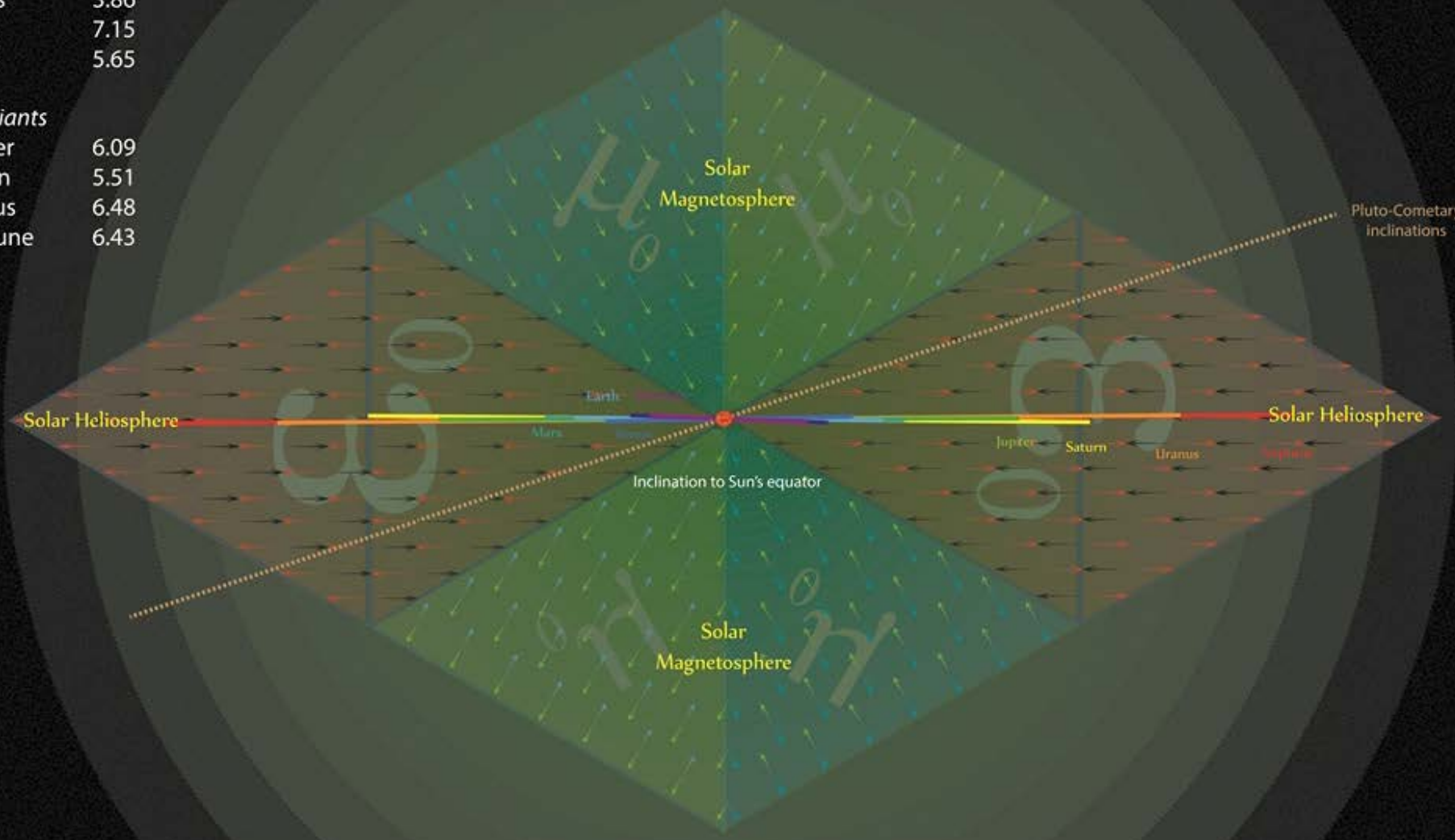
"In comparing the masses of the Earth, Jupiter and Saturn to their volumes, one remarks that the densities of these planets are, to some degree, inverse to their mean distances from the Sun. This rule is not true for Venus and Uranus"

Urbain Le Verrier

Solar orbit Inclinations

Inclination to Sun's equator (°)

Rocky Planets	
Mercury	3.38
Venus	3.86
Earth	7.15
Mars	5.65
Gas giants	
Jupiter	6.09
Saturn	5.51
Uranus	6.48
Neptune	6.43



Orbital inclination is one of the six orbital parameters describing the shape and orientation of a celestial orbit.

It is the angular distance of the orbital plane from the plane of reference (usually the primary's equator or the ecliptic), normally stated in degrees.

The Lagrange Points

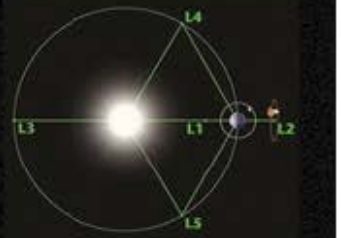
are the five positions in an orbital configuration where a small object affected only by gravity can be stationary relative to two larger material bodies of mass-Matter

Gravity is a strictly convergent Force

GR = G + EM

Einstein Newton Lorentz

General Relativity models Newtonian Gravity with SR interactions



GEM forces between two bodies can be modelled with super-positioned equilateral energy geometries

Gravitational forces from the two massive bodies are in the same ratio as the material masses of the two bodies

L4

Gravitational attraction of M partially cancels the gravity of m

L3

This point lies on the line defined by the two large masses, beyond the larger of the two

L1

L2

Gravitational forces of the two large masses balance the centrifugal effect on a body at L2.

M m

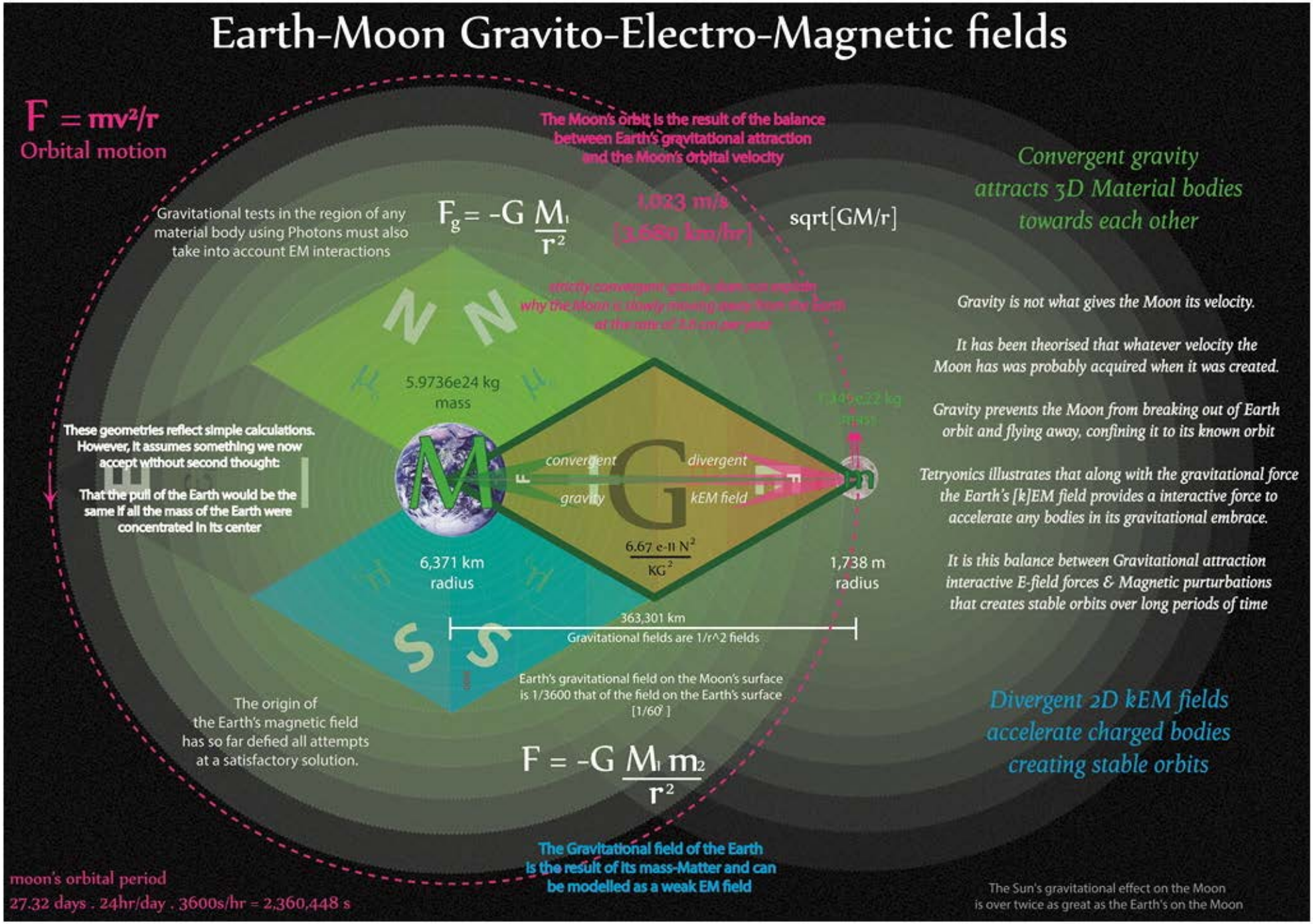
L5

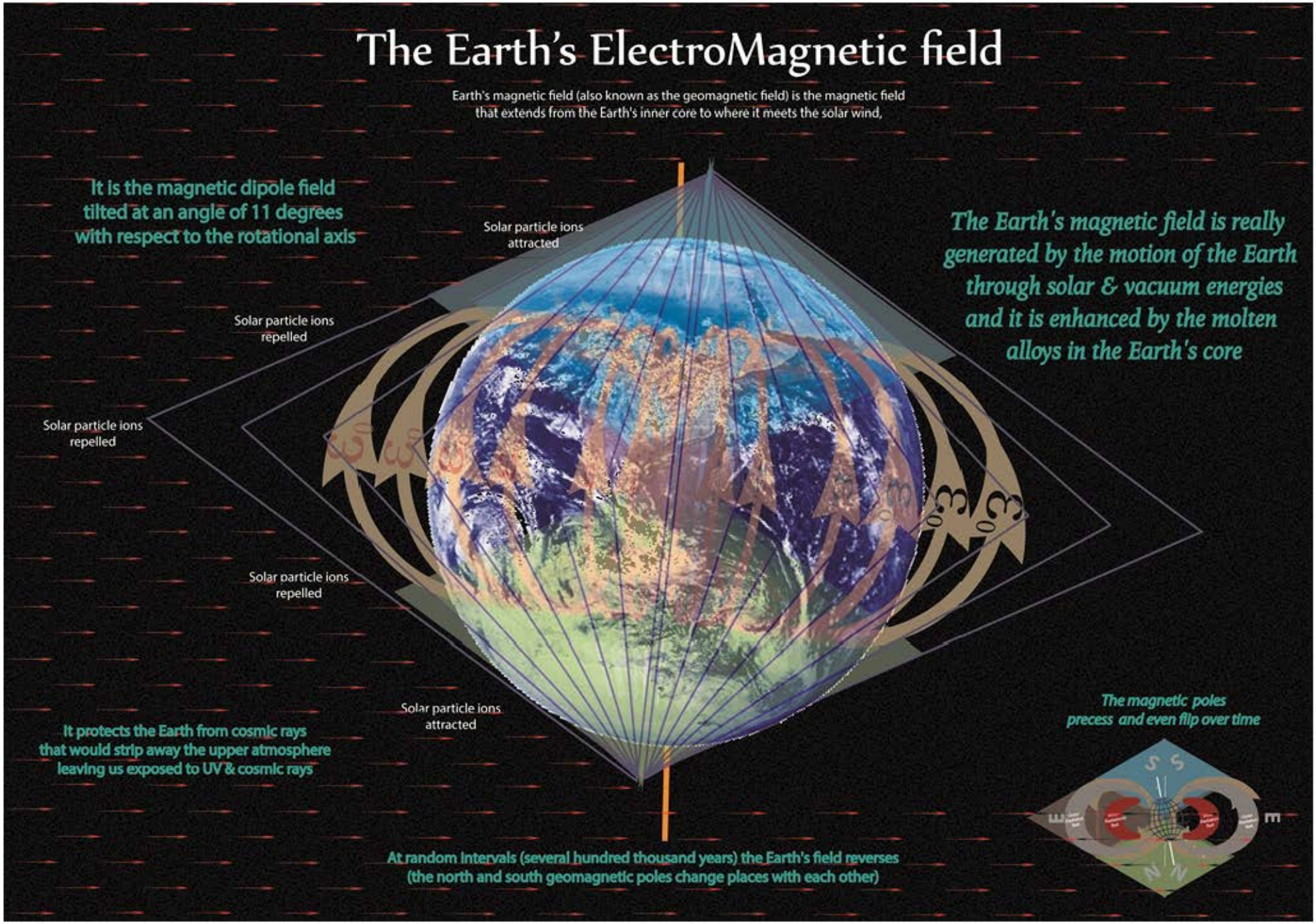
L4 and L5 are sometimes called triangular Lagrange points or Trojan points after the Trojan ateroids found in the L4-L5 points of the Jupiter-Saturn system.

Newtonian Gravitation models the observed attractive force between Matter

The Lagrange points mark positions where the combined gravitational pull of the two large masses provides precisely the right centripetal force required to rotate with them

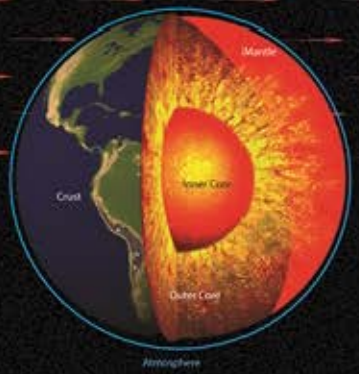
Lagrange found his points of stabilty by subtracting the gravitational potential energy from the object's kinetic energy.





The Earth's molten core

The Earth has an outer silicate solid crust, a highly viscous mantle, a liquid outer core that is much less viscous than the mantle, and a solid inner core.
Scientific understanding of Earth's internal structure is based on observations of topography and bathymetry.



Q

The SUN and planetary bodies are all charged Matter moving in, displacing and interacting with solar and vacuum energies

Dynamo theory suggests that convection in the outer core, combined with the Coriolis effect, gives rise to Earth's magnetic field.

KE

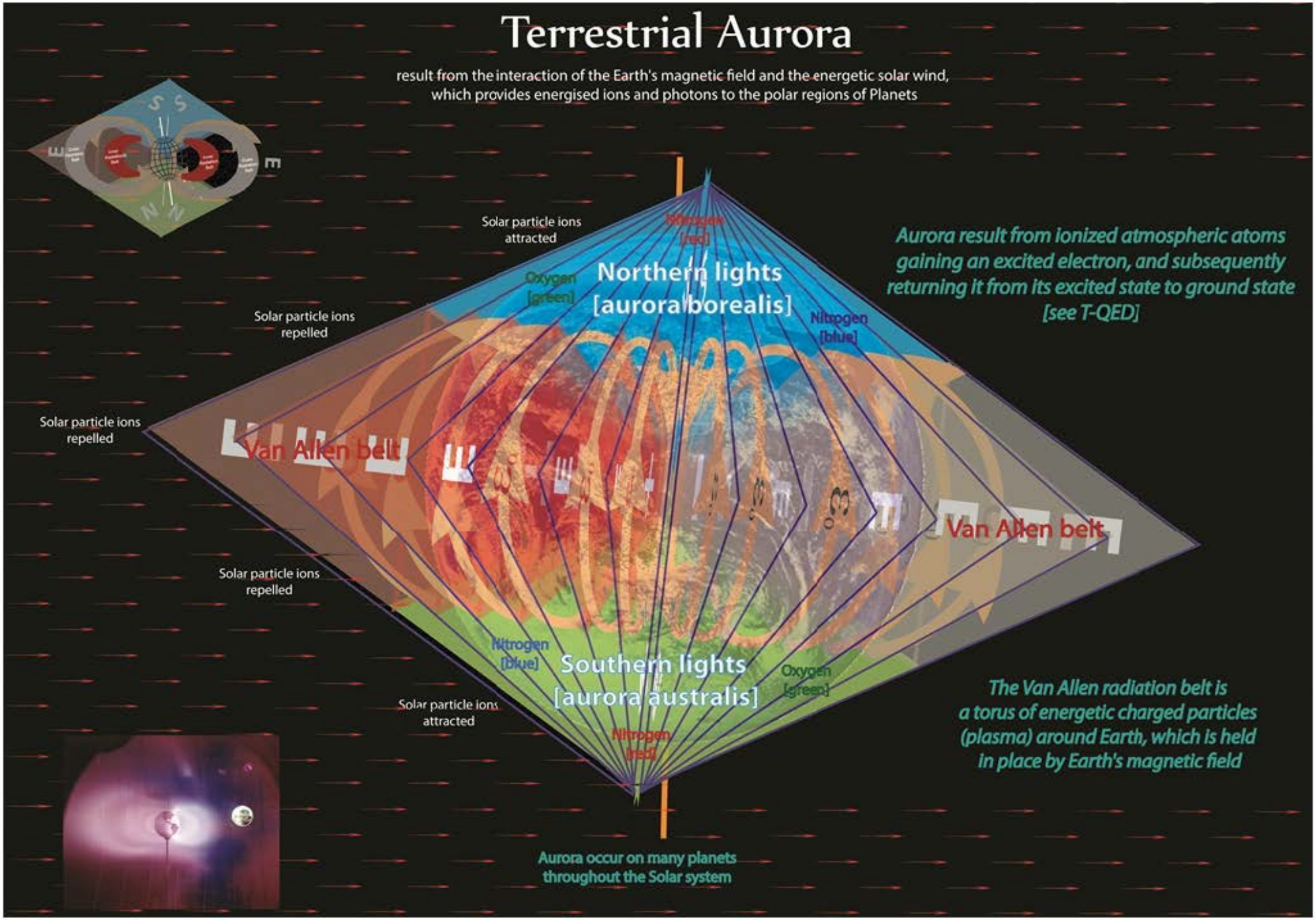
The energy that creates the Earth's magnetic field is supplied by the SUN via longitudinal waves of energy momenta

The solid inner core is too hot to hold a permanent magnetic field but acts to stabilize the magnetic field generated by the Earth's motion through the Stellar EM environment as it orbits the SUN

The Earth's molten core does not produce the Earth's magnetic field it enhances it

The force exerted by Earth's gravity can be used to calculate its mass, and by estimating the volume of the planet, its average density can be calculated.

Astronomers can also calculate Earth's mass from its orbit and effects on nearby planetary bodies.



Absolute Rest Frames

Absolute Rest is intrinsically linked to the concepts of absolute time and space originally introduced by Sir Isaac Newton in the Philosophiæ Naturalis Principia Mathematica, which provided a theoretical foundation that facilitated Newtonian mechanics.

According to Newton, absolute time and space respectively are independent aspects of objective reality.

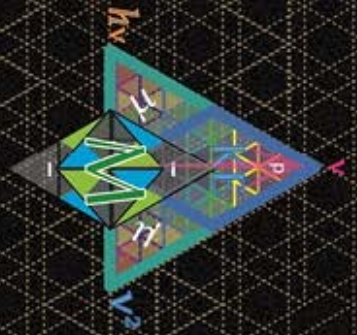
Rest in physics refers to an object being stationary relative to a particular frame of reference or another object

In Tetryonics an Inertial Rest frame can be determined by the absence of a Kinetic EM field & its Magnetic moment

The concepts of space and time were separate in physical theory prior to the advent of special relativity theory, which connected the two and showed both to be dependent upon the observer's inertial state of motion relative to other inertial frames.

In Einstein's theories, the ideas of absolute time and space were superseded by the notion of spacetime in special relativity, and by dynamically curved spacetime in general relativity.

$$p^2 = E = mv^2$$



$$\frac{P^2}{2} = KE = \frac{1}{2}Mv^2$$

In some of his later paper (especially in 1920 and 1924), Einstein gave a new definition of the aether by identifying it with "properties of space", and this aether can be called absolute, as long as its state cannot be influenced by Matter.

So he argued that Newton's absolute space can be considered as an "absolute aether". Also the four-dimensional spacetime of special relativity (which replaces the absolute space of Newton) would be some sort of "absolute aether", as its states cannot be influenced by Matter.

Tetryonics clearly establishes free space as a 3D volume filled with a interactive vacuum [aether] and EM energies against which any relative motion can be deduced by the presence (or absence) of divergent [K]EM fields produced as a direct result of Matter in motion additionally, 3D mass-Matter topologies displace the aether [vacuum energy field] producing convergent differential energy gradients [gravity fields]

Red-shifted Photonic Energies

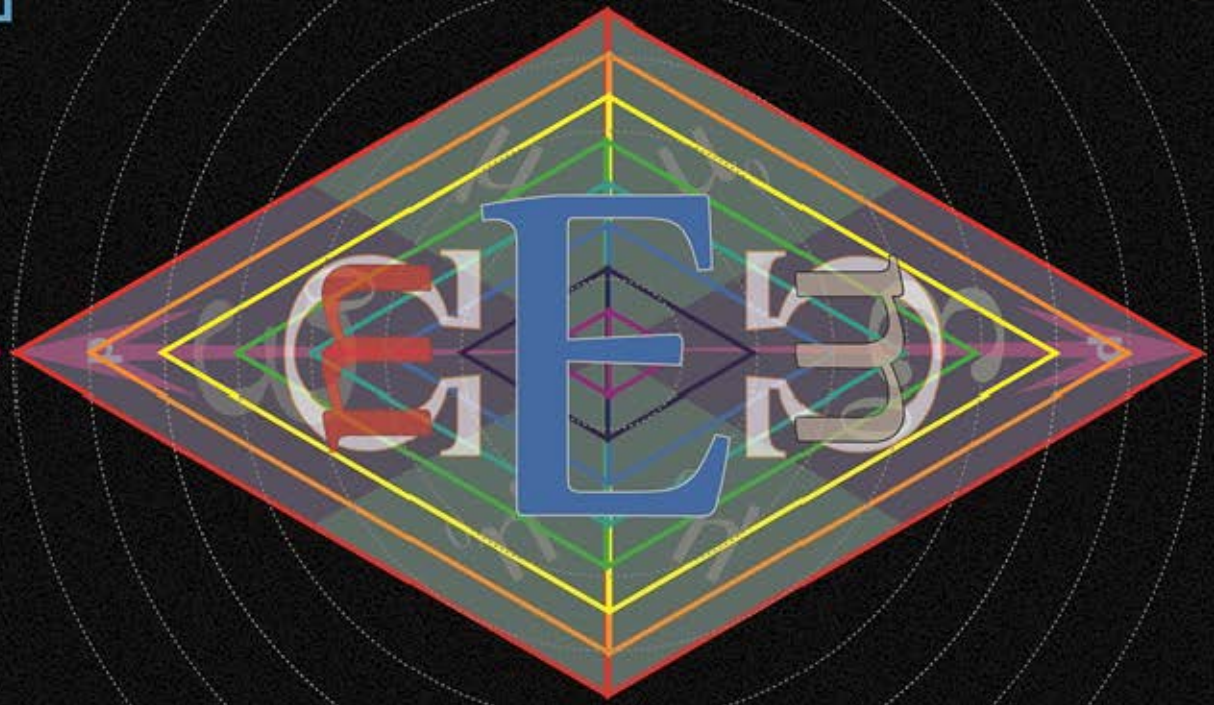
Energy is ALWAYS conserved... longer wavelength [red-shifted] photon energies are a reflection of the time specific measurement of photonic energies at a particular distance from the source of the light

Photons are neutral, coupled charge equilateral mass-energy momenta geometries that radiate bilaterally at the speed of light in a vacuum

Photons $\frac{2\pi}{c^2}\left[\left[m\Omega v^2\right]\right]$ (Planck quanta; mass, velocity)

EM waves $\frac{\text{EVEN}\,\pi}{c^2}\left[\left[m\Omega v^2\right]\right]$ (Planck quanta; mass, velocity)

As photons radiate from a point source at 'c'



their EM energies diminsh as per the inverse square law

producing the familiar red-shifting of spectral lines

The red shift of Photons

$d\lambda$

According to special relativity, as something approaches the speed of light, the passage of time slows.
A twin moving at the speed of light would not age or change relative to the stationary twin.

General relativity additionally states that the cosmological red shift is the result of a photon traveling through an expanding space time field which causes the photon to loose energy and it's wavelength correspondingly increases.

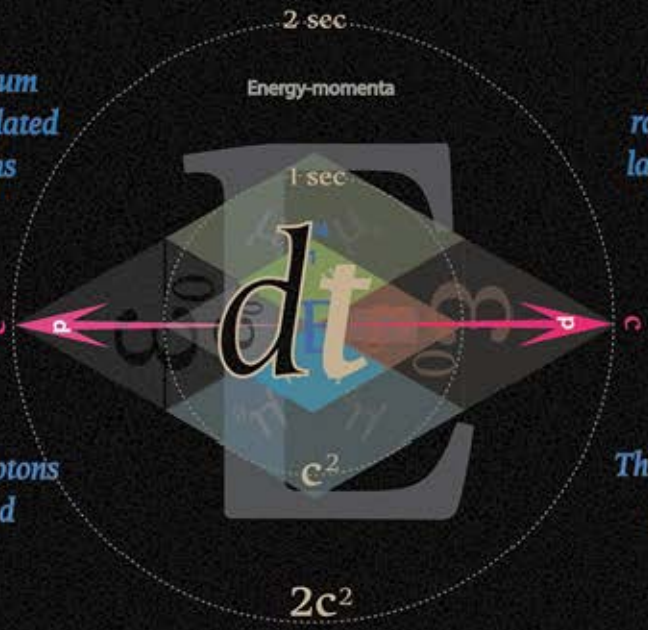
A photon travels at the speed of light; therefore it will not experience the passage of time, therefore it will not change; yet it does.

df

The divergent spreading of EM energy over time from a source creates the spacetime aether

The Quantised Angular Momentum and Energy content are directly related through the geometry of Photons

Blue-shifted photon travelling towards observer

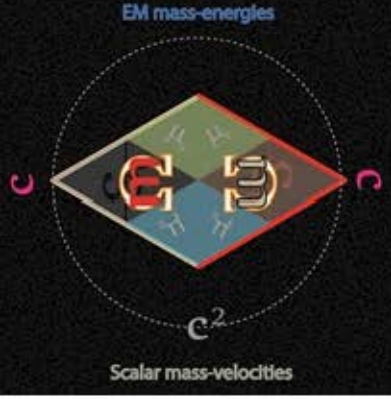


All EM Energy waveforms (save Matter) radiate outward following the inverse square law & reducing their energy content over time

Red-shifted photon moving away from observer

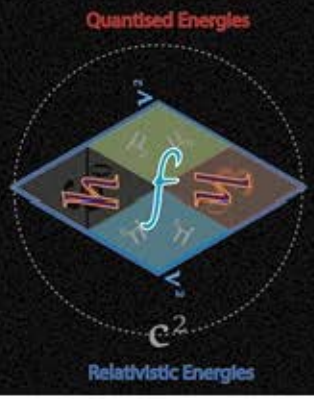
The EM mass-energy content of photons reveals photons to be a quantised electromotive field

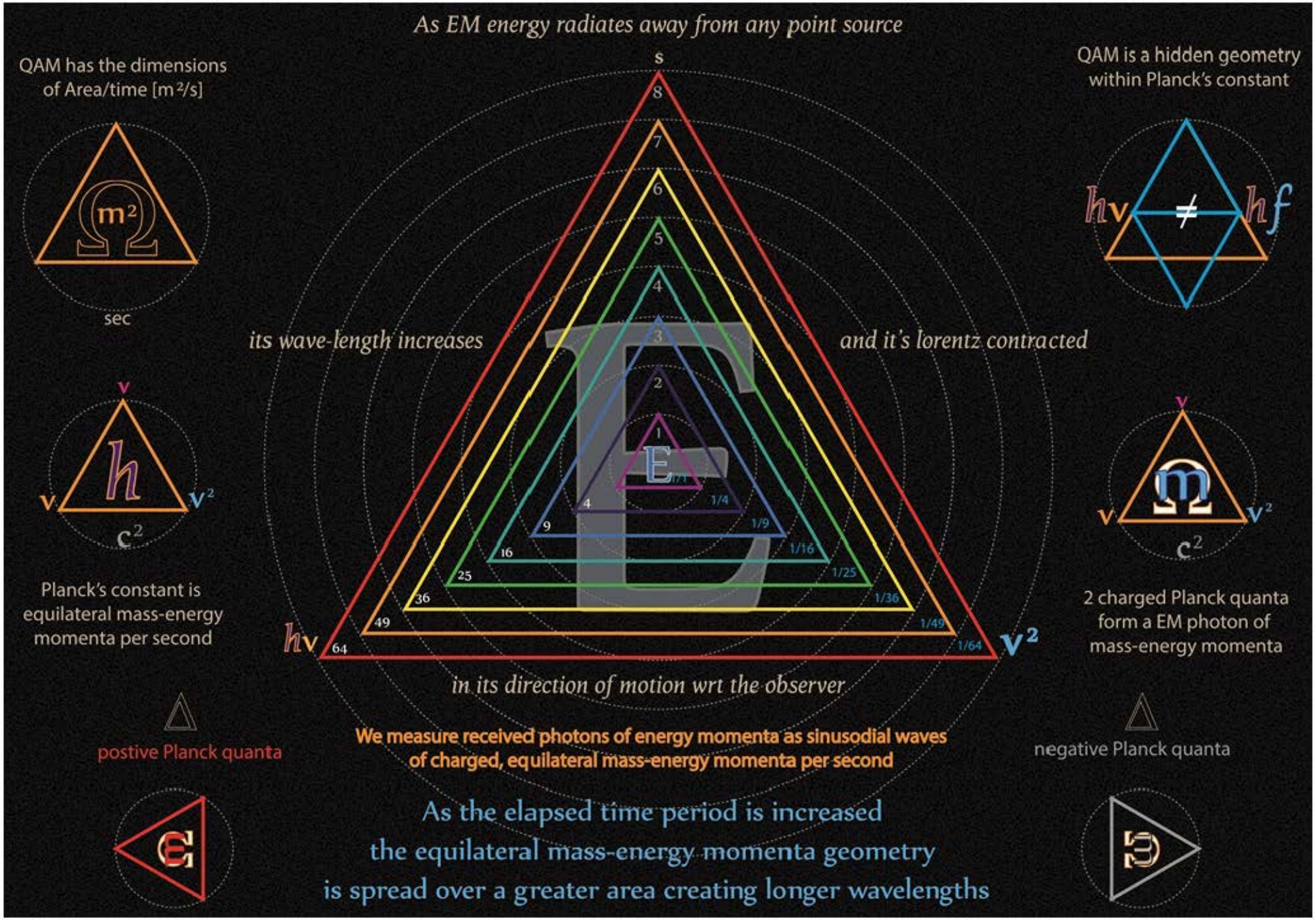
The wavelength of a photon is related directly to its quantised mass-energy momenta geometry per unit of time



Tetryonic geometry relates photon mass-energy momenta to
the constant velocity of light in a vacuum and its intrinsic quantised angular momenta

$$\frac{mc^2}{c^2} = KE = \frac{hv^2}{c^2}$$





The Doppler shifting of EM waves

Photons $\frac{2\pi}{c^2}[[m\Omega v^2]]$ (Planck quanta; mass, velocity)

EM waves $\frac{\text{EVEN}\pi}{c^2}[[m\Omega v^2]]$ (Planck quanta; mass, velocity)

General relativity incorrectly holds that the cosmological red shift is the result of a photon traveling through an expanding space time field which causes the photon to loose energy and it's wavelength correspondingly increases

Photonic energies form inifitie energy loops [quantum transformers]

It is the Photon's intrinsic geometry that increases the further it travels from the source due to the inverse square law resulting in less energy (per unit of time) being recieved at increasing distances from the source as the Photon's specific QAM [m²/s] has increased over time

All EM waves are comprised of Photons of specific energies [Light is superpositioned EM waves]

All Photons are quantum harmonic oscillators and create sinusoidal EM waveforms are they radiate and are detected

2 sec

Photons are 2π divergent bi-directional mass-energy momenta geometries

Radiating geometric EM mass-energies from a source (over Distance-Time) creates the spatial vacuum aether

1 sec

Blue-shifted

observer moves towards source *or* source moves towards observer

Any relative motion between the source & observer that reduces the distance between them produces a Blue-shift in the measured quanta-frequency/ energy of the EM wave

observer moves away from source *or* source moves away from observer

Red-shifted

Red-shifted

source moves away from observer *or* observer moves away from source

Any relative motion between the source and observer that increases the distance bewteen them produces a Red-shift in the measured quanta-frequency/ energy of the EM wave

source moves towards observer *or* observer moves towards source

Blue-shifted

c^2

Photonic mass-energies always propagate at c

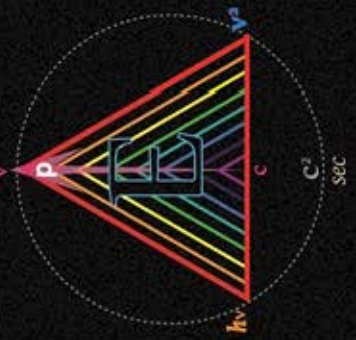
$2c^2$

Tetryonics clearly shows and relates Time to quantised angular momentum and Planck energy momenta to velocity

The energy of indiviudal photons is invariant until they interact with Matter and transfer their mass-energy momenta

motion toward the source increases the number of quanta per sec measured

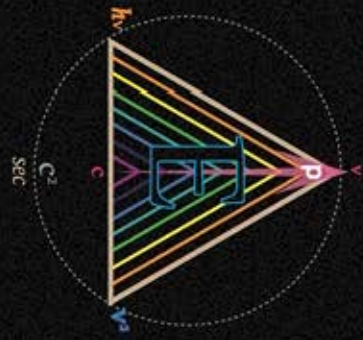
[v+v]



Poor definintions of Energy per unit of Time along with the interchange of quanta and frequency have led to the mistaken concept of photons losing energy

$$mv^2 = E = hv^2$$

Photons DO NOT lose energy as they travel. the group energy [per unit of time] of the EM wave they form spreads out over time as a direct result of the inverse square law



motion away from the source decreases the number of quanta per sec measured

[v-v]

Cosmological doppler-shifting of Light is the direct result of the motion of Matter in the Universe

Gravitational Red-shifting is an EM effect not gravitational

Relativistic Corrections

are applied to only [kinetic]EM mass-energy geometries

$$\frac{Mv^2}{c^2} = KEM = \frac{hv^2}{c^2}$$

$d\lambda$

dt

Wave-length contraction

linear
Lorentz corrections

$$\beta = \left[\frac{v}{c}\right]$$

SR - measuring rods in differing interial frames have different contracted lengths

GR - lengths measured in curved spacetime are different to straight lines in flat spacetime

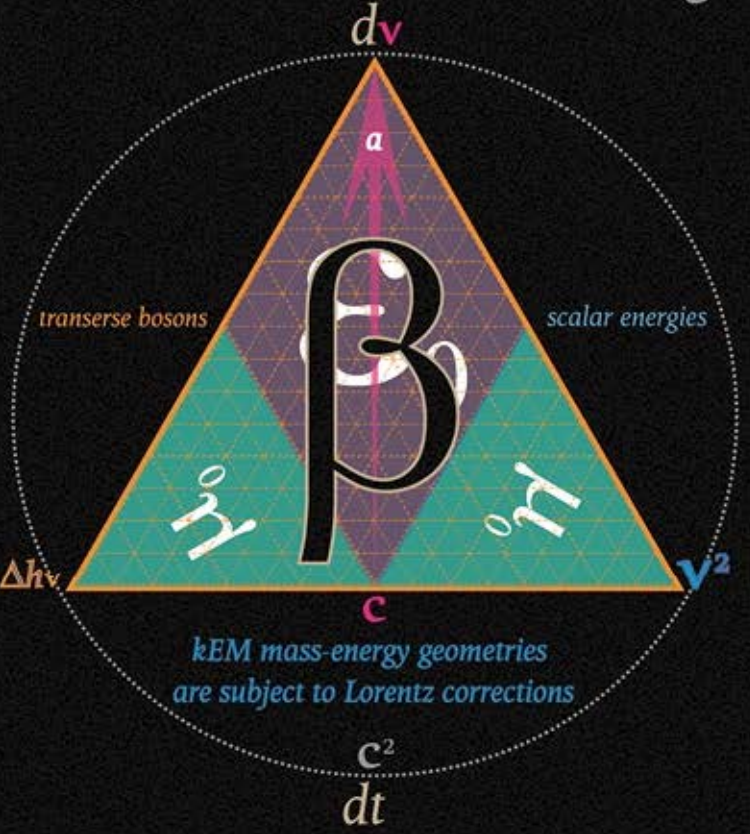
Time Dilation

scalar
Lorentz corrections

$$\beta^2 = \left[\frac{v^2}{c^2}\right]$$

SR - clocks in differing inertial frames experience time dilation

GR - clocks in differing Gravitational fields experience time dilation



$$\frac{\Delta\Omega}{c}$$

$$\frac{\Delta\Omega}{c^2}$$

$$\frac{T\pi}{c^4}\left[\left[m\Omega v\right]^2\right]$$

Matter — scalar energy momenta — Planck quanta — mass — velocity — linear momentum

The mass-energies of standing-wave Matter topologies are Lorentz invariant

GPS relativistic corrections

Claims that the Global Positioning System (GPS) provides a valid test of General relativity are erroneous
[GR provides Lorentzian [SR] correcttions under the guise of Gravitational effects]

Graviational Matter

M

All Matter topologies produce a Gravitational field

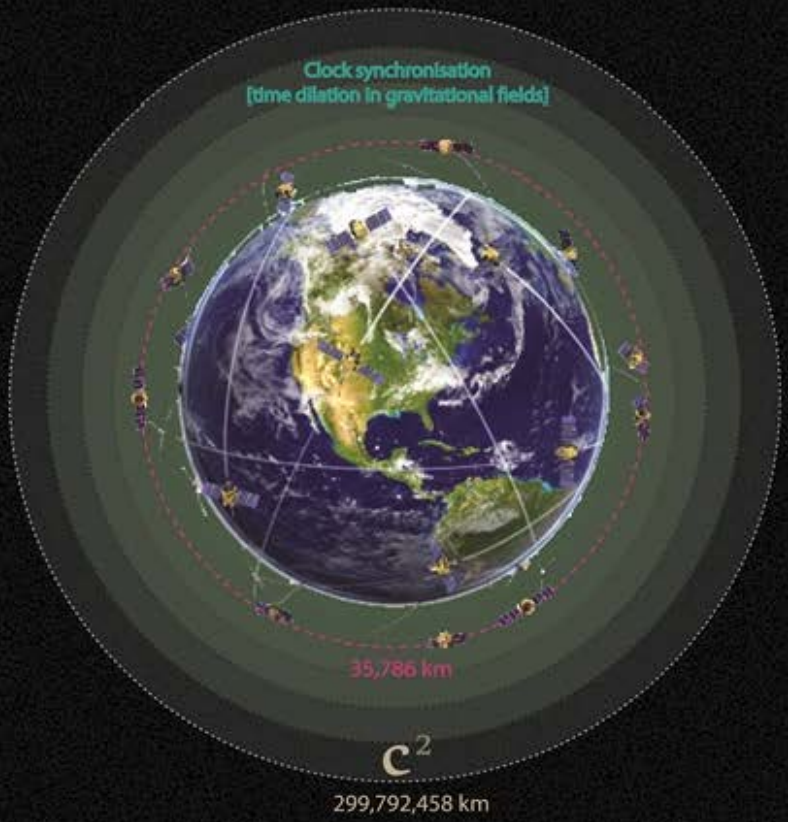
Photons are mass-energy momenta quanta
[they are Matter-less NOT mass-less]
and are subect to Lorentz Forces and corrections

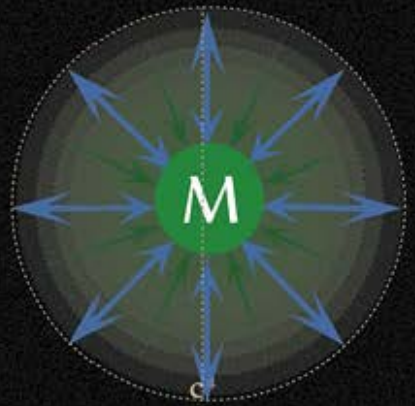
Newton G + SR = GR *Einstein*
Lorentz

Interactive masses

m

All Matter in motion produces interactive mass-energies





Newtonian Gravity is universal

The gravitational effects caused by Matter can only be accurately modelled [or tested] through the exclusion of all EM fields interactions

General Relativity is limted to c

Any test of GR using Photons as a testing mechanism by definition is affected by and subject to Special relativity [ElectroMagnetic effects]

The 'gravitational' frequency shifting [Red-Blue shifting of EM waves] is in fact an electromagnetic effect

The Bending of Light

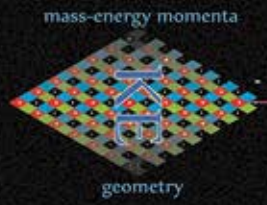
Like the Perihelion of Mercury, the bending of Light due to Gravity as it passes near the limb of the Sun is a flawed test of GR that fails to distingush between Gravitational Matter and EM mass interactions due to GR's use of a Stress Energy Tensor that is reflective of all EM mass-ENERGY-Matter in the system being measured.

The 'Gravitational bending' of light as it passes close to Matter is a scientific misnomer

EM waves of light are refracted by the EM plasma enviroment of any star

According to General relativity, a light ray arriving from the left would be bent inwards such that its apparent direction of origin, when viewed from below would differ by an angle (a), whose size is inversely proportional to the distance (d) of the closest approach of the ray path to the center of mass.

All Light and EM waves are 2D ElectroMagnetic masses and are unaffected by gravity



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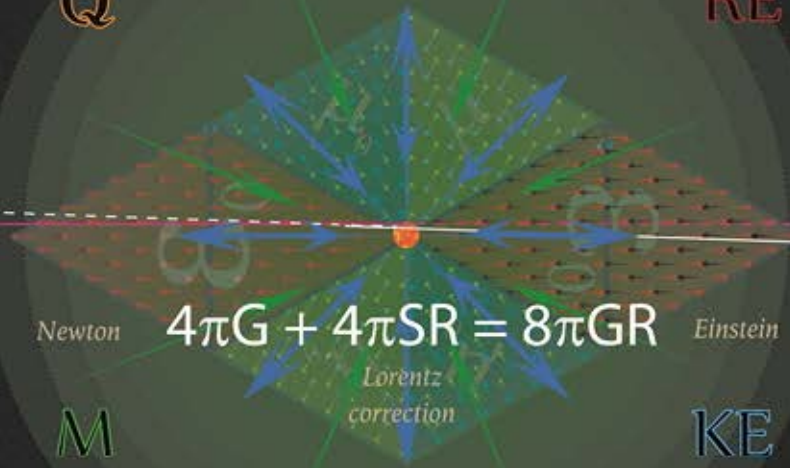


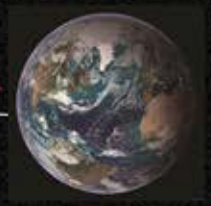
Newton $4\pi G + 4\pi SR = 8\pi GR$ Einstein

Lorentz correction

M

KE

All Light and EM waves are deflected and dispersed by ElectroMagnetic interactions



3D standing-wave gravitational mass-Matter

Light waves passing close to Massive objects experience a measureable DEFLECTION in their paths due to the ElectroMagnetic interaction of EM mass-energies

c^4

2D radiant electromagnetic mass-energies

Gravitation is a result of convergent vacuum energy densities produced by toplogical EM mass-energies of Matter & their interactive mass-energy geometries

The Perihelion of Mercury

is the result of EM interactions in addition to gravitational attraction

The perihelion of Mercury's orbit precesses at a measurable rate, but even after accounting for gravitational perturbations caused all other planets in the solar system, Newton's theory (assuming a precise inverse-square relationship for distance) predicts a rate of precession that differs from the measured rate by approximately 43 arcseconds per century.

Both Newton and Einstein saw Gravity as a singular force of attraction between objects and developed their math accordingly from the observed motions without any physical distinction between mass & Matter

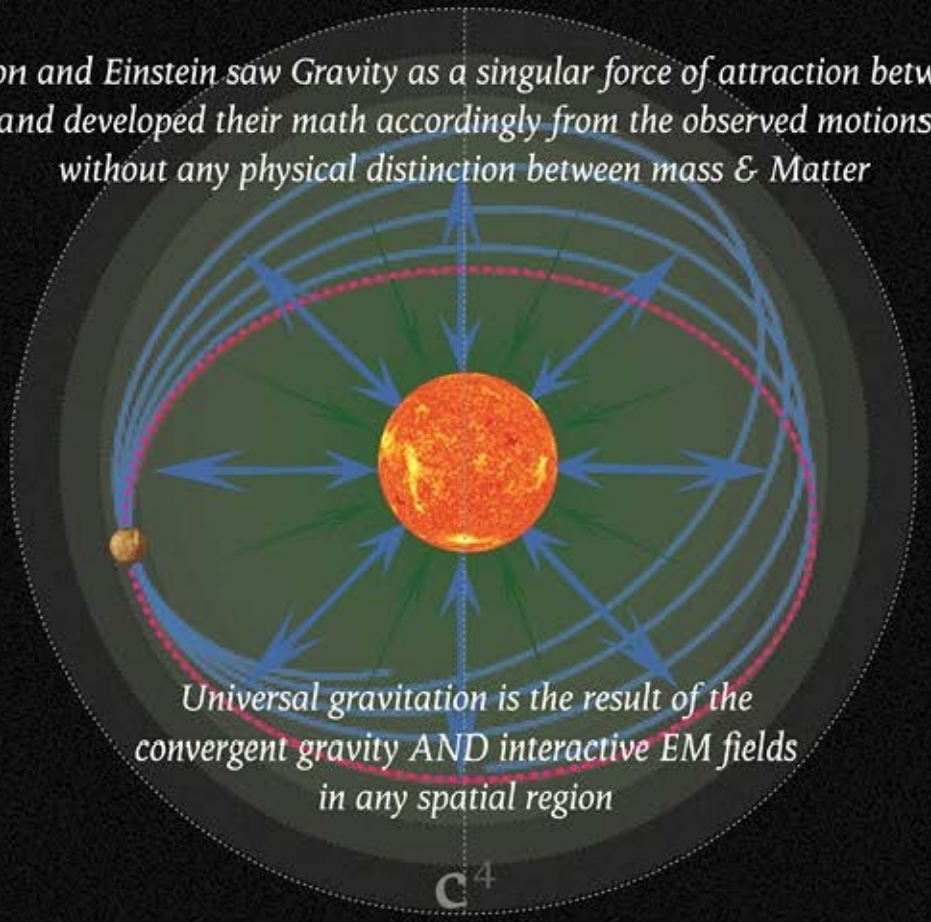
$4\pi G$

$8\pi G$

Newton modelled only the observed nett attractive force of Matter in the system

Einstein modelled the nett convergent force of all energies without differentiation

$$F = -G \frac{M_1 m_2}{r^2}$$



$$G_{ab} = \kappa T_{ab}$$

Universal gravitation is the result of the convergent gravity AND interactive EM fields in any spatial region

Newton

G

c^4

Einstein

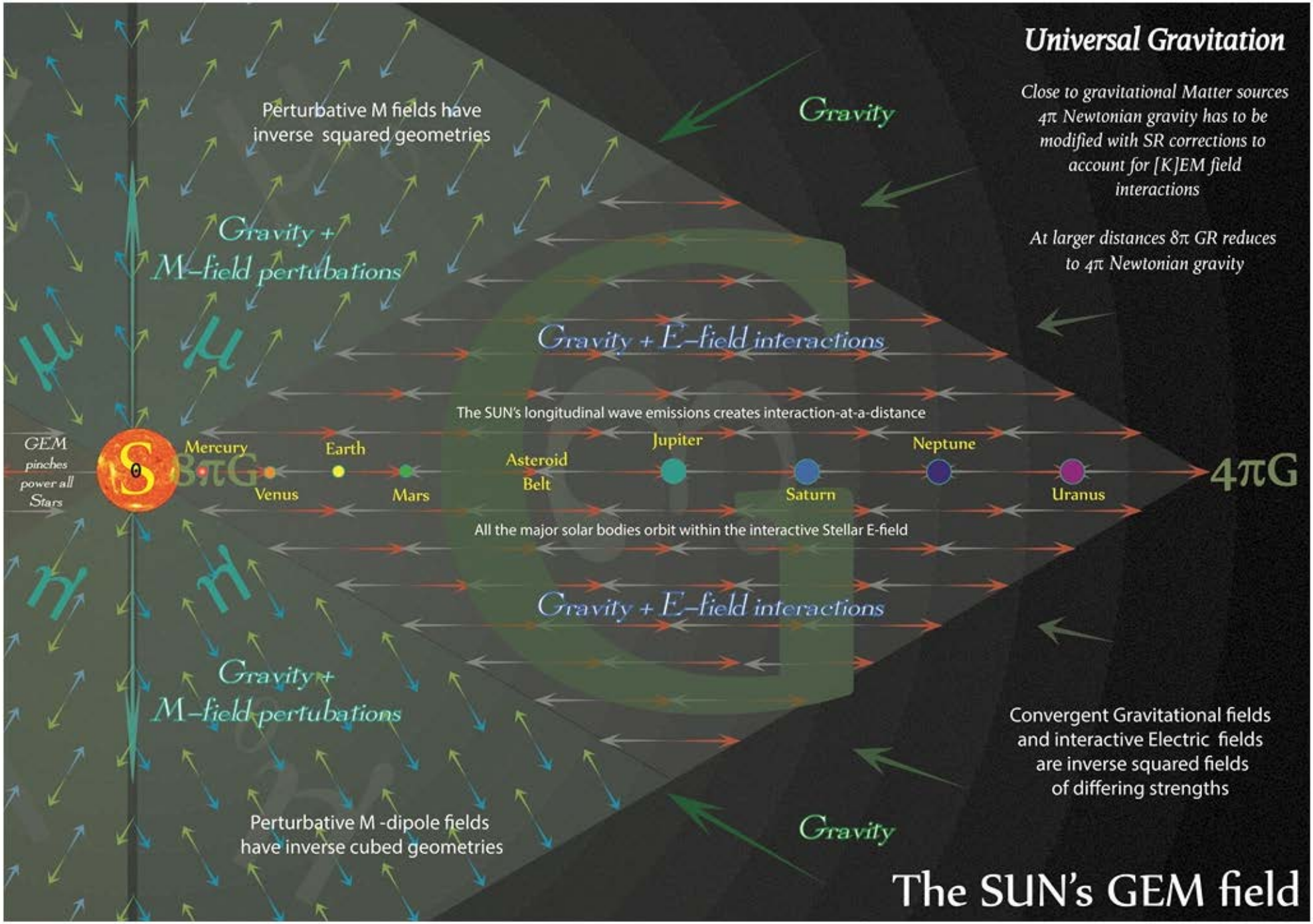
$G+EM$

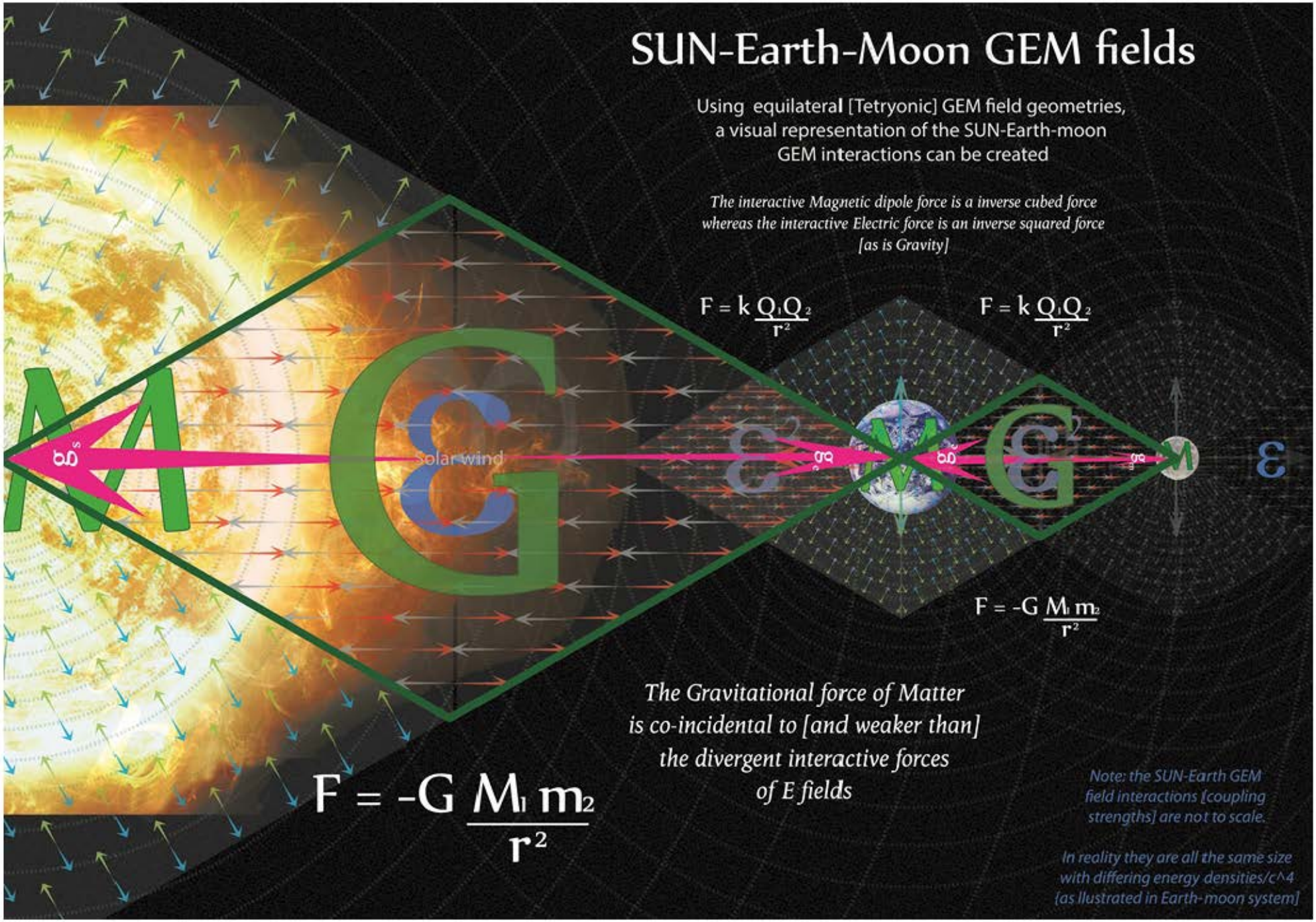
Newton Lorentz

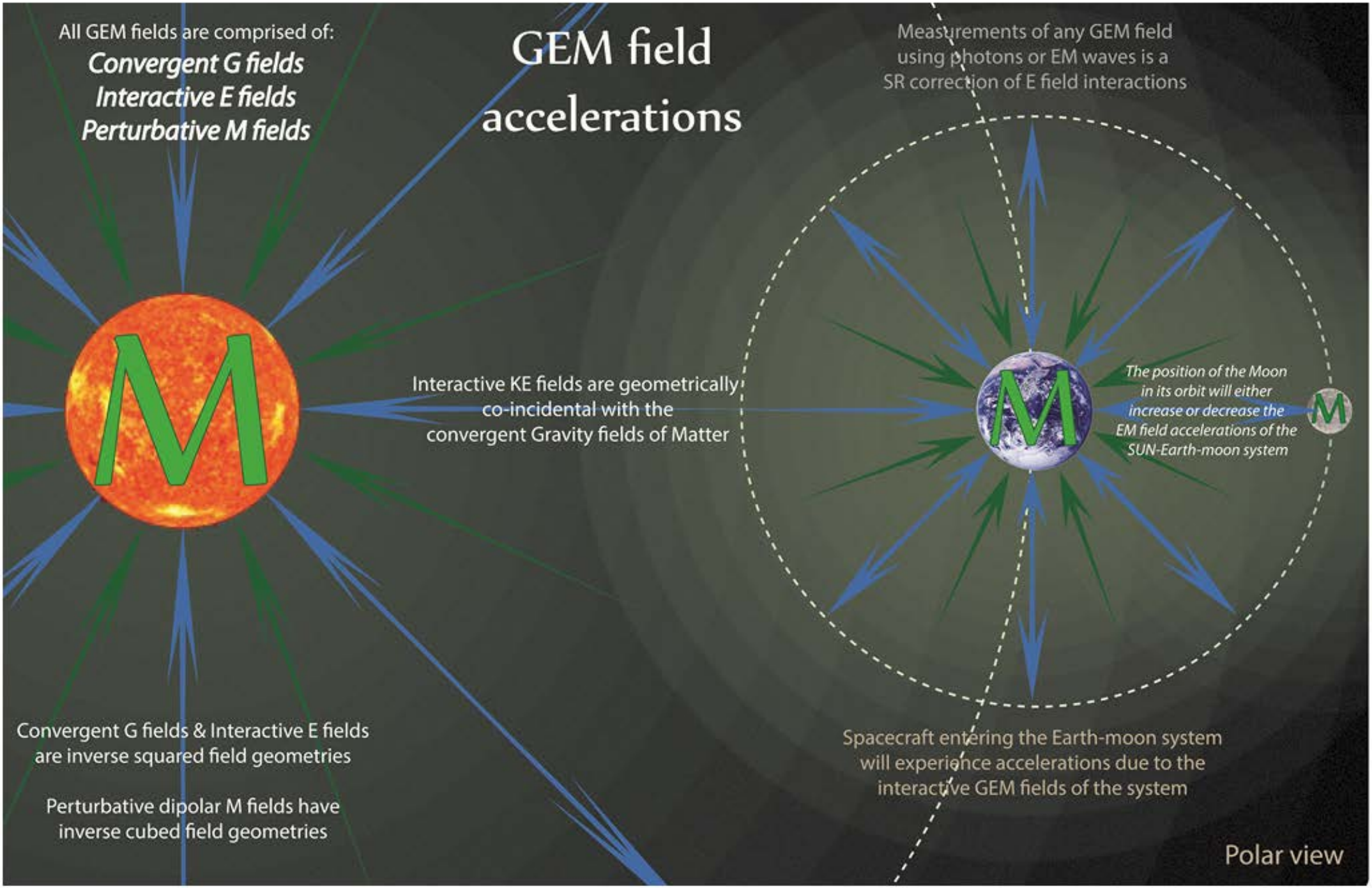
General relativity was developed in part to provide an estimate for this rate of precession that better matches observations.

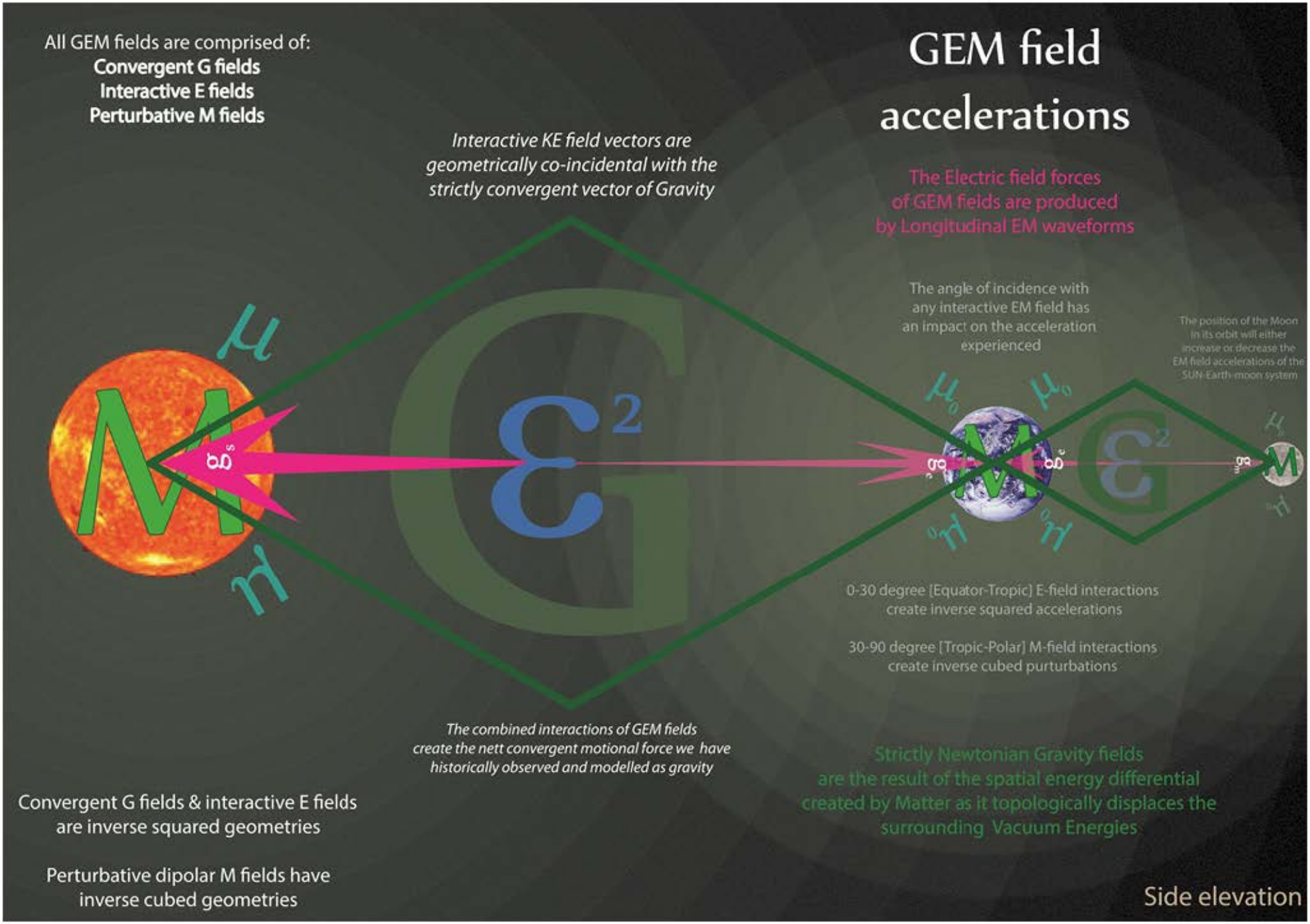
Newton's theory can also be 'incorrectly modified' to explain this perihelion by factoring in the gravitational pull due to other planets or making tiny adjustments to parameters in the gravitational equation to reflect the effect of ElectroMagnetic interactions between the Sun and Mercury.

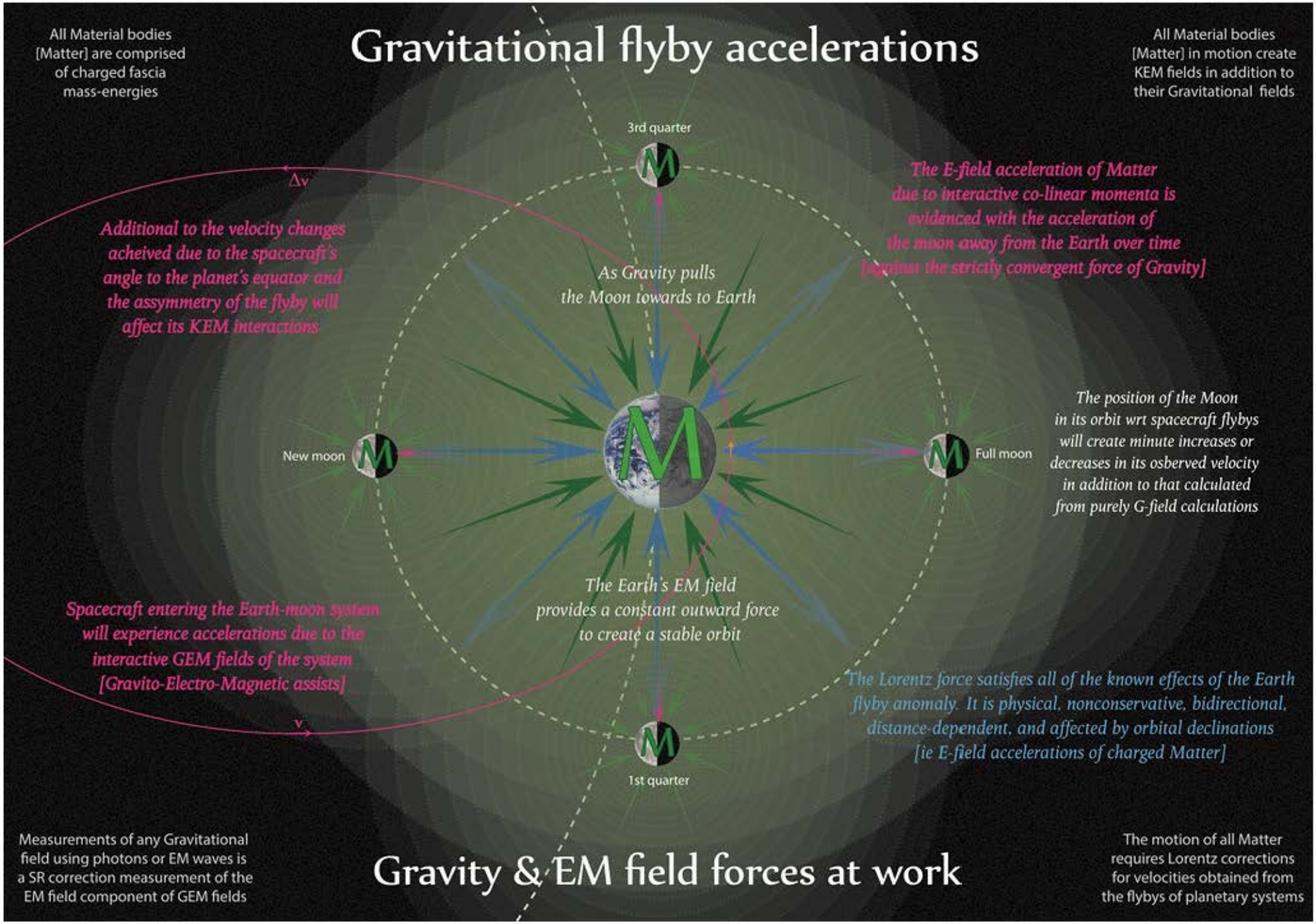
By modelling the quantum interactions of ALL GEM mass-ENERGIES and their distinct geometries Tetryonic theory explains recently measured discrepancies in both Newtonian & GR formulations of Gravity

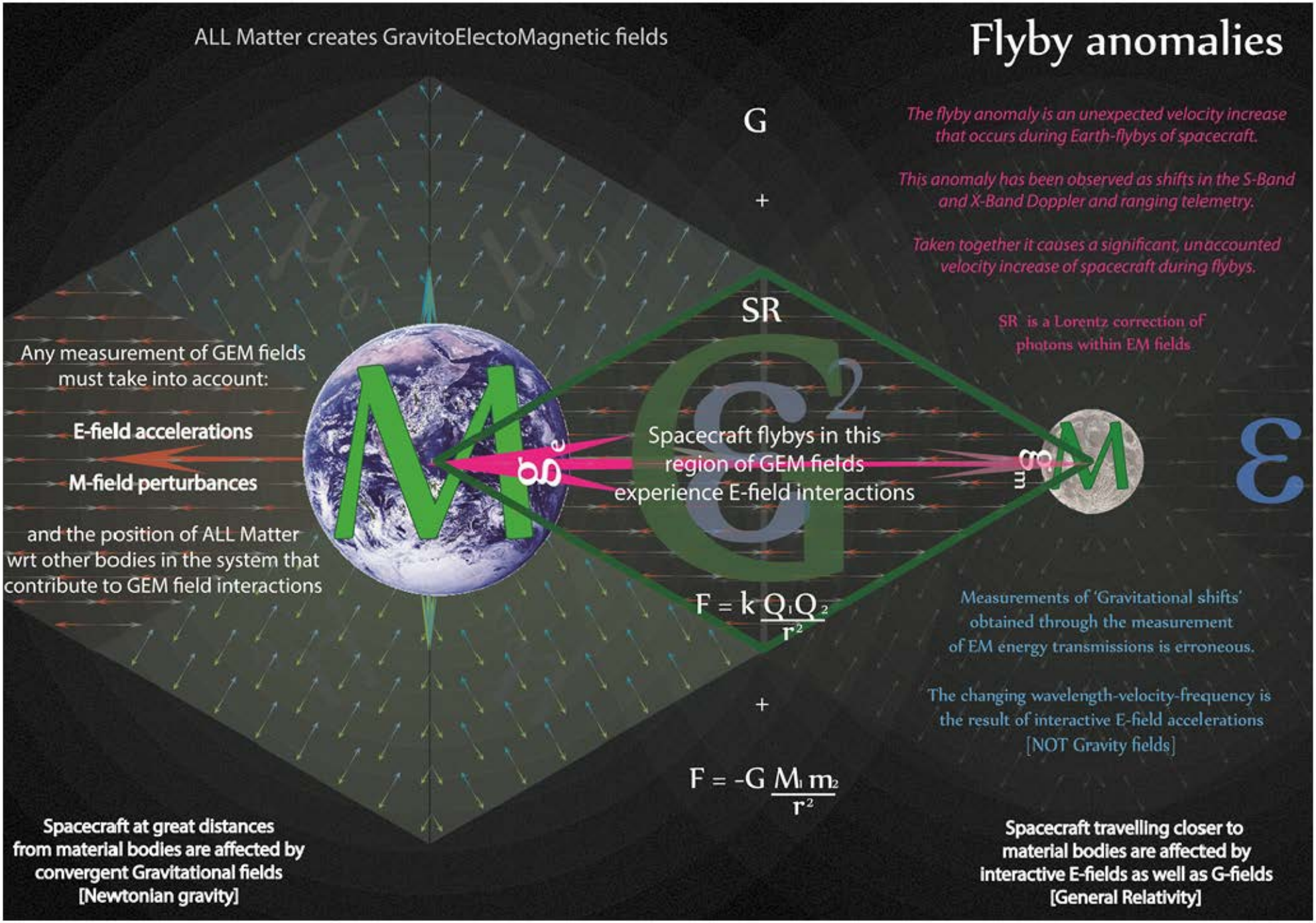


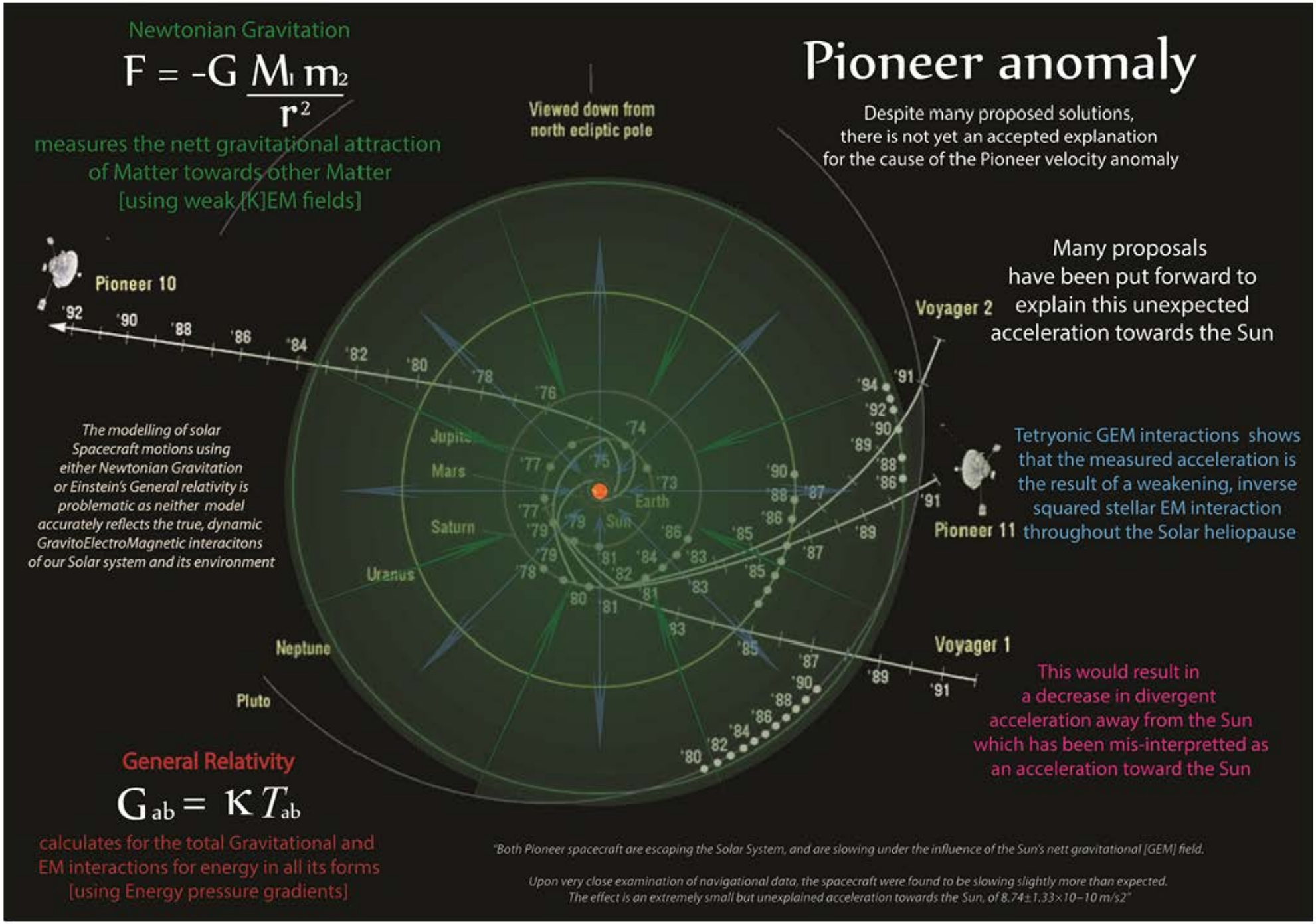


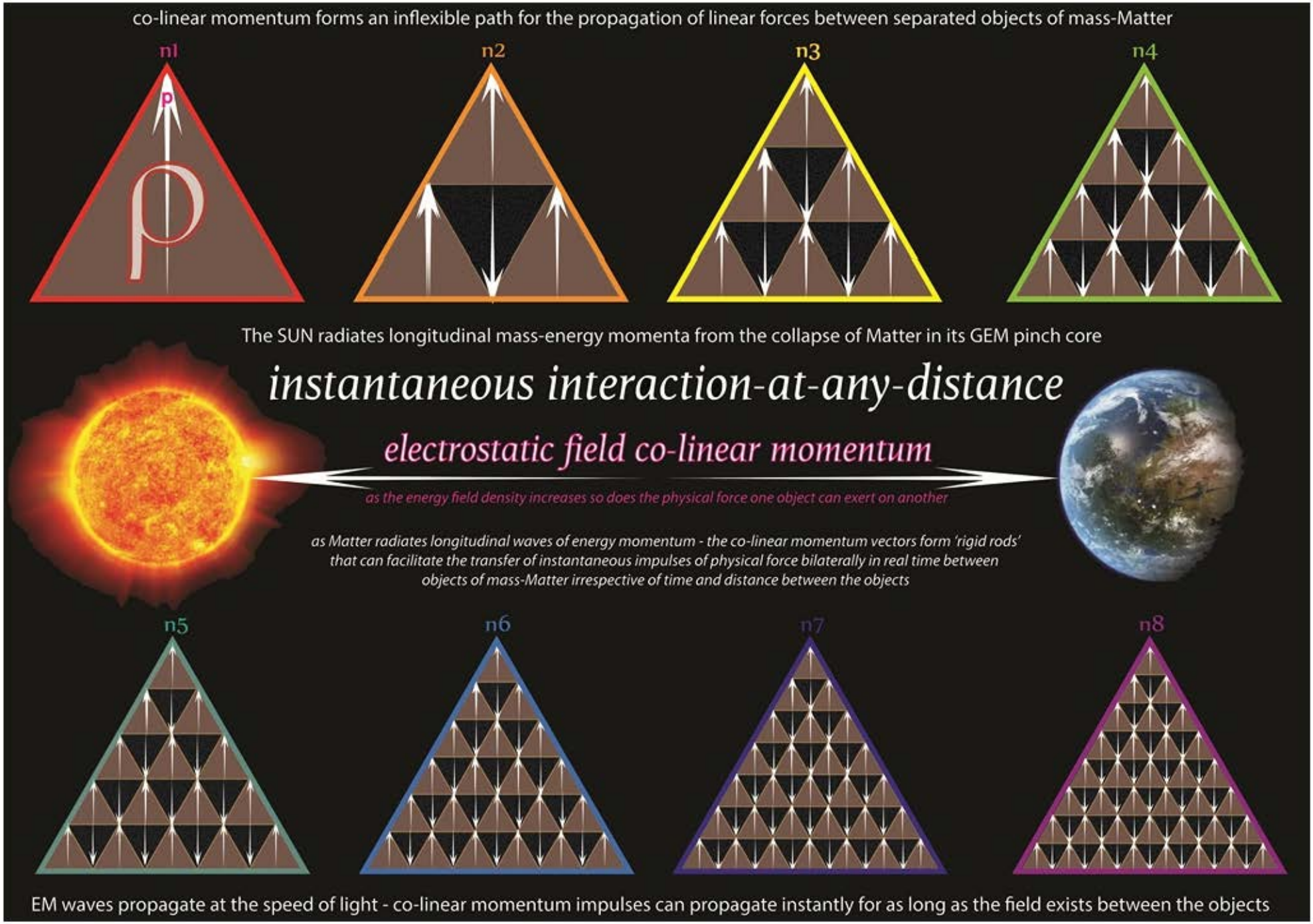






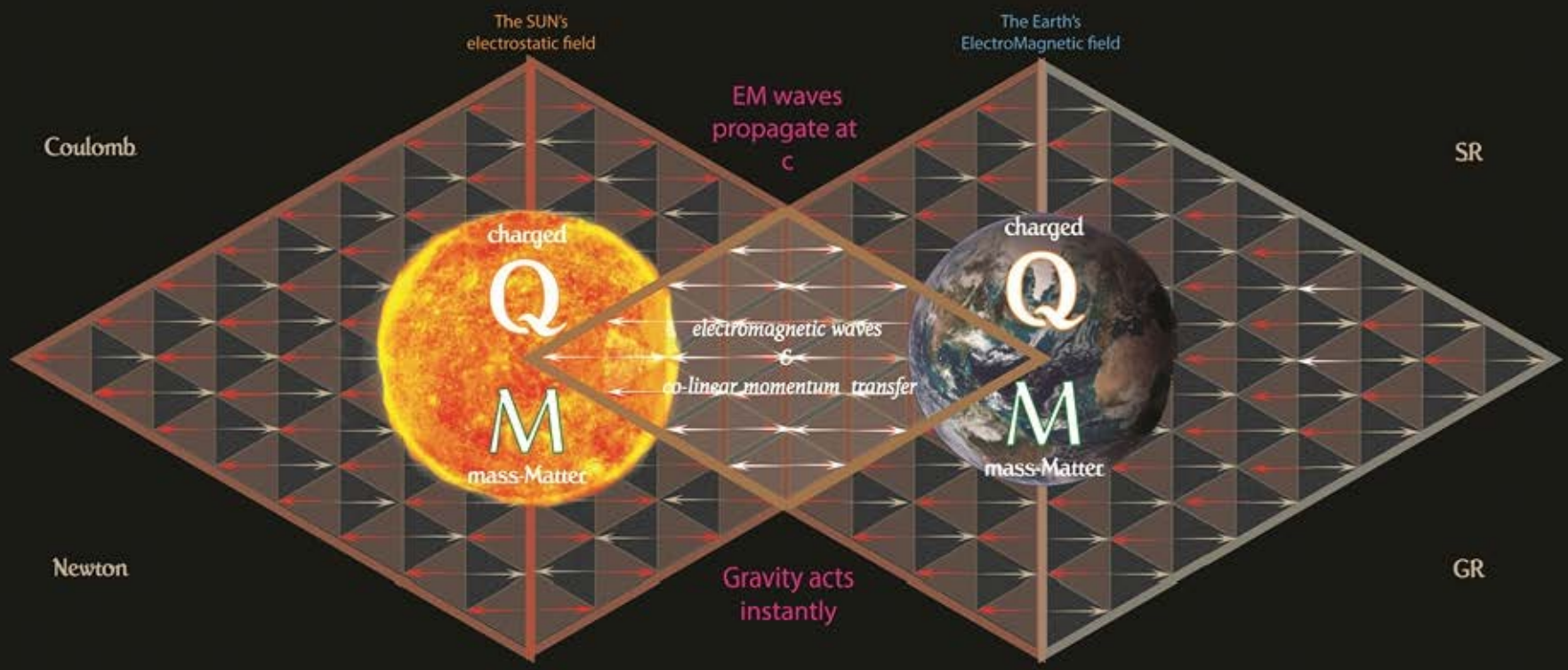






Instantaneous interaction-at-a-distance

One of the major points of disagreement between Newtonian Graviation and General Relativity concerns Einstein's limiting of information and energy momenta propagation to the speed of light whereas the Newtonian physics for Gravitation acts instantly between Matter irrespective of distance and time



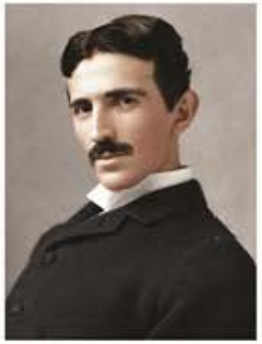
particles interact with others in real time irrespective of distance

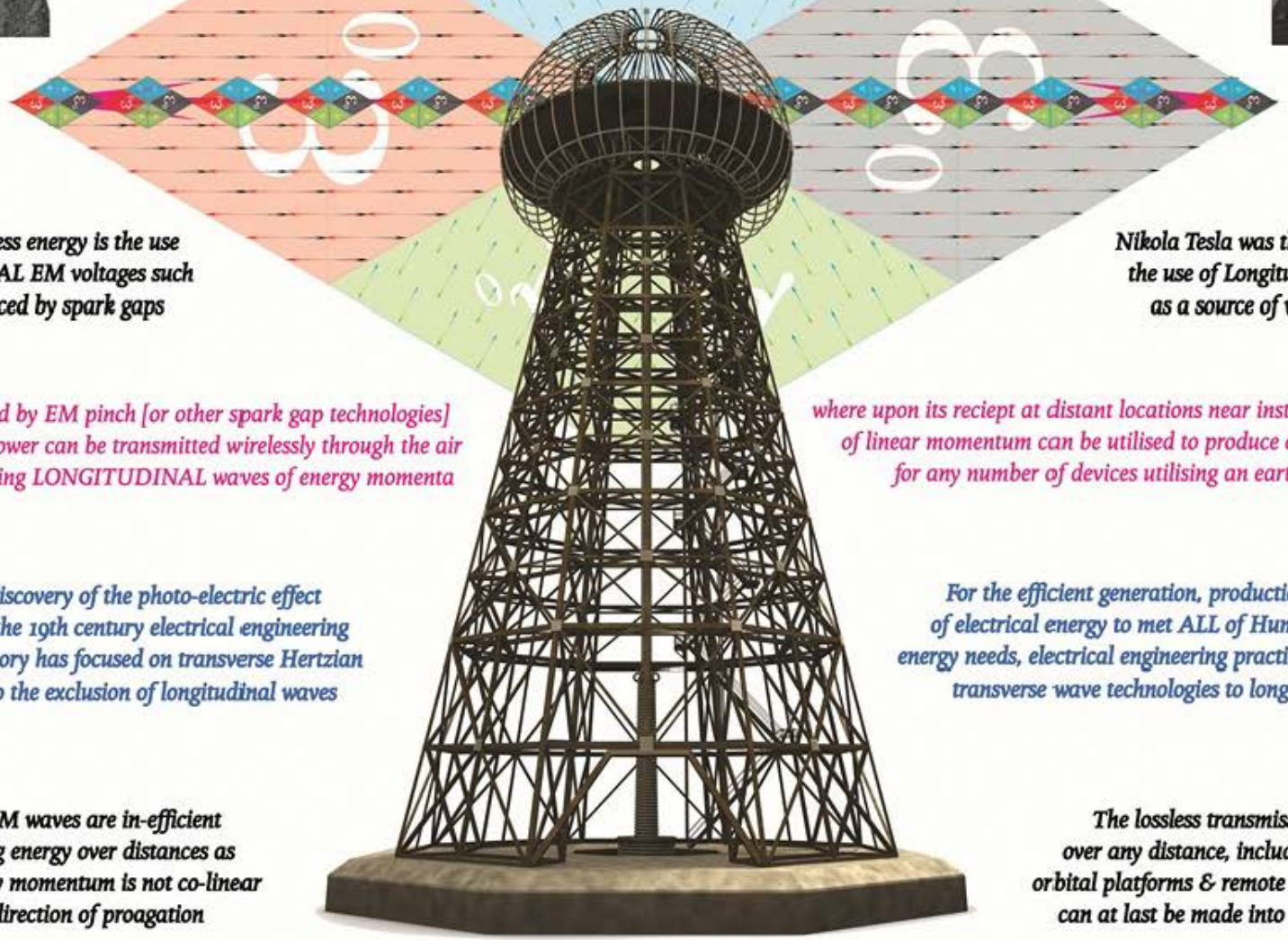
the flow of energy and information is limited to the speed of light

Where electrostatic and/or electromagnetic fields overlap they form fields of interaction between bodies of Matter

the 'quantum rods' of co-linear momentum in their EM fields facilitate 'FTL spooky interaction-at-a-distance' facilitating near instantaneous [real time] impulses of linear momentum to convey physical forces over vast distances without loss for as long as the fields exist between the objects

The efficient wireless transmission of electrical energy requires the creation of a large electrostatic field of longitudinal energy momenta





The key to wireless energy is the use of LONGITUDINAL EM voltages such as those produced by spark gaps

Nikola Tesla was the first to promote the use of Longitudinal EM waves as a source of wireless energy

Once generated by EM pinch [or other spark gap technologies] real electrical power can be transmitted wirelessly through the air without loss using LONGITUDINAL waves of energy momenta

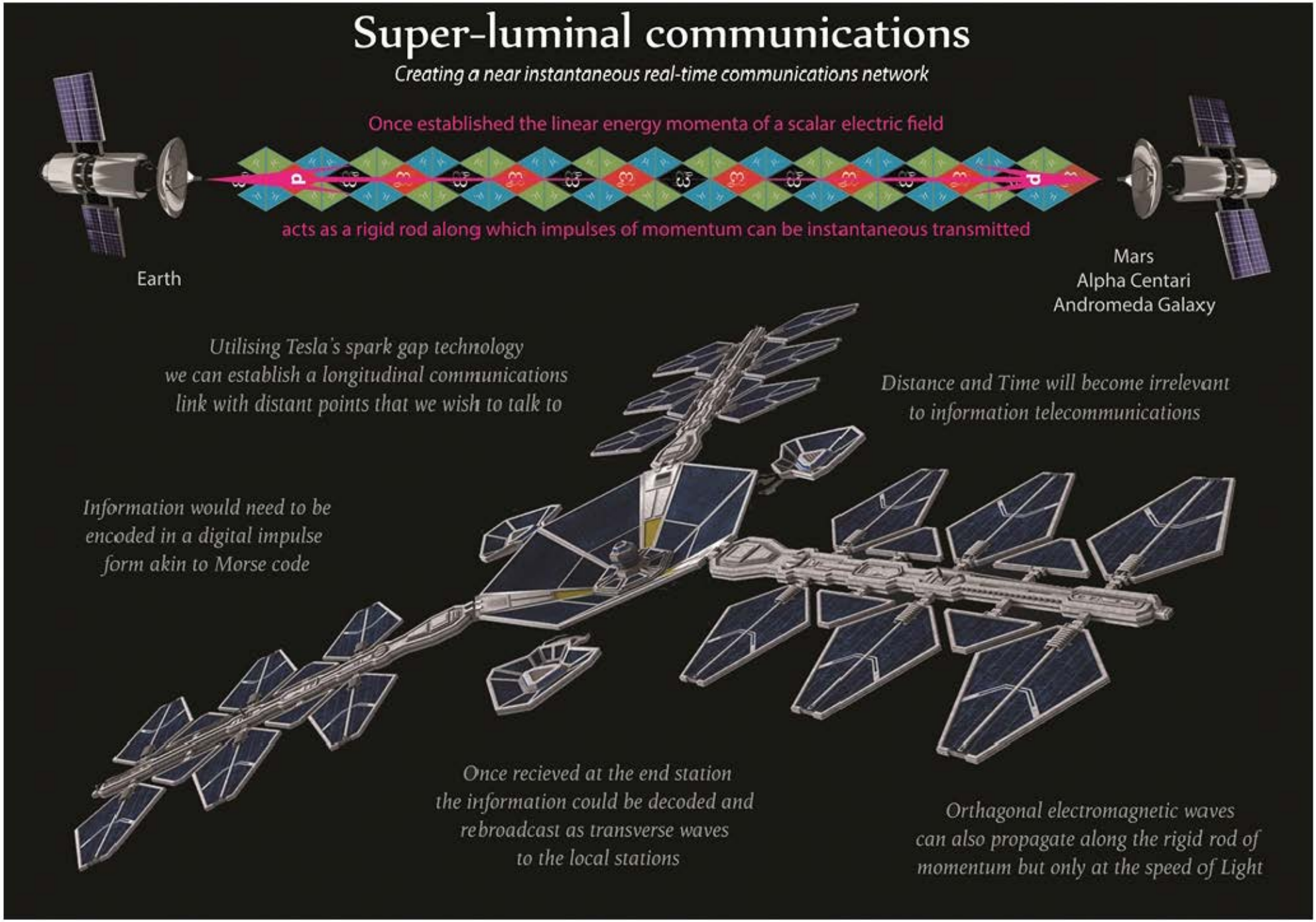
where upon its reciept at distant locations near instanteous impulses of linear momentum can be utilised to produce electrical work for any number of devices utilising an earth return

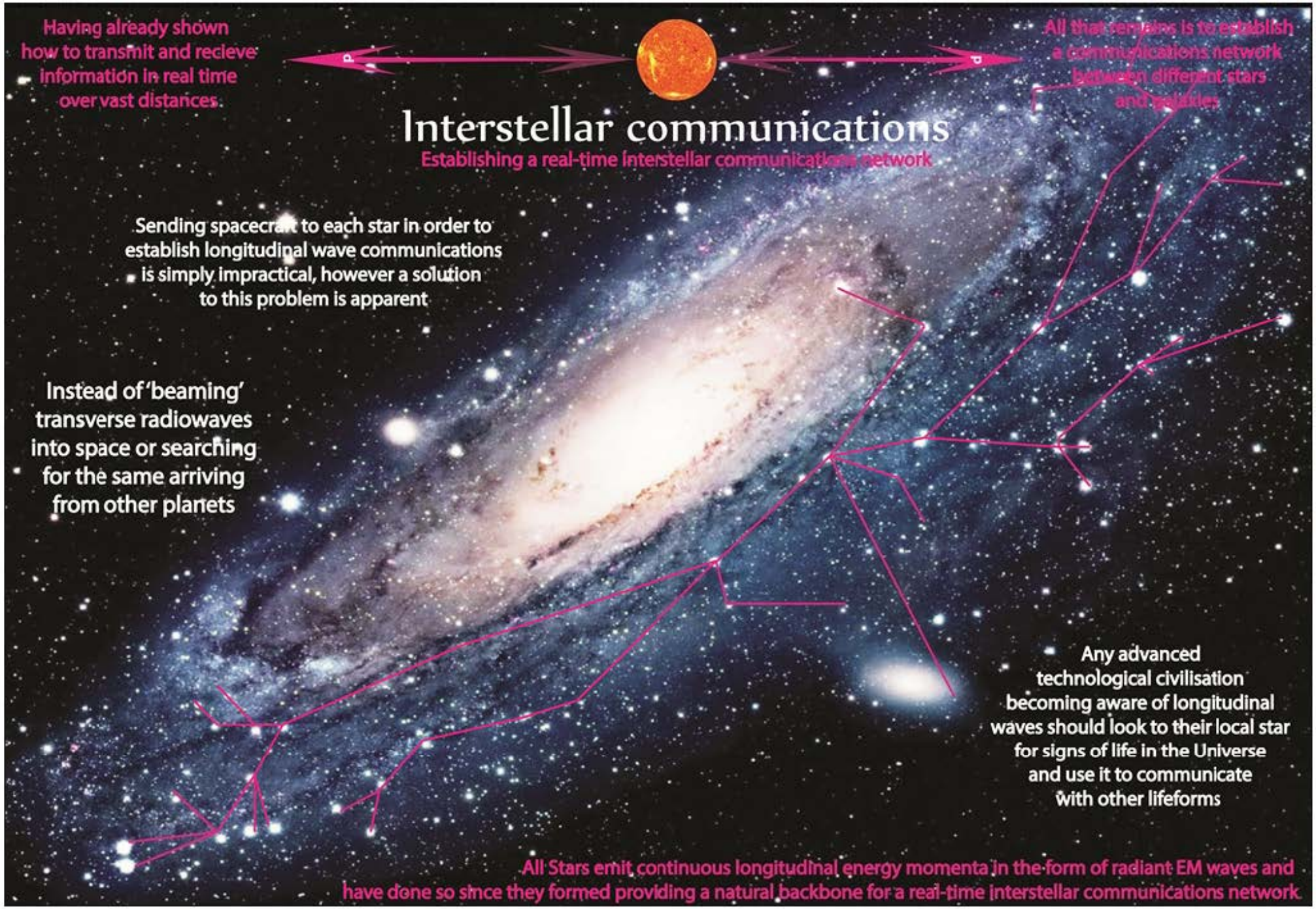
Since the discovery of the photo-electric effect at the turn of the 19th century electrical engineering and physics theory has focused on transverse Hertzian waveforms to the exclusion of longitudinal waves

For the efficient generation, production and storage of electrical energy to met ALL of Humanities growing energy needs, electrical engineering practices must move from transverse wave technologies to longitudinal waves

Transverse EM waves are in-efficient for transmitting energy over distances as their linear energy momentum is not co-linear with their direction of proagation

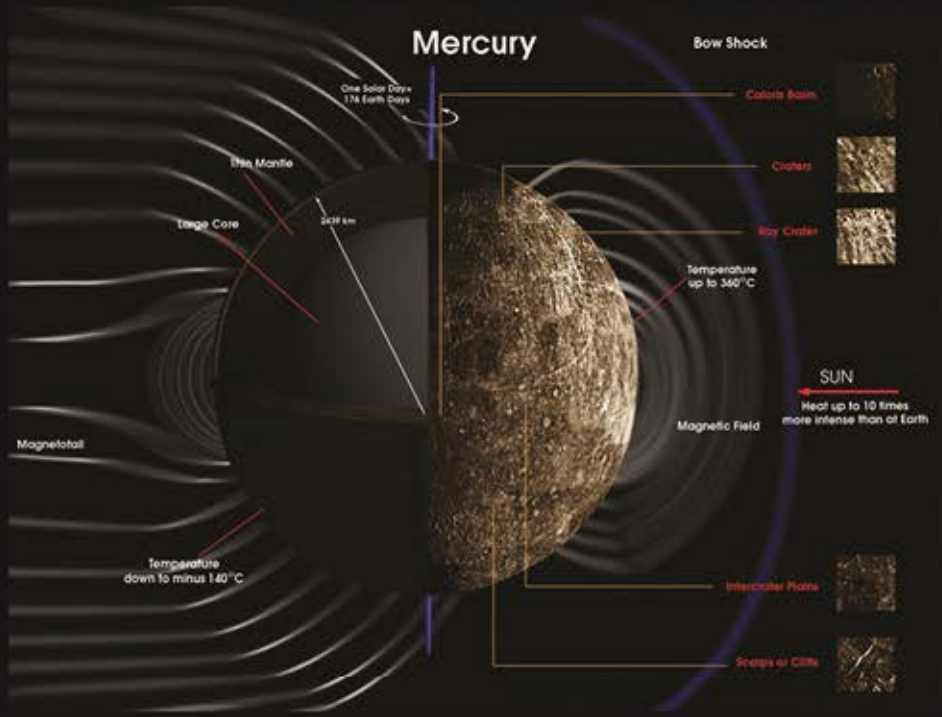
The lossless transmission of power over any distance, including to and from orbital platforms & remote locations on Earth, can at last be made into a physical reality





Mercurial anomalies

Mercury has a weak magnetic field



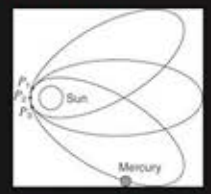
Mercury has heat of its own, not just reflected heat of the Sun;

Mercury has still an atmosphere of Hydrogen, possibly the last vestiges of a more extensive halo and trail (caduceus)

Mercury rotates because it is in its present orbit it is strongly affected by the EM field of the SUN,

Because the ElectroMagnetic forces near the Sun need to be accounted for in the motion of any satellite about a more massive body [ie Satellite-Planet or Planet- Sun], the stronger E & perturbative M forces are responsible for the observed precession of the perihelion of Mercury, and Leverrier's discovery of this precession can be modelled with Einsteins' General relativity through Tetryonic geometries

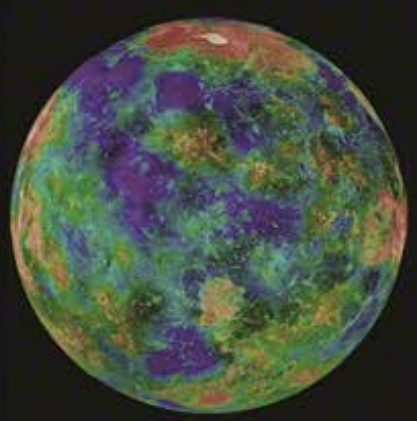
Laplace showed that should a celestial body attracted by its primary as inverse square of distance be subject to another attraction that changes as the inverse cube of distance, a precession by that body would result.



Einstein corrected Newton's gravitational results by calculating for ALL the energies in a system but failed to realise that his 'graviational correction' was in fact a Lorentz correction for EM interactions

Venusian anomalies

is sometimes referrd to as Earth's "twin" owing to their similar size, gravity, and bulk composition.



Venus has the densest atmosphere of all the terrestrial planets in the Solar System, consisting of mostly carbon dioxide. The atmospheric pressure at the planet's surface is 92 times that of the Earth.

Galileo's discovery that Venus showed phases (while being never very far from the Sun in our sky) proved that it orbits the Sun and not the Earth

Venus is the hottest world in the solar system. Although Venus is not the planet closest to the sun, its dense atmosphere traps heat in a runaway version of the greenhouse effect that warms up the Earth.

As a result, temperatures on Venus reach 465 degrees C

The lack of an intrinsic magnetic field at Venus was surprising given it is similar to Earth in size, and was expected also to contain a dynamo at its core

Venus has no moons or rings

The Venusian year is about 225 Earth days long.

Venus takes 243 Earth days to rotate on its axis, which means that days on Venus would be longer than years. However, because of Venus' curious retrograde rotation, the time from one sunrise to the next is only about 117 Earth days

The very top layer of Venus' clouds zip around the planet every four Earth days, propelled by hurricane-force winds traveling roughly 224 miles (360 kilometers) per hour.

This super-rotation of the planet's atmosphere, some 60 times faster than Venus itself rotates, may be one of Venus' biggest mysteries.

Earth-Moon anomalies

The Moon is slowly accelerating away from the Earth

Athough it is attracted gravitationally to the Earth
the Moon is moving away from the Earth at
about 4cm per year as a result of the Earth's
EM field interactions with Matter in its vicinity.

The Earth's EM field accelerates the moon against the pull of gravity stabilising its orbit
its current field strength forces the moon to slowly accelerate away from the Earth over time

The Moon's Origin

Most scientists think the moon was born from a gargantuan collision, when a young, 30-million-year-old Earth was sideswiped by an embryonic planet the size of Mars some 4.5 billion years ago, with debris from our planet and this impactor eventually coalescing from the ejecta to form our Moon.

The Lunar a lunar day is a month long,
the same as the Moon's orbital period

The Moon only shows one face to the Earth

it is gravitational locked in its orbit with one side
always facing the Earth when viewed from the Earthat night.
There is no such thing as the "dark side of the moon".
The sun shines on all sides

The Moon is 400 times smaller than the SUN
The SUN is 400 times more distant

"There is no astronomical reason why the moon and the sun should fit so well. It is the sheerest of coincidences, and only the Earth among all the planets is blessed in this fashion." .....Isaac Asimov

The Moon looks exactly the same size as the Sun

A striking coincidence that has had astronomers thinking since ancient times is why the Sun and the Moon appear to be the same size during an eclipse. It's known that the Sun's diameter is 400 times that of the Moon, but, then again, the Moon is 400 times further away from the Sun.

This creates the optical illusion that the two are actually the same size, allowing us to observe the Solar corona and its EM field lines

Our moon is the only moon in the solar system that has a stationary, near-perfect circular orbit. Stranger still, the moon's center of mass is about 6000 feet closer to the Earth than its geometric center (which should cause wobbling), but the moon's bulge is on the far side of the moon, away from the Earth. "Something" had to put the moon in orbit with its precise altitude, course, and speed.

Martian anomalies

Phobos

There is no completely satisfactory theory as to how Deimos and Phobos came to be in orbit around Mars

With a dametre of 6 km Deimos is one of the smallest known moons in the solar system

Deimos

Although Mars is much smaller than Earth, [approx 1/4 the size] its surface area is about the same as the land surface area of Earth

Deimos and Phobos are probably asteroids perturbed by Jupiter into orbits that allowed them to be captured by Mars

The southern hemisphere of Mars is predominantly ancient cratered highlands somewhat similar to the Moon.

In contrast, the northern hemisphere consists of plains which are much younger, lower in elevation and have a much more complex history.

Mars orbits about 1.5au from the SUN

An abrupt elevation change of several kilometers seems to occur at the boundary

Jupiters' anomalies

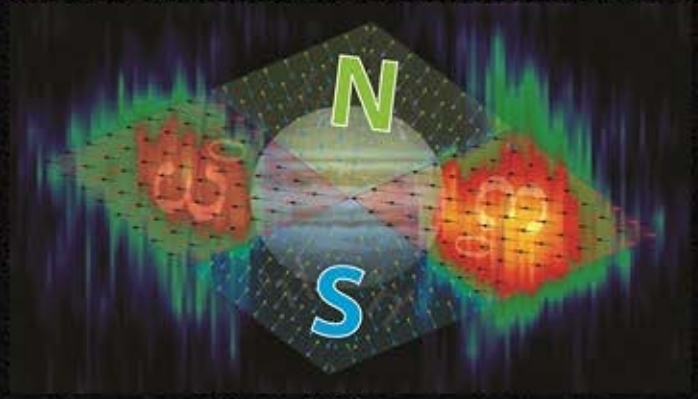
Jupiter has an intense and far-reaching magnetic field.
Exactly what drives the magnetic powerhouse and
how deep inside the planet it originates, however, is unknown

Jupiter's diameter is approx
1/10 that of the SUN and
10 times the size of Earth

Jupiter has twelve satellites.

The five inner moons revolve around their planet in orbits only slightly inclined to the planet's equator at distances from about 110,000 miles for the innermost to about 640,000 miles for the outermost.

Jupiter's mass is 2.5 times that of all the other planets in our Solar System combined



Tetryonic EM geometry
offers answers to many of the dynamic
mysteries of Jupiter and its moons

Then there is a group of three moons whose orbits are inclined to the planet's equator by almost 30° at distances of about 7 million miles from Jupiter.

These three moons also revolve around the planet in the predicted direction.

The four outer moons, however, move around the planet in retrograde motion, or opposite to that of the other eight satellites, at distances from about 12 to 13 million miles from the planet

Its Great Red Spot
has a circumference
about the same as the Earth

Jupiter also has the most energetic auroras in the solar system at both of its poles

Saturnian anomalies

In addition to the planet's giant rings, Saturn has nine major moons and more than 60 known satellites.

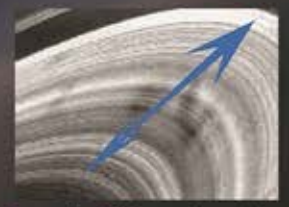
The motion of the outermost, Phoebe, is retrograde, moving in a direction opposite to the other eight moons and opposite to that predicted from an evolutionary origin.

Tetryonic theory suggests that this retrograde motion is the result of it being a gravitationally captured body whose motion over time will be slowed, eventually forcing it into the same motion as the others

TITAN
is the only moon that possesses a thick atmosphere, and it's the only place beyond Earth to have stable bodies of liquid Methane on its surface

The rings of Saturn occasionally exhibit ghostly radial spokes that seemingly defy the laws of gravity

The Saturnian rings, like many others, are formed by the electric field of the planet and subject to seasonal fluctuations of the SUN's heliospheric E-field



Tetryonic GEM interactions shows that these features are the result of electric forces additional to gravity

Strange features abound within the rings of Saturn. These include hundreds of "record grooves" or narrow fluctuations in the B ring, the most massive ring.

These also include "plateaus" in the C ring, the innermost main ring—broad, dark, sharp-edged features thicker than elsewhere in the ring.

Neptunes' anomalies

Neptune was the first planet found by mathematical prediction rather than by empirical observation

Neptune has two satellites.

Nereid, a small moon, moves around Neptune in the predicted direction, but Triton, one of the larger satellites in the solar system with a mass almost twice that of the earth's moon.

Of Neptune's 13 moons, Triton is by far the biggest and the only one massive enough to be spheroidal.

Weirdly, Triton has a "retrograde" orbit, revolving in the opposite direction of the planet and other moons.

Plus, the orbit is at an angle rather than in the plane around the equator like typical satellites

The magnetic field of Neptune, like that of Uranus, is highly tilted at 47 degrees from the rotation axis and offset at least 0.55 radii (about 13,500 kilometers or 8,500 miles) from the physical center

Uranus' anomalies

Uranus is remarkable, even though it rotates around the sun in the same direction as the other planets in an orbit inclined less than a degree (46') from the ecliptic (the plane of the earth's orbit around the sun), the axis of rotation of Uranus is nearly in the plane of its orbit.

Accordingly, the inclination of the equator of Uranus to the plane of its orbit is 98°, and its axial rotation is retrograde.

The five moons or satellites of Uranus move exactly in the equatorial plane of the planet and they revolve in the same direction as the planet rotates.

Their motion, with respect to the remainder of the solar system, is, therefore, also retrograde.

The direction of the axial rotation of Uranus and the motion of its satellites is opposite to that predicted on the basis of an evolutionary origin.

Tetryonic theory dictates that Uranus' peculiar planetary mechanics may be the result of the EM interactions of Uranus itself with its satellites rather than the current evolutionary explanation

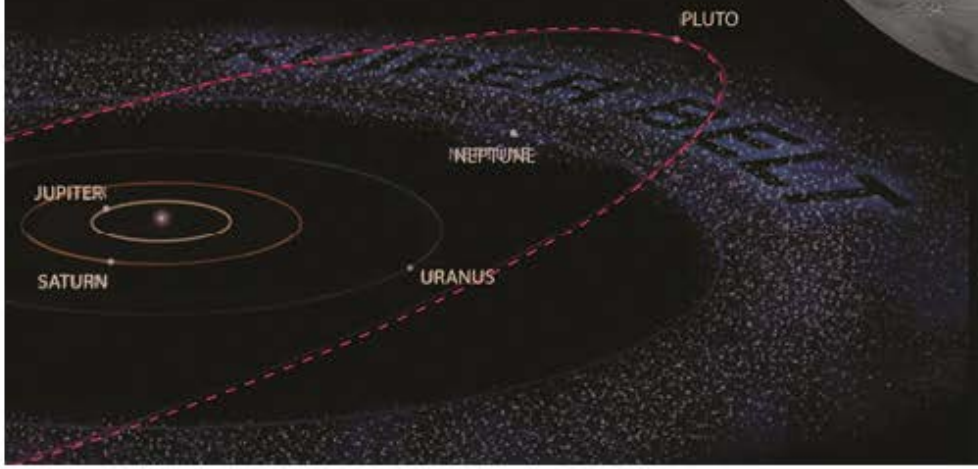
Pluto's anomalies

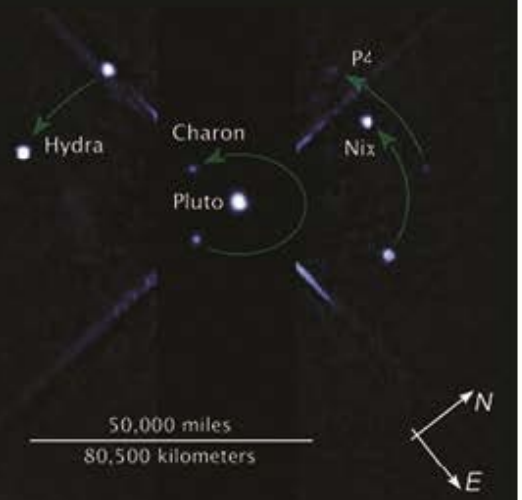
Pluto is much smaller than any of the official planets
and due to its size and orbital inclination
is now classified as a "dwarf planet"

Pluto rotates in the opposite direction
to that of most of the other planets

Pluto is locked in a 3:2 resonance with Neptune;
i.e. Pluto's orbital period is exactly 1.5 times longer than Neptune's.
Its orbital inclination is also much higher than the other planets

Pluto's orbit is highly eccentric.
At times it is closer to the Sun than Neptune





Charon is unusual in that it is
the largest moon with respect to its
primary planet in the Solar System
(a distinction once held by Earth's moon)

The Pluto–Charon system is noteworthy
for being one of the Solar System's
few binary system

Cometary anomalies

Comets provide some of the clearest evidence of Electromagnetic interactions between the SUN and other planetary bodies

While the solid nucleus of comets is generally less than 50 km across, the coma may be larger than the Sun, and ion tails have been observed to extend 3-4 astronomical units (5-600 million km)

Cometary discharging may also occur due to any disturbances of its electrical plasma sheath as it passes through regions of varying electric potential.

This seems to have occurred in the recent "totally surprising" outburst of Comet Holmes 17P as it moved away from the Sun's domain.

In 2000 the explosive break up of Comet Linear provoked great amazement as the event occurred well over a hundred million kilometers from the Sun

Other anomalies that can be explained by a CHARGED model of cometary nuclei are: Unexpectedly high temperatures and X-ray emissions from cometary comas

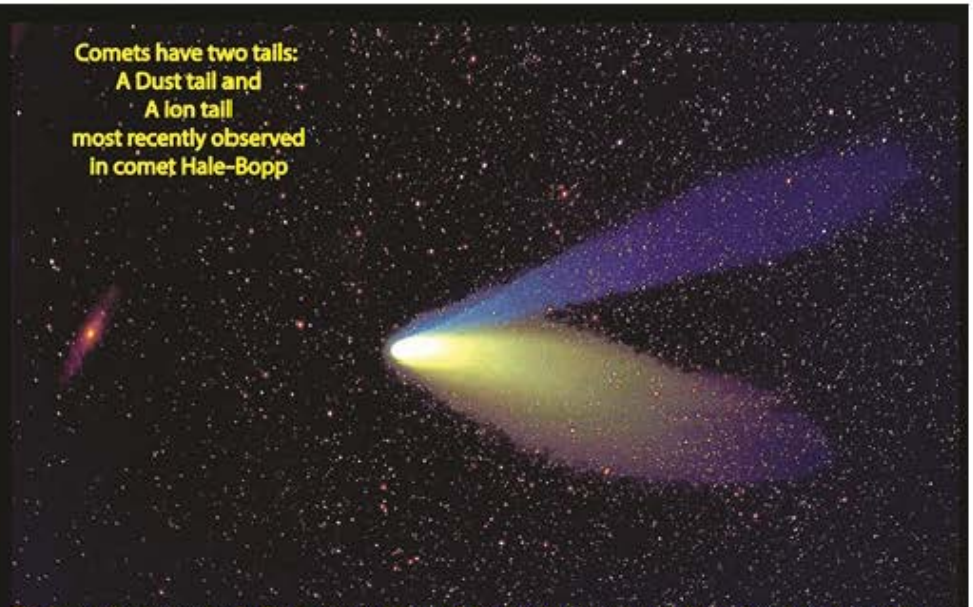
The sharply carved relief of comets [the exact opposite of what is expected under the "dirty snowball" model]

The unexplained ability of a relatively minuscule comet nucleus to hold in place a highly spherical coma, up to millions of miles in diamater, against the force of the solar wind;

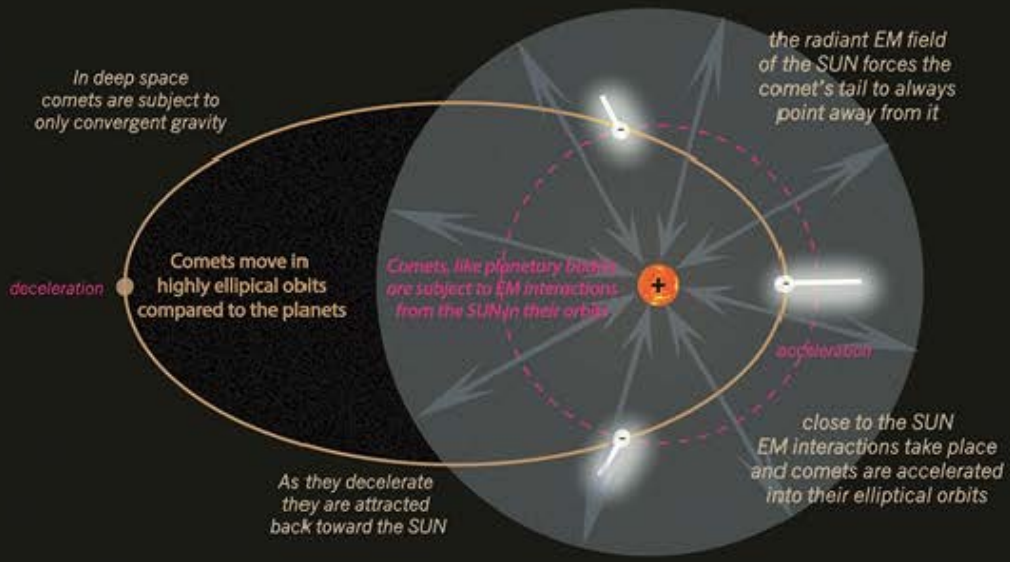
Ejection of larger particles and "gravel" that was never anticipated under the idea that comets accreted from primordial clouds of ice, gas, and dust;

A short supply or complete absence of water and other volatiles on comets' nuclei;

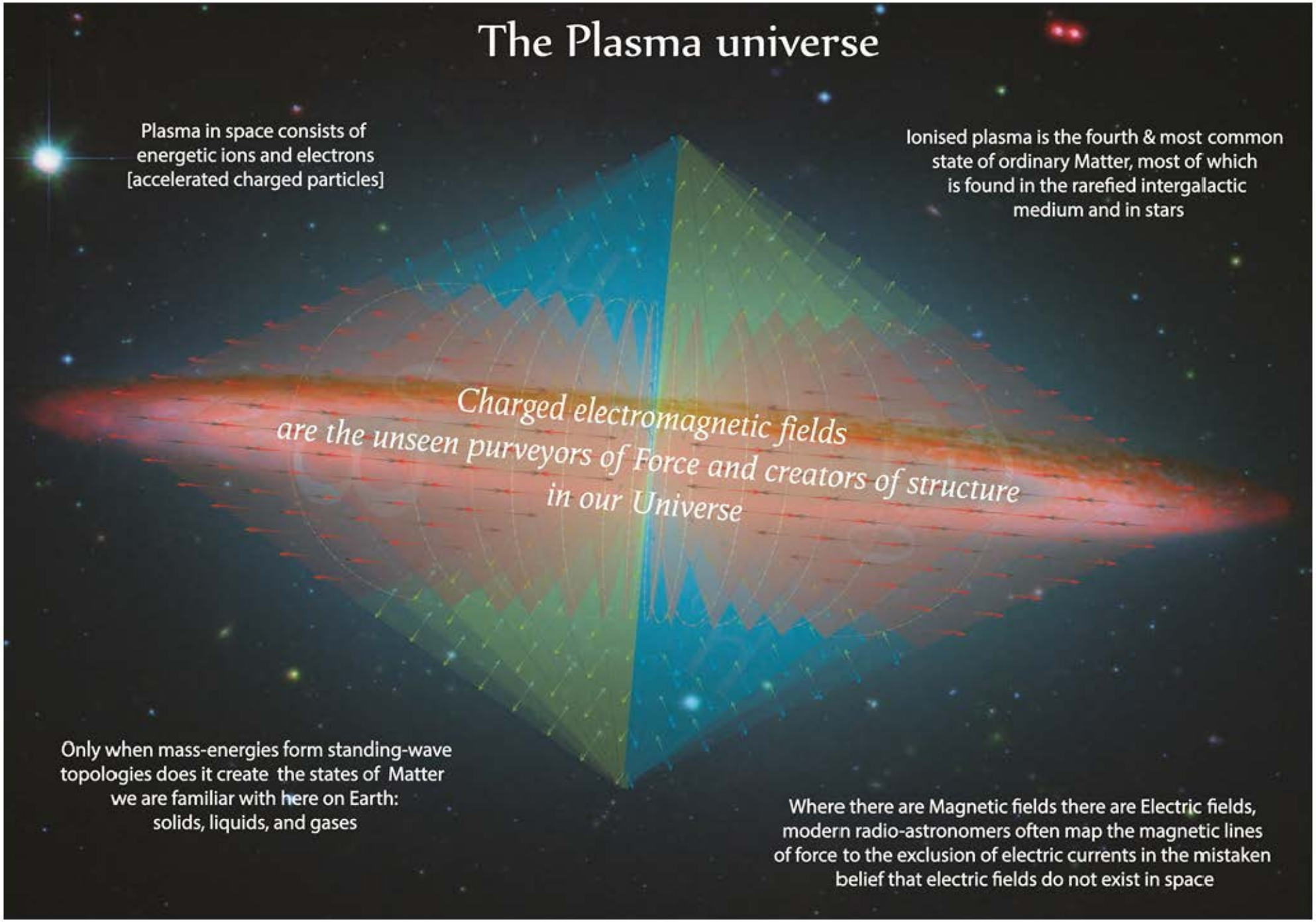
The Electric Universe's model of charged solar bodies predicted the occurrence of an electrical flash in advance to the impact of a projectile into the nucleus of Comet Tempel 1 (Deep Impact.)

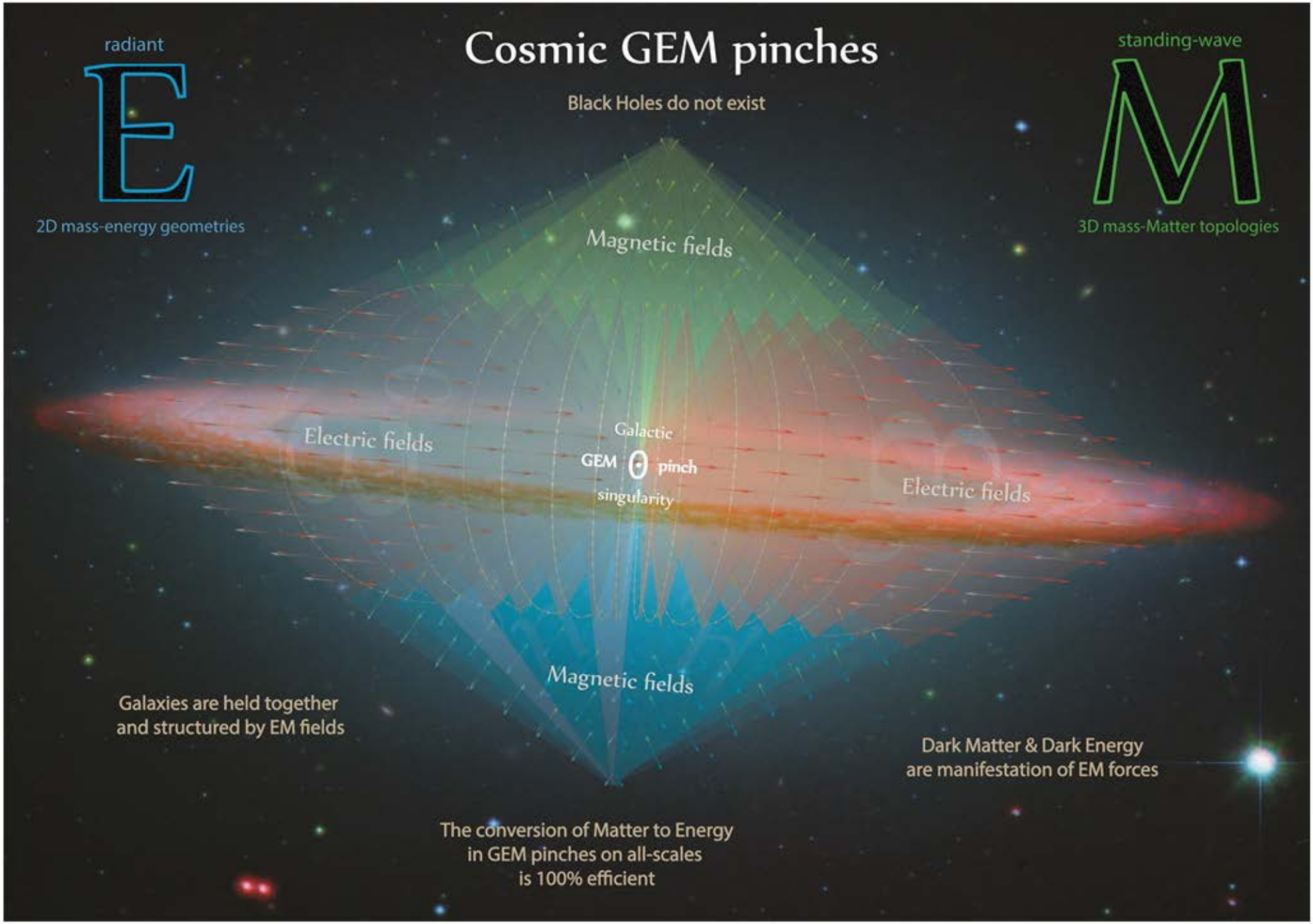


The Dust tail is the result of reflective ejected Matter following the comet's path throught solar system while the Ion tail is the result of ejected charged particles of Matter and is heavily influenced by the SUN's radiated E fields



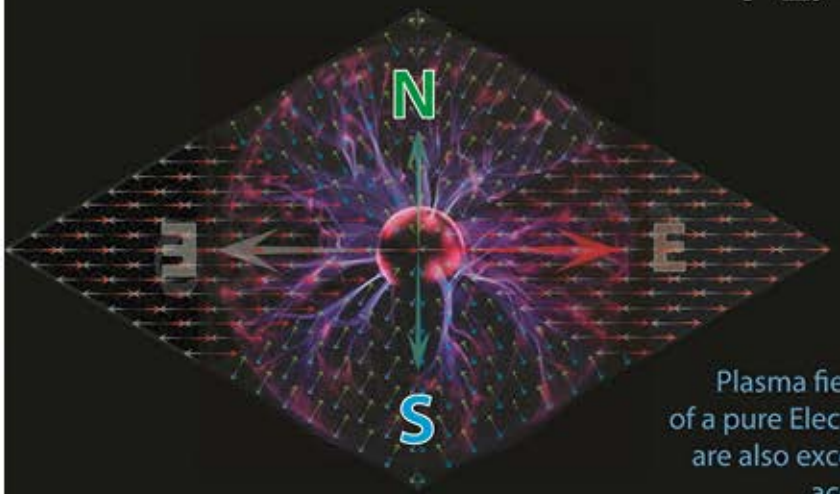
The tails of comets always point away from the Sun, so after a comet has passed the Sun it actually travels tail first

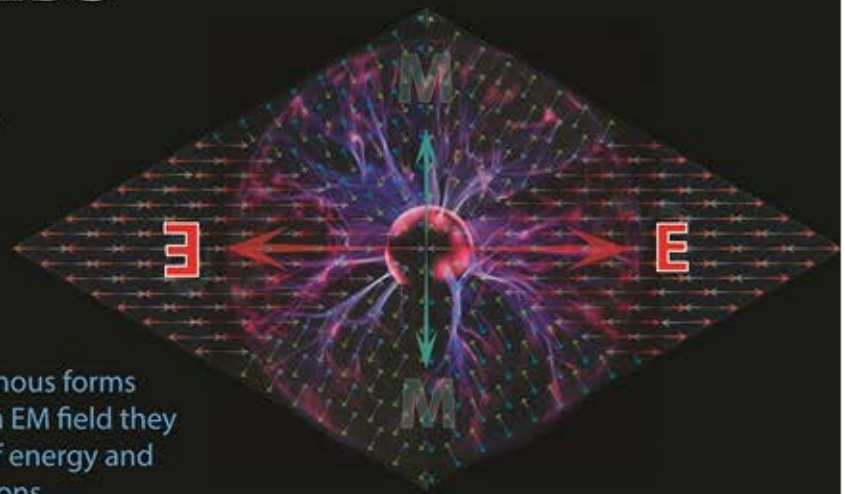




PLASMA FIELDS

The Cosmos is electromagnetic in nature





Plasma fields create the most tenous forms of a pure Electrical field, and being a EM field they are also exceptional conductors of energy and accelerators of charged Ions

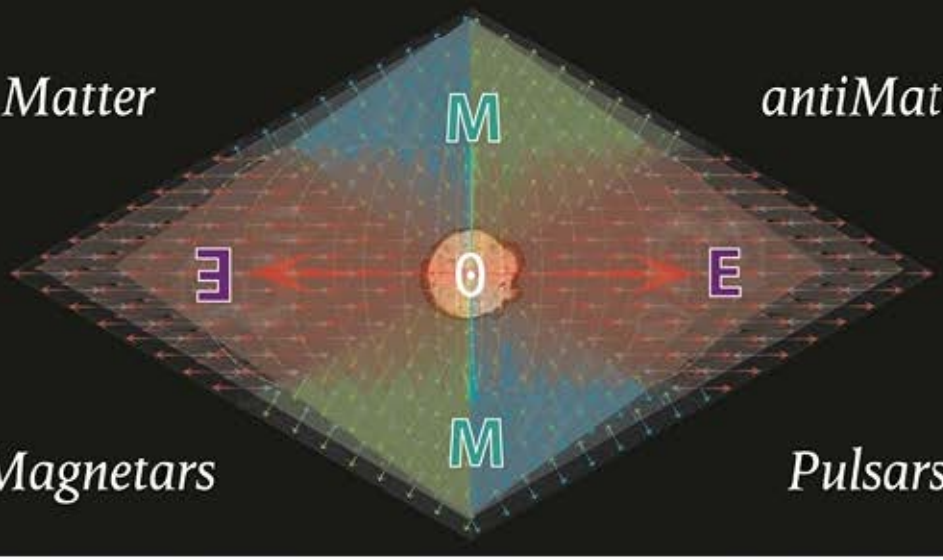
Magnetised Plasma fields
neutral electric charge EM fields
(with a magnetic magneton)

Charged Plasma fields
charged electrostatic EM fields
(with no magnetic magneton)

Neutron stars

Matter

antiMatter



Accretion discs

Gamma rays

Magnetars

Pulsars

Neutron Stars

All Gravitational fields are comprised of quantum GEM fields

In current astrophysical theories in order to create a

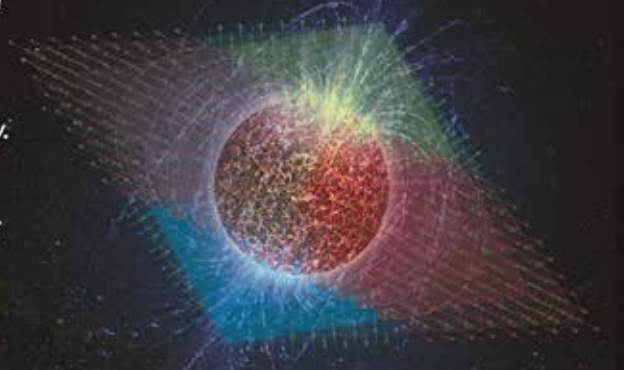
Neutron star

the central region of the star collapses under gravity.

It collapses so much that protons and electrons combine to form neutrons. and neutrogenic Matter

Hence the name "neutron star".

Typical Neutron stars have very strong M-fields



Contrary to current theories any star with strong dipolar M-fields must also possess neutral E-fields

"A neutron star is a type of remnant that can result from the gravitational collapse of a massive star during a Type II, Type Ib or Type Ic supernova event.

Such stars are composed almost entirely of neutrogenic Matter, [Neutrons, antiNeutrons and neutrinos] which against current theory act in exactly the same manner as ordinary Matter in producing spectral lines.

"Neutron stars are very hot and are supported against further collapse because of the Pauli exclusion principle.

This principle states that no two neutrons (or any other fermionic particle) can occupy the same place and quantum state simultaneously"

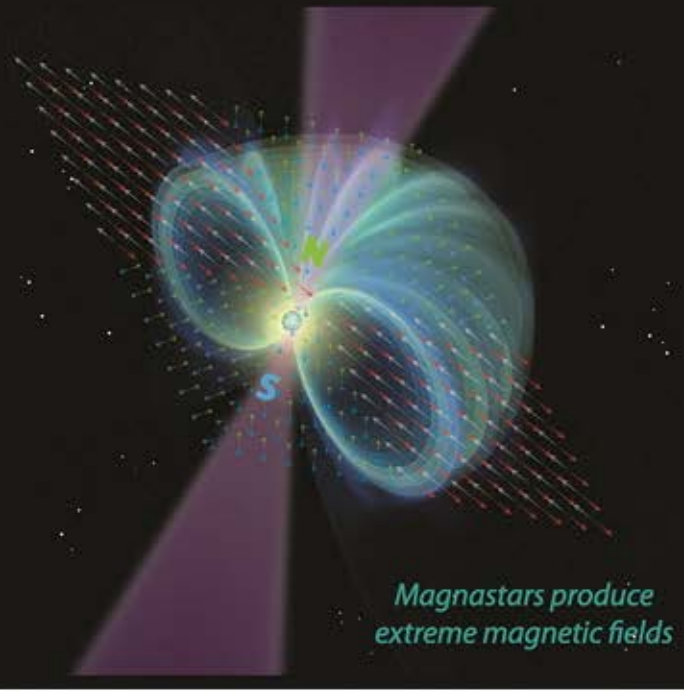
As shown throughout Tetryonic theory Neutron stars can be formed comprised completely of 'Neutral Matter'

Neutral Matter is comprised of Neutron - anti-Neutron - Neutrino atomic nuclei

Neutral matter atoms function identically to normal matter-antimatter particle topologies and releases energy in the form of photons

The gravitational collapse of any stellar material must overcome the radiant EM energies that it releases

Pulsars are non-neutral stellar objects that have weak M-fields but emit extremely strong E-field radiation as they collapse



Magnastars produce extreme magnetic fields

Neutral matter in Neutron stars experience the same ElectroMagnetic forces as normal matter and anti-matter stars but have differing charge arrangements

Neutronium formation

Neutrons & neutrinos

Neutronium is a proposed name for a substance composed entirely of Neutrons & neutrinos

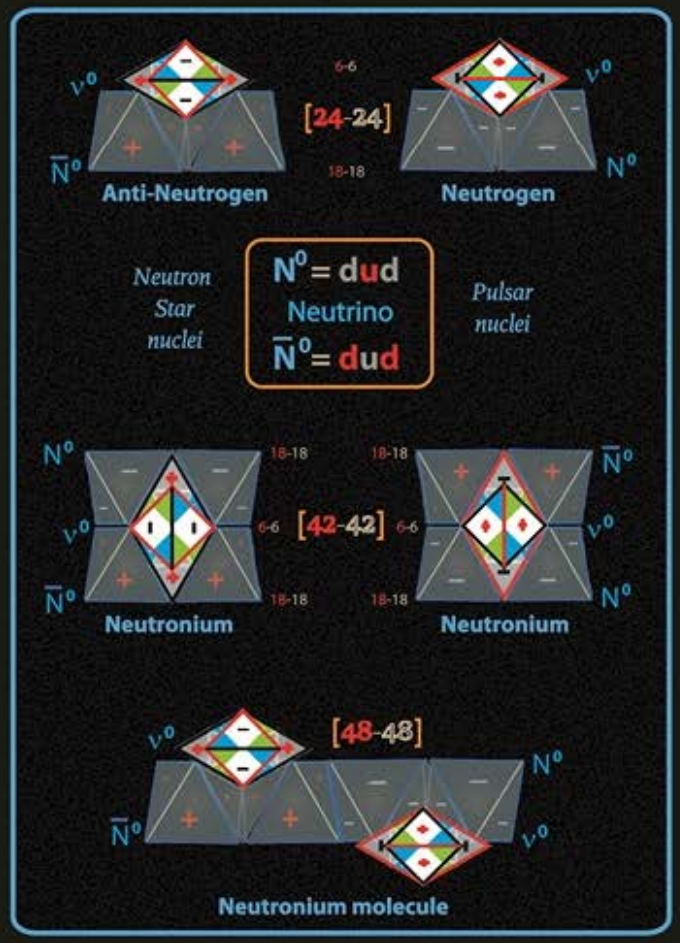
Neutron degeneracy

As a star collapses, the Fermi energy of the electrons increases to the point where it is energetically favorable for them to combine with protons to produce neutrons (via inverse beta decay, also termed "neutralization" and electron capture)

This, as shown through Tetryonic geometry, is incorrect

Neutrons are NOT comprised of Protons with electrons fused into them under pressure

Gravitational fields are comprised of convergent gravity and interactive EM fields



"The gravitational field at the star's surface is about 2×10^11 times stronger than on Earth.

Such a strong gravitational field acts as a gravitational lens and bends the radiation emitted by the star such that parts of the normally invisible rear surface become visible"

Photons and EM waves are REFACTED by EM fields NOT bent by gravity as currently hypothesized

Neutronium

$$\frac{T\pi}{c^4}\left[\left[m\Omega v^2\right]\right]$$

Planck quanta; mass; velocity

The neutral nuclei of neutron stars emit exactly the same light as normal stars do

Neutron stars are made of neutronium nuclei

A neutron star is a type of stellar remnant that can result from the gravitational collapse of a massive star during a Type II, Type Ib or Type Ic supernova event.

Such stars are composed almost entirely of neutrons, which are subatomic particles without electrical charge and with the same mass-Matter as protons. Neutron stars are very hot and are supported against further collapse by quantum degeneracy pressure due to the Pauli exclusion principle.

This principle states that no two neutrons (or any other fermionic particles) can occupy the same place and quantum state simultaneously

N^0 ν^0

Equilateral Planck geometries create elementary charge topologies

Neutron star types

Neutron stars comprise one of the possible evolutionary end-points for stars, they are compact stellar objects measuring between 10 and 20 km across with intense magnetic fields around 10^12 times that of the Earth

Like all forms of Matter, neutron stars are formed from 3 distinct charge flavours of Matter

Matter

positrons

neutrinos

electrons

anti-Matter

Protons

Neutrons

Negatrons

Neutron stars are neutral charge pulsars

Positive charge pulsars

Neutron Stars

Negative charge pulsars

Strong E-fields

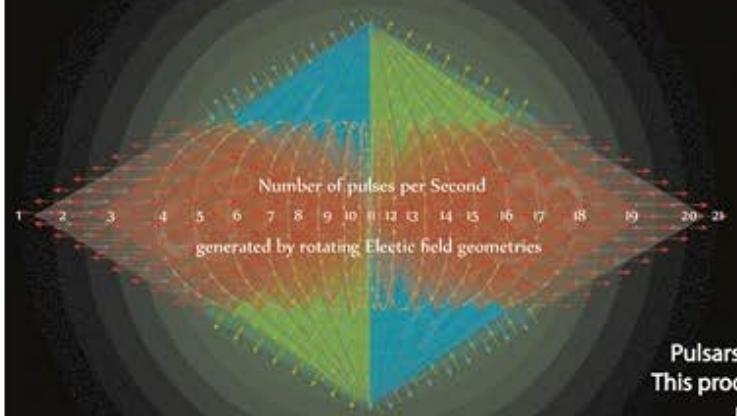
Strong dipolar M-fields

Strong E-fields

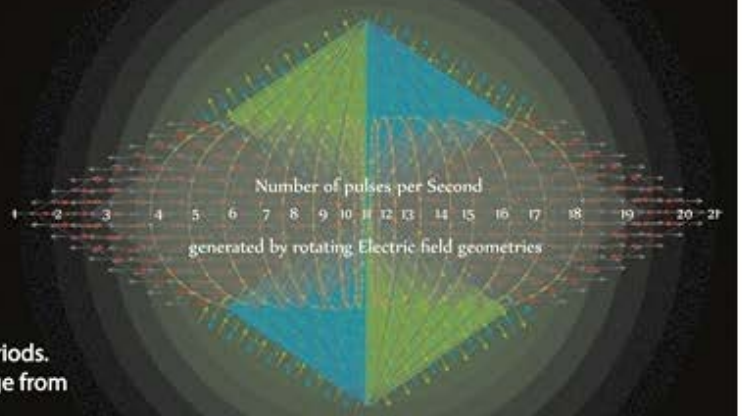
Pulsars

A pulsar is a rotating neutron star that emits a beam of electromagnetic radiation.

This radiation can only be observed when the beam of emission is pointing towards the Earth, much the way a lighthouse can only be seen when the light is pointed in the direction of an observer, and is responsible for the pulsed appearance of emission.



Pulsars are electrially charged versions of neutron stars that have weak M-fields in comparision to Neutron stars themselves



Pulsars are very dense, and have short, regular rotational periods. This produces a very precise interval between pulses that range from milliseconds to several seconds for individual pulsars

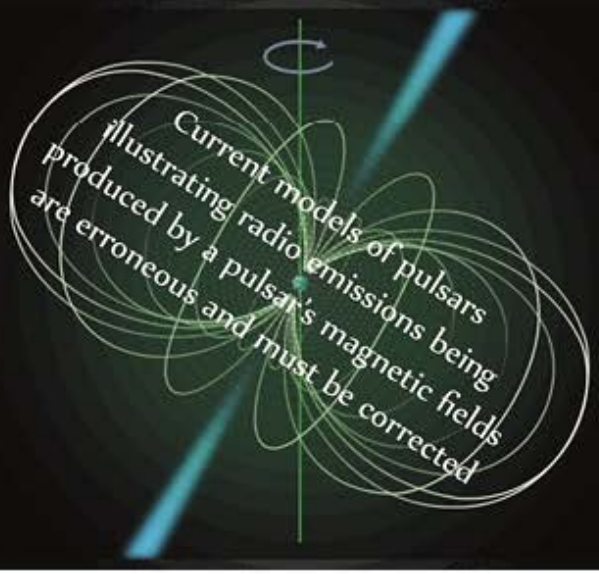
E-field waves accelerate charged particles M-fields do no work

Ampere

$$\vec{F} = q\vec{E} + q\vec{v} \times \vec{B}$$

Electric force *Magnetic field*

Lorentz



Radio wave astomony detects E-field waves of energy momenta not magnetic waves

Maxwell

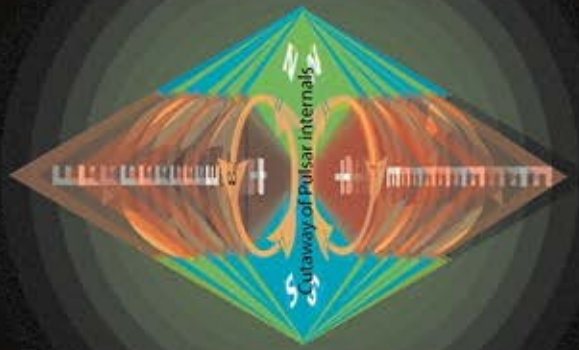
Because a magnetic force is always perpendicular to the motion, the magnetic field can do no work on an isolated charge.

It can only do work indirectly, via the electric field generated by a changing magnetic field

Faraday

Pulsars

Are compact Matter bodies with strong GEM fields



Like all Stellar bodies their GEM fields resolve to a point at their core

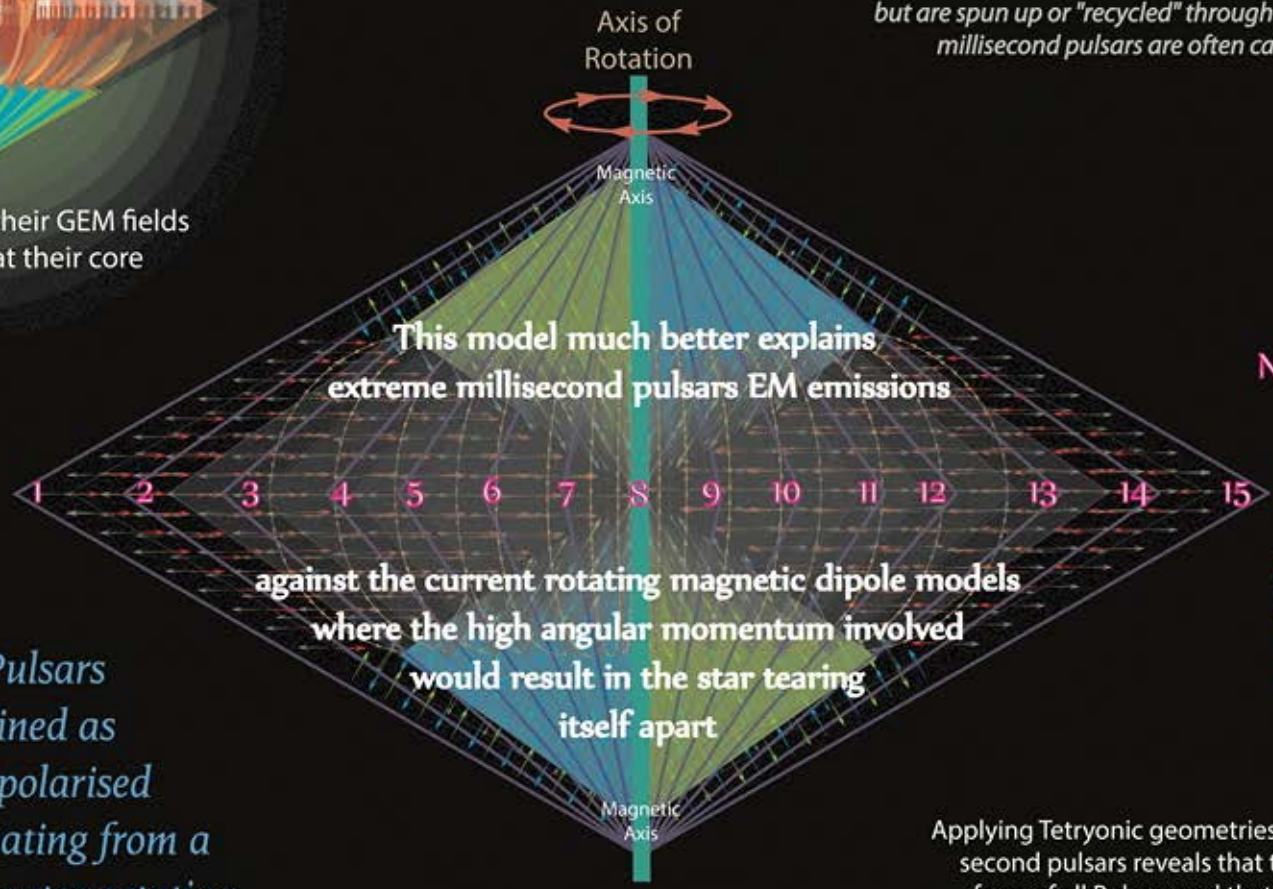
The gravitational collapse of Matter produces radiative electromagnetic waves

A millisecond pulsar (MSP) is a pulsar with a rotational period in the range of about 1-10 milliseconds.

Millisecond pulsars have been detected in the radio, X-ray, and gamma ray portions of the electromagnetic spectrum.

The origin of millisecond pulsars is still unknown.

The leading theory is that they begin life as longer period pulsars but are spun up or "recycled" through accretion. For this reason, millisecond pulsars are often called recycled pulsars.



This model much better explains extreme millisecond pulsars EM emissions

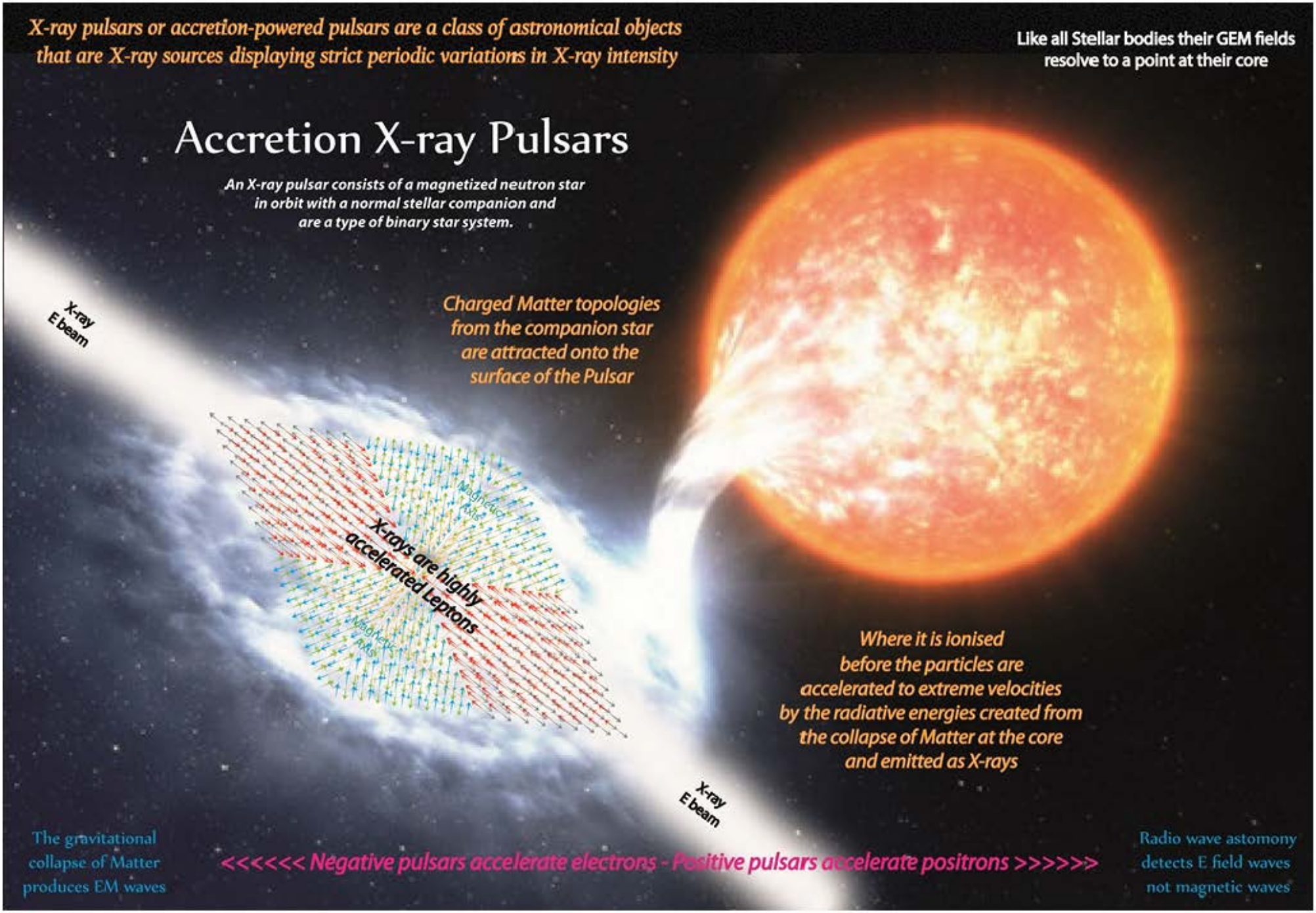
against the current rotating magnetic dipole models where the high angular momentum involved would result in the star tearing itself apart

Number of Pulses per Second

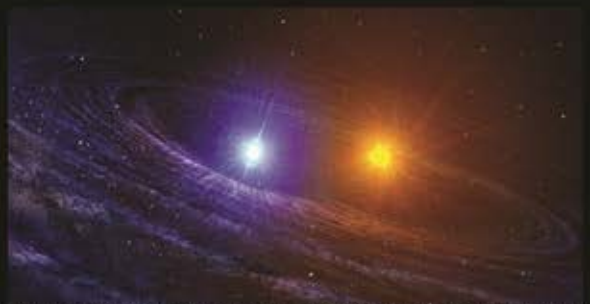
Radio wave astomony detects E-field energy momenta impulses not magnetic waves

Millisecond Pulsars are best explained as the detection of polarised Electric fields originating from a non-charged Neutron star rotating with high angular momentum

Applying Tetryonic geometries to the question of milli-second pulsars reveals that they are the formative form of all Pulsars and that over time they slow down to become the observed longer period pulsars [obeying the conservation of Angular momentum law]



Stellar Novae



Novae are cataclysmic stellar phenomena that take place in binary systems consisting of a compact stellar object and a low-mass star.

Novae are cataclysmic nuclear explosions in a white dwarf star.

It is caused by the accretion of hydrogen on to the surface of the star, which ignites and starts a runaway nuclear 'fusion' process

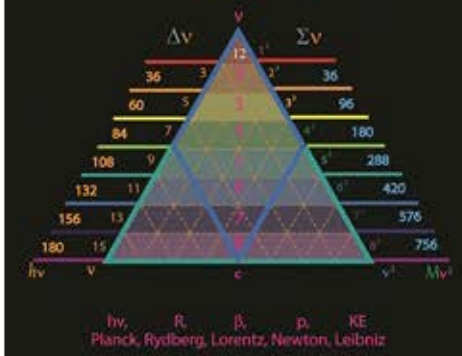
All stellar 'fusion' processes are in fact GEM pinches that convert standing wave Matter into radiant mass-energy

the size of a planet but with a mass of up to 1.4 times that of the Sun

The stars must be close enough for the intense gravitational field of the white dwarf to tear material away from the outer layers of its companion.

photons of energy momenta form kEM fields that accelerate ions and electrons

spectral line transitions



all elemental spectral lines are the result of accelerating photo-electrons

Novae break accreted Matter into its constituent Deuterium nuclei and then irradiate the nuclei to higher energy levels with radiant EM energies produced by their EMP cores

producing the characteristic spectral lines of Helium, Carbon, Nitrogen, Oxygen, Calcium, Iron etc

runaway Matter-energy conversion within the supernova

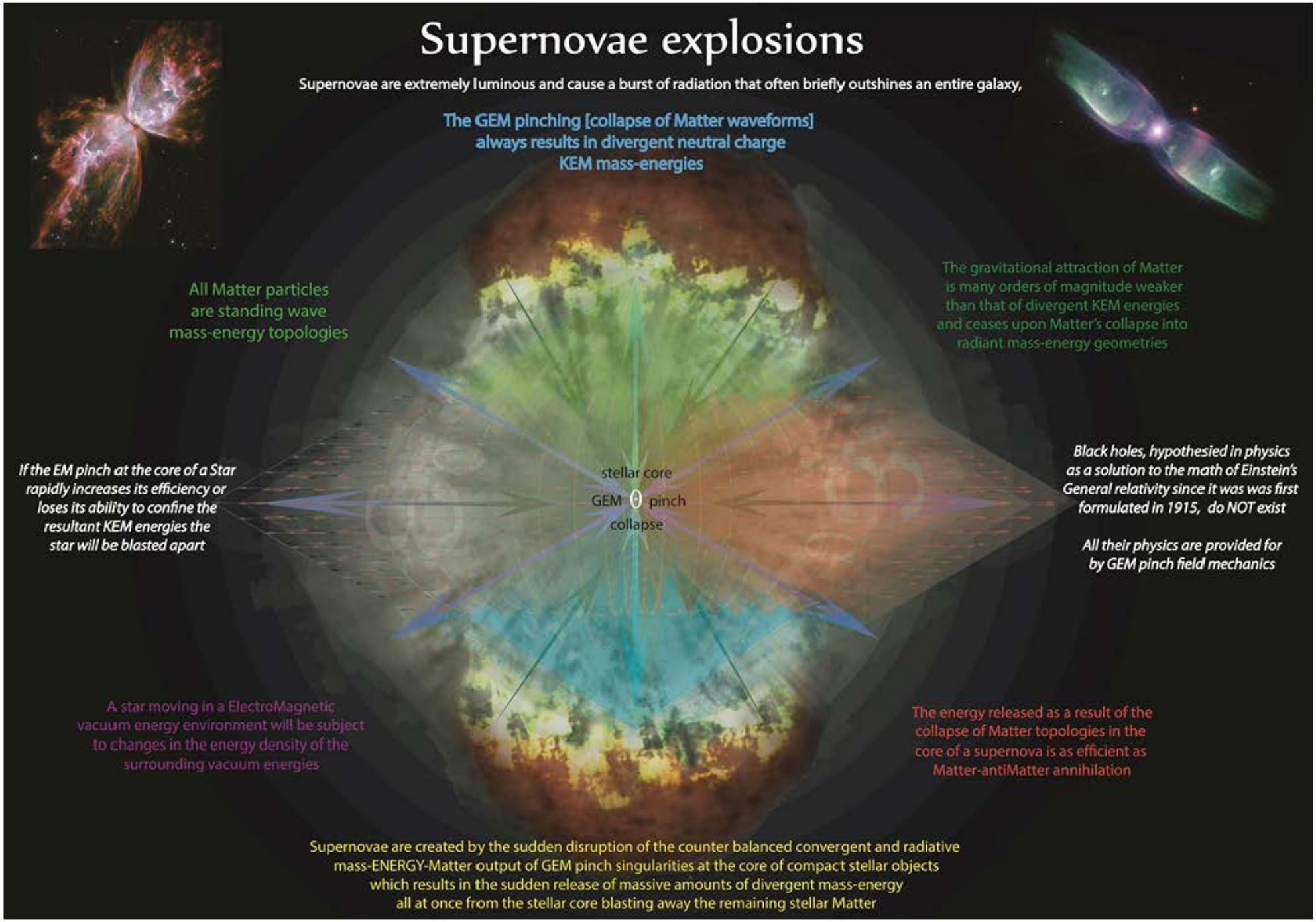
12	*Lyman*
48	*Balmer*
108	*Paschen*
192	*Brackett*
300	*Pfund*
432	*Humphries*
588	*un-named*
768	*ionised leptons*

accelerates ions & photo-electrons producing spectral line emissions and creates gamma ray bursts

An enigma that has puzzled experts for over 50 years is the origin of the irregular, inhomogeneous distribution of nova ejecta

The material transferred by the companion star is often of solar composition (i.e., close to 98% hydrogen and helium by mass).

Elements, in the range between carbon (C) and calcium (Ca) on the periodic table, can account for 30% to 50% of the material ejected during a nova explosion.

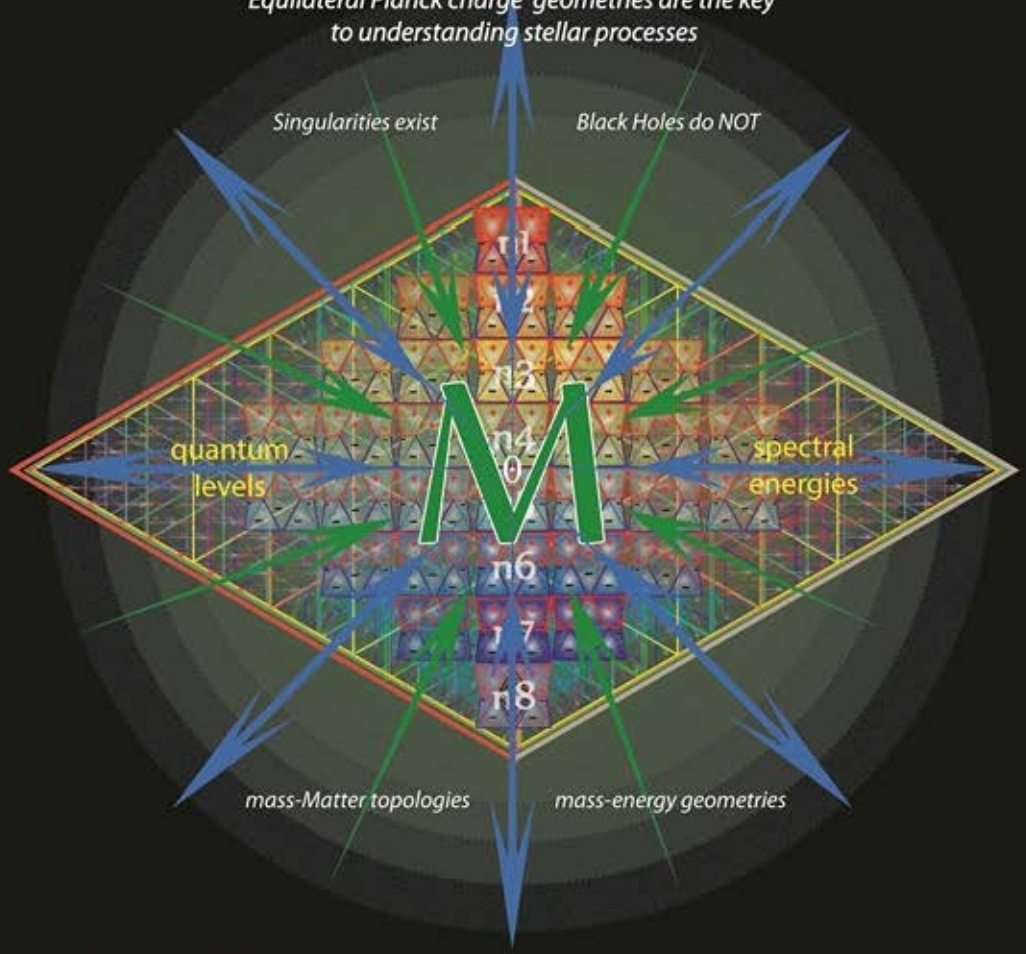


Singularities

Current theories based on mathematical modelling of General relativity without accurate quantum mechanical models predicts that at densities greater than those supported by fermion degeneracy, gravity overwhelms all other forces collapsing the 3D material body of a large star to create a singularity and the eventual formation of a black hole.

A gravitational singularity or spacetime singularity is a location where the quantities that are used to measure the gravitational electromagnetic fields become infinite in a way that does not depend on the spatial co-ordinate system

Equilateral Planck charge geometries are the key to understanding stellar processes



Just as the radiative KEM fields of Matter in motion and charged EM fields gives rise to the modern physics misconceptions of spherical point particles and String theories

The smallest quanta of 3D Matter is a Tetryon

(any attempt to reduce its 3 spatial dimensions results in its collapse into 2D divergent mass-energy waveforms)

Tetryonic theory precludes point particles and black holes through analytic mass-energy geometries & Gaussian Matter topologies that result from equilateral Planck energy momenta interactions

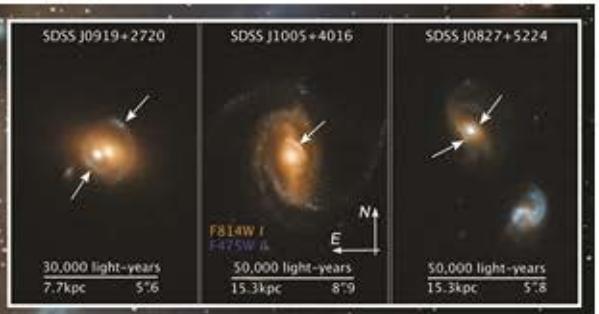
The collapse of 3D Matter releases its standing-wave energies as radiant 2D mass-energies foms the basis for all Stellar energy releases

Tracing the GravitoElectroMagnetic fields of Matter back to their origin point can give rise to the misconception of a EM field singularity leading to a black hole

Black holes do not exist

Quasi-stellar objects

As standing-wave Matter is converted to radiant EM masses and pure energy the outputs of GEM pinches can increase dramatically over short periods



A quasi-stellar radio source ("quasar") is a very energetic and distant active galactic nucleus.

Quasars and Blazars are extremely luminous and were first identified as being high redshift sources of electromagnetic energy, including radio waves and visible light, that were point-like, similar to stars, rather than extended sources similar to galaxies

Long hypothesised as having supermassive Blackholes at their cores Tetryonics reveals Matter~Energy GEM pinches to be the source of the observed, distant large-scale stellar dynamics

All Matter (comprised of charged Planck quanta) will accelerate according to their charge distributions as they interact with the divergent energies of EM pinches

The central 'core' point singularity of any GEM pinch is completely invisible and is revealed only by its effects on Matter through its interactive EM fields

mass geometries are energy per c^2

$E = mc^2$

mass-energy equivalence

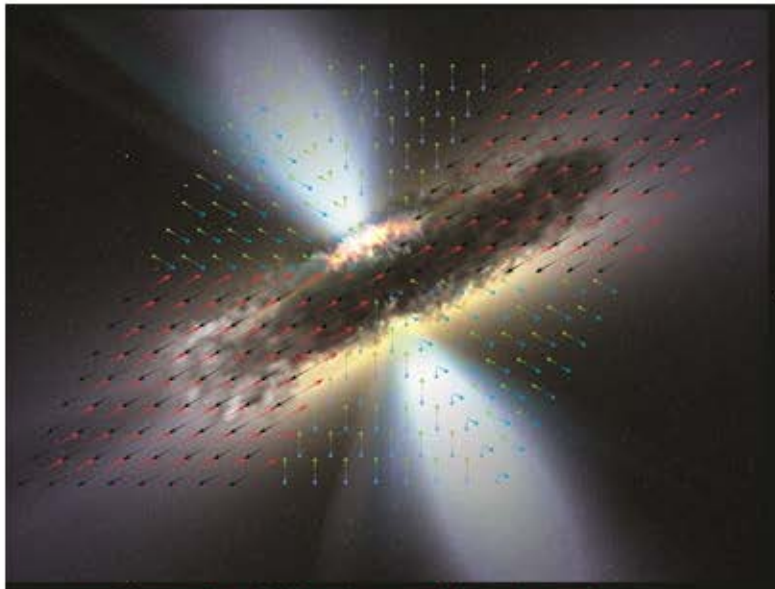
Stellar GEM pinches convert Matter topologies into radiant mass-energy geometries with 100% efficiency

Matter topologies are energy per c^4

Matter-energy equivalence

$E = \frac{m}{c^2}$

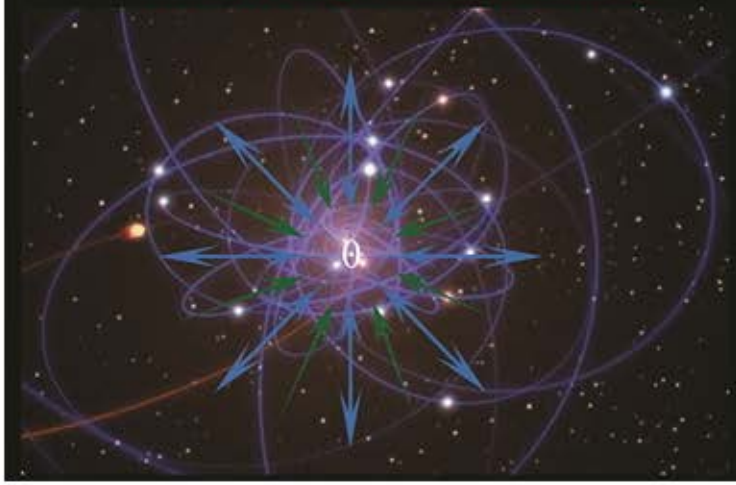
Active Galaxies



In addition to the E-field acceleration of charged particles GEM pinches can also release energies along their Magnetic axis

An active galactic nucleus (AGN) is a compact region at the centre of a galaxy that has a much higher than normal luminosity over at least some portion, and possibly all, of the electromagnetic spectrum.

The motion of stars about a central point in a galaxy's core is the result of a GEM pinch's radiated interactive forces



GR uses stress tensors to model the gravitational effects of ALL energy in a system in its various forms without distinction or differentiation between mass-energy geometries and Matter topologies

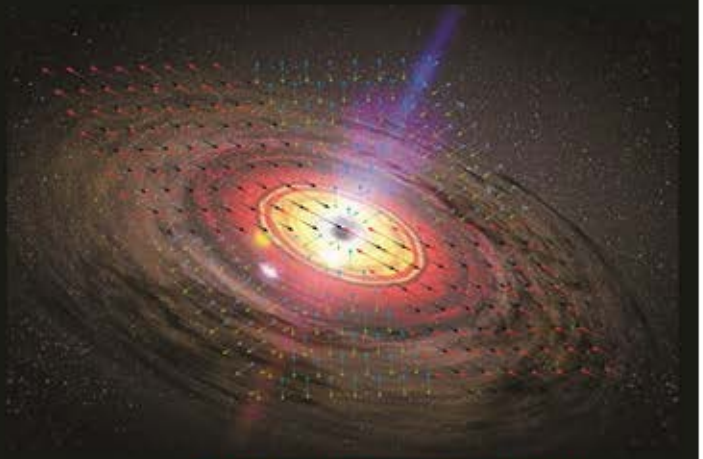
EM PINCHES ARE 100% EFFICIENT CONVERTERS OF MATTER INTO ENERGY

Using Tetryonic geometry the Universe is revealed as being completely dominated by ElectroMagnetic forces, with Gravity aiding at the larger scales to help shape the differing forms of Galaxies that we see

EM PINCHES REDUCE TO SINGULARITIES AT THE FOCUS OF THEIR DIVERGENT FIELDS

Tetryonic geometry reveals divergent interactive EM masses & convegent gravitational Matter all contribute to the nett force of Gravitational fields

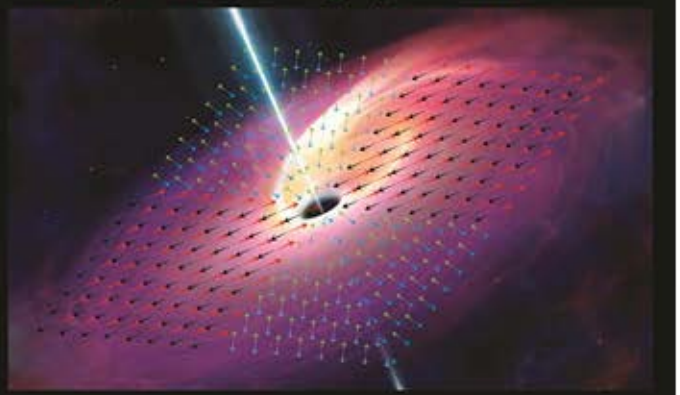
The current astrophysical models of active galaxies propose supermassive Blackholes as the only mechanism possible to produce the observed large-scale dynamics



E-fields hold Matter in a disc and M-fields release highly polarised energies

Tetryonics reveals the Galactic EM Pinches are also capable of fitting the observed data and explaining many of the current mysteries surrounding how active galaxies generate their power.

The energies released by the conversion of Matter into energy in GEM pinches is the most energetic process in the Universe



Black holes

[Garbage IN - Garbage OUT]

Computer-based modelling of GR mathematics without charge geometries leads to paradoxial & erroneous outcomes

Tetryonics allows for Supermassive Matter to form but does NOT allow for the classically defined Black holes

The centres of Galaxies & Quasars hypothesised as being powered by supermassive blackholes are in fact the foci of ElectroMagnetic pinches

In General relativity, a black hole is a region of space in which the gravitational field is so powerful that nothing, including light, can escape its gravitational pull.

The black hole has a one-way surface, called an event horizon, into which objects can fall, but out of which nothing can come. It is called "black" because it absorbs all the light that hits it, reflecting nothing, just like a perfect blackbody in thermodynamics.

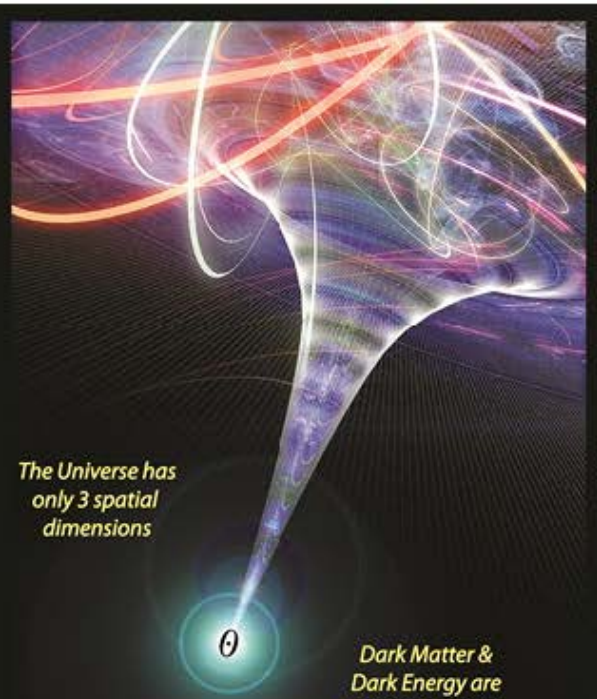
'Standard Model' quantum analysis of black holes shows them to possess a temperature and emit Hawking radiation.

In Standard Model Quantum Mechanics a problem arises in that Charge and Gravity equations break down and produce infinities and other impossible results

Very large non-radiating 'Dark Matter' would be the closest thing possible to the currently theorised black-holes.

However the 3D volume of such an object would be limited to the space taken up by its constituent Tetryonic charge Matter topologies. (ie Tetryons face-to face without Space present between any facsias)

This is similar to the current models of Neutron Stars , WIMPs and MACHOs

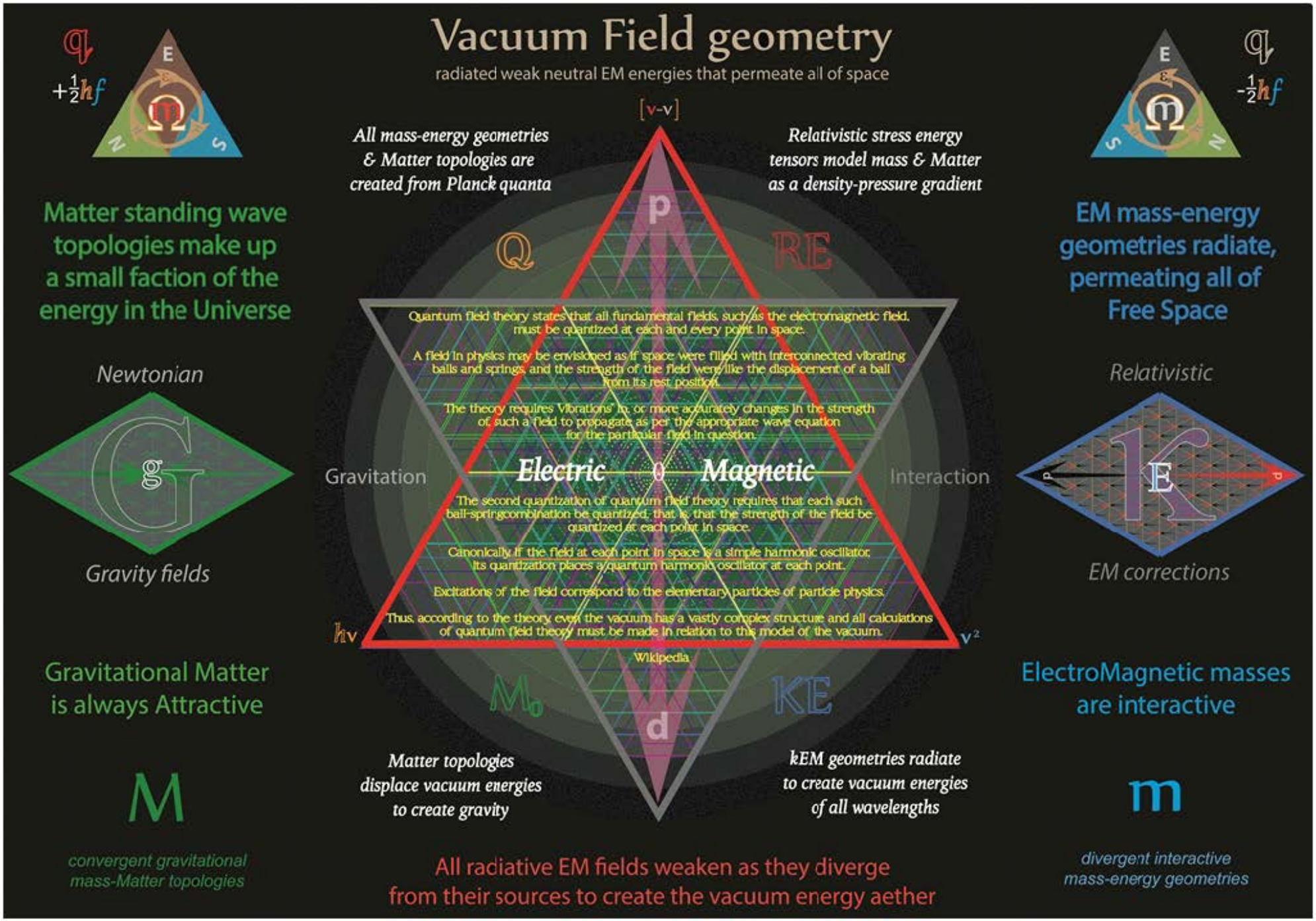


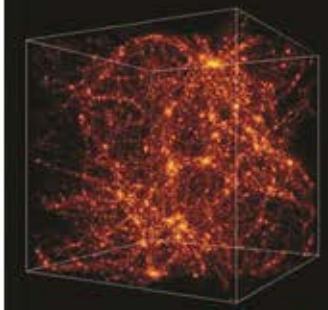
The Universe has only 3 spatial dimensions

Dark Matter & Dark Energy are EM vector forces

Black holes, Worm holes & other passable singularities do NOT exist

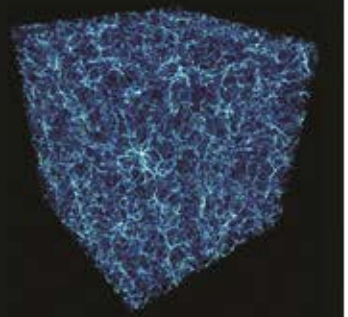
The collapse of standing-wave Matter topologies results in the release of divergent radiative mass-energy geometries





The Big Bang theory

The Big Bang is a considered to be a well-tested scientific theory which is widely accepted within the scientific community because it is the most accurate and comprehensive explanation for the full range of phenomena astronomers observe.



The framework for the Big Bang model relies on Albert Einstein's general relativity and on simplifying assumptions such as homogeneity and isotropy of space.

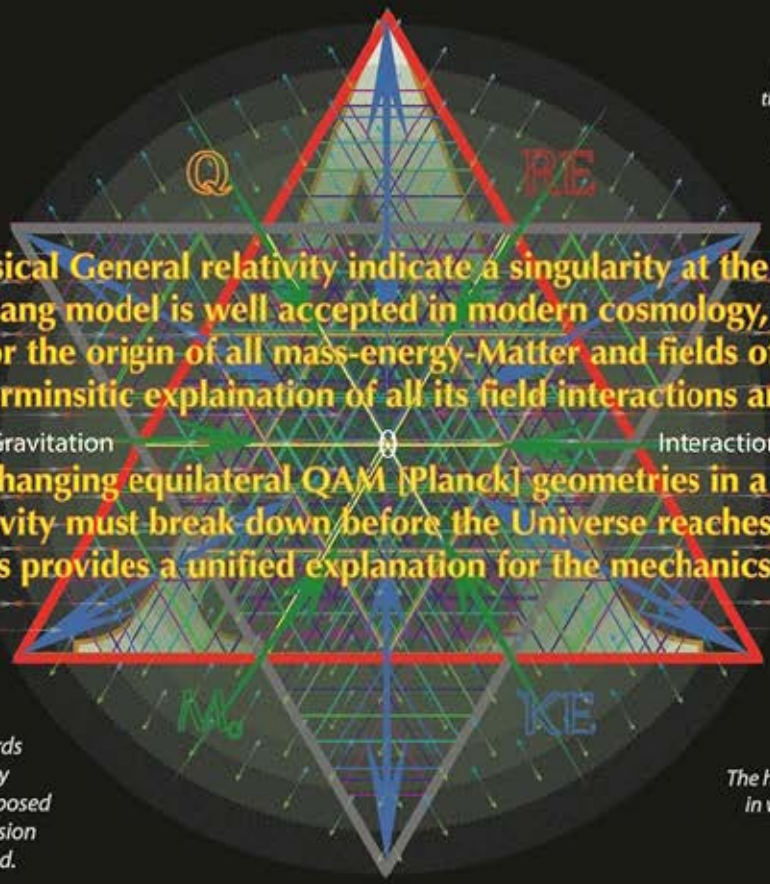
Primodial Atom

According to the Big Bang theory, the Universe was once in an extremely hot and dense state which expanded rapidly

The Big Crunch

If the mass density of the Universe were greater than the critical density, then the Universe would reach a maximum size and then begin to collapse.

It would become denser and hotter again, ending with a state similar to that in which it started



The equations of classical General relativity indicate a singularity at the origin of cosmic time, and while the Big Bang model is well accepted in modern cosmology, Tetryonics provides a clear causal model for the origin of all mass-energy-Matter and fields of force in our Universe, offering a unified, determinsitic explaination of all its field interactions and ultimate energy fate.

Tetryonics relates Time to changing equilateral QAM [Planck] geometries in a dynamic evolving Universe. Moreover, general relativity must break down before the Universe reaches the Planck temperature while Tetryonics provides a unified explanation for the mechanics of the Universe

Big Bang

Extrapolation of the expansion of the Universe backwards in time using general relativity yields an infinite density and temperature at a finite time in the past, which it is proposed underwent a explosive birth and a period of rapid expansion in order to produce the homognetity currently observed.

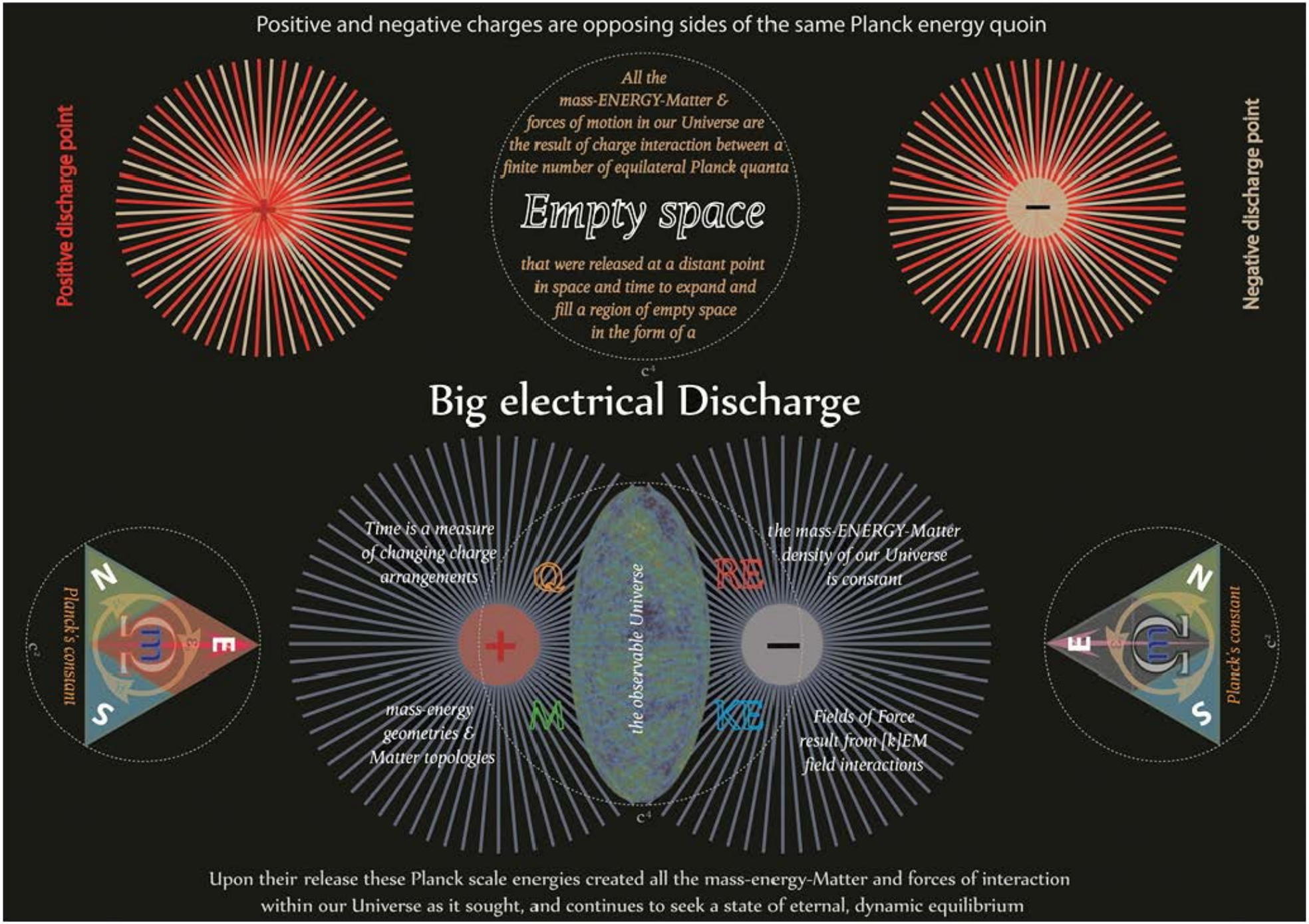
The Big Chill

The heat death of the universe is a suggested ultimate fate of the universe, in which the universe has diminished to a state of no thermodynamic free energy and therefore can no longer sustain motion or life.

Inflation

Energy death

The Big Bang theory is the prevailing cosmological model that attempts to explain the early development of the Universe



The Dynamic Universe

Like a living breathing Organism, the Universe can now be seen as an eternally dynamic system that is constantly evolving through Matter creation, EM interactions & Matter destruction

Gravitational contraction

Singularities

arise from the vector modelling of convergent EM fields of force without an understanding of the EM energy momenta geometries

The formation of Matter creates regions of attractive low vacuum energy pressure

[Convergent Gravity]

Dark Matter

results from modern modelling of convergent EM interactions without an understanding of the EM energy momenta geometries

All mass-ENERGY -Matter arises from equilateral Planck energy quanta

Flat Euclidean geometries and Platonic topologies create everything

charge **Q**

Energy **RE**

M mass-Matter

KE kinetics

The Cosmos is a dynamic, eternally evolving GEM energy environment

Radiant expansion

Inflation

arises from an attempt to explain the observed homogenity of the Universe without an understanding of kEM energy momenta geometries

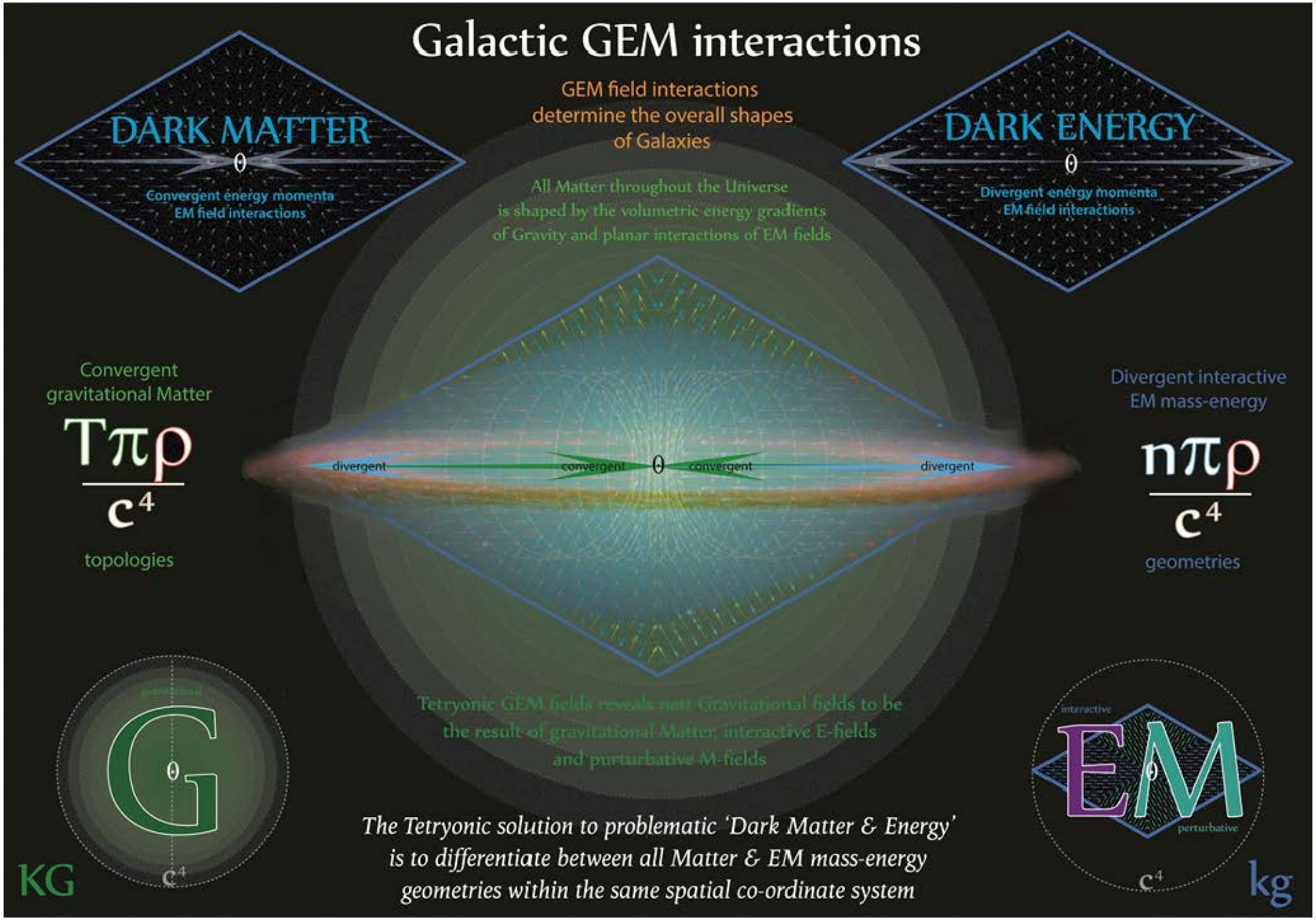
The collapse of standing-wave Matter releases interactive EM mass-energies

[Divergent EM Radiation]

Dark Energy

results from modern modelling of divergent EM interactions without an understanding of the EM energy momenta geometries

The energetic 'space-time fabric' of our Universe is not curved, it is created from flat Euclidean Planck quanta in a finely tuned state of dynamic equilibrium between gravitational Matter & radiant EM mass-energies



The Dark Forces

Gravitational attraction is the result of the nullspace of Matter.
It is many orders of magnitude weaker than ElectroMagnetic forces
(Gravity does not hold the whole galaxy together)

charged energy geometries

energy momenta quanta

$$n\pi[m\Omega v]^2$$

mass velocity

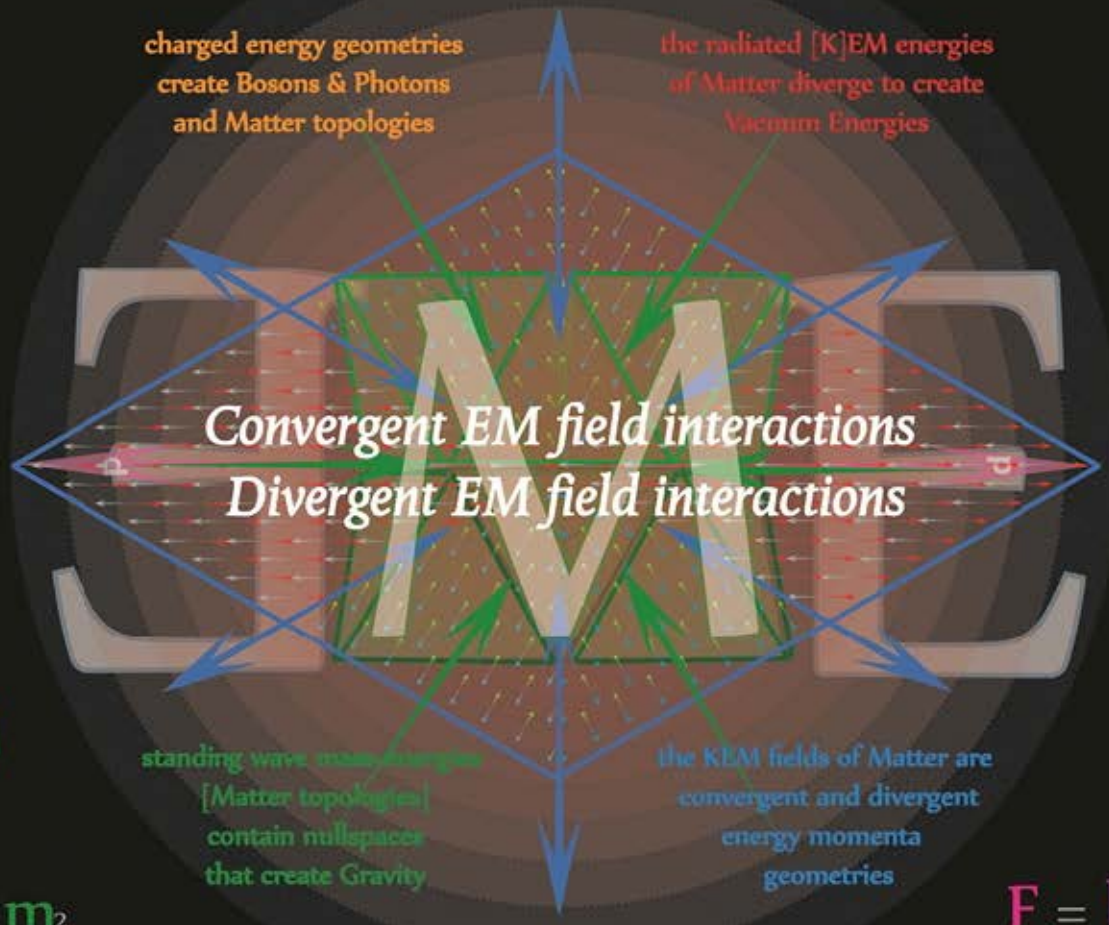
$$G_{ab} + \Lambda g_{ab} = \frac{8\pi G}{c^4} T_{\mu\nu}$$

Newtonian Gravity models the motion resulting from the attractive force between Matter

General Relativity models perturbative force resulting from the total energy of any system

charged energy geometries create Bosons & Photons and Matter topologies

the radiated [K]EM energies of Matter diverge to create Vacuum Energies



All [K]EM radiation has a CONVERGENT component in its interactive field that increases when Matter is in motion

DARK MATTER

or when its standing-wave Matter topology is destroyed

All [K]EM radiation has a DIVERGENT component in its interactive field that increases when Matter is in motion

DARK ENERGY

or when its standing-wave Matter topology is destroyed

$E \xrightarrow[\text{energy momenta}]{\text{convergent}} M$

$M \xrightarrow[\text{energy momenta}]{\text{divergent}} E$

standing wave mass-energies [Matter topologies] contain nullspaces that create Gravity

the KEM fields of Matter are convergent and divergent energy momenta geometries

$$F = -G\frac{M_1 m_2}{r^2}$$

$$F = k\frac{Q_1 Q_2}{r^2}$$

Gravitational Matter is attractive

G

Tetryonics dictates that in order to correct for measured Gravitational accelerations we must distingush between EM mass and Matter and take into account all the EM forces as well as that of Gravity produced by Matter

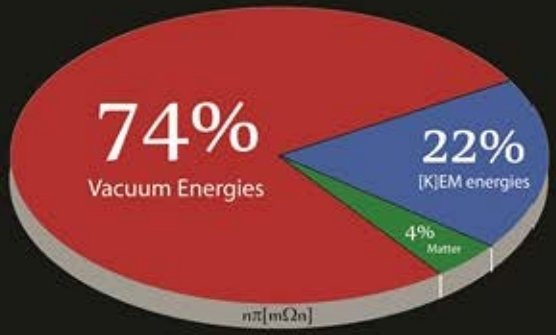
k

ElectroMagnetic mass-energies are interactive

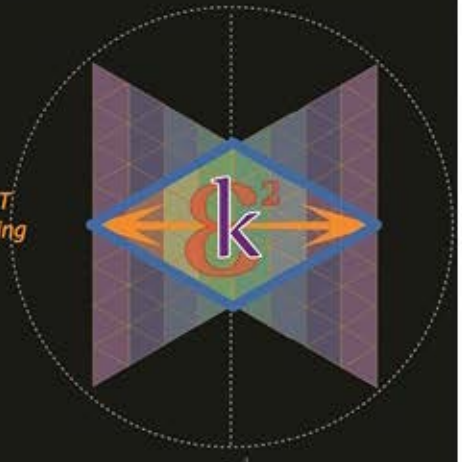
Vacuum Energies

Vacuum energy is an underlying background energy that exists in space even when it is devoid of Matter (free space) and results from the introduction of the Cosmological constant [Λ] by Albert Einstein as a modification of his original theory of General relativity in order to achieve a static universe.

Dark Matter is a measure of CONVERGENT KEM interactions additional to that of Gravity



Dark Energy is a measure of DIVERGENT KEM interactions opposing that of Gravity



He later abandoned this concept after observations of the Hubble redshift indicated that the universe might not be stationary

Gravitational Matter is always attractive

$$G_{ab} + \Lambda g_{ab} = \frac{8\pi G}{c^4} T_{\mu\nu}$$

total system energy

ElectroMagnetic masses are always interactive

Matter

M

topologies

mass

m

geometries

Unlike Einstein's Special and General theories of Relativity that utiliizes a scalar energy density tensor, Tetryonics utilizes analytical geometry & topology to differentiate between EM mass & Matter and model all energy interactions in any spatial region

Gravity results from standing-wave Matter

Gravito-Electro-magnetic interactions

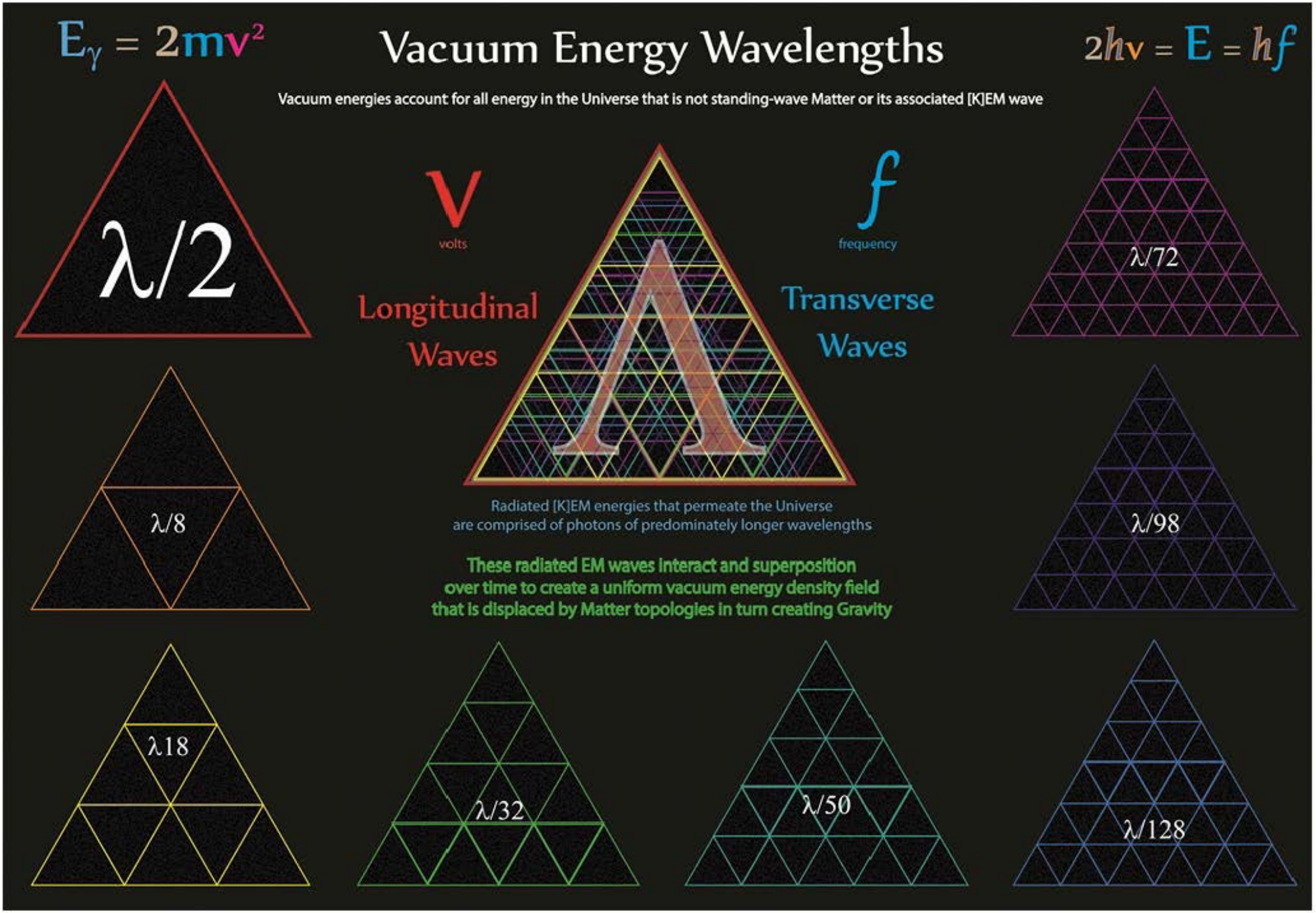
GEM = $\dfrac{n\pi[m\Omega v]^2}{c^4}$

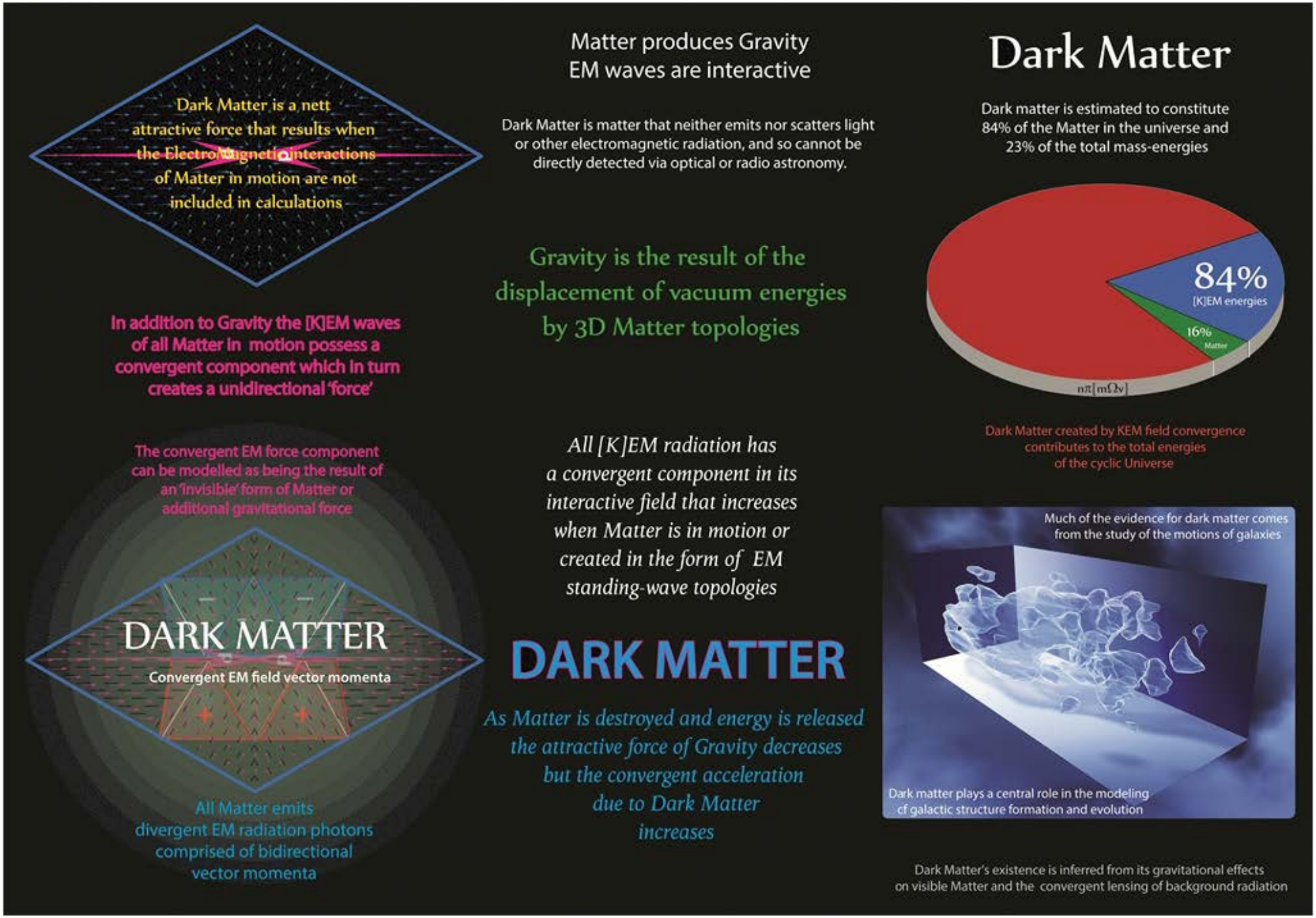
Total energy geometries — *quantised energy momenta*

of all EM mass-ENERGY-Matter in the Universe can be defined as

spatial volume of mass-energy-Matter interactions

EM interactions result from superpositioned EM masses





Galaxy Rotations

In 1986, Nobel laureate Hannes Alfven postulated at an electrical model for the solar system

The rotation curve of a galaxy (also called a velocity curve) can be represented by a graph that plots the orbital speed (in km/s) of the stars or gas in the galaxy on the y-axis against the distance from the center of the galaxy on the x-axis

The dynamic modelling of large scale Matter must take into account all forces present

Based on Newtonian mechanics and assuming, as was originally thought, that most of the Matter of the galaxy had to be in the galactic bulge near the center, Matter (such as stars and gas) in the disk portion of a spiral should orbit the center of the galaxy similar to the way in which planets in the solar system orbit the sun, i.e. where the average orbital speed of an object any distance away from the majority of the Matter would decrease inversely with the square root of the radius of the orbit

G

Gravitational Matter is attractive

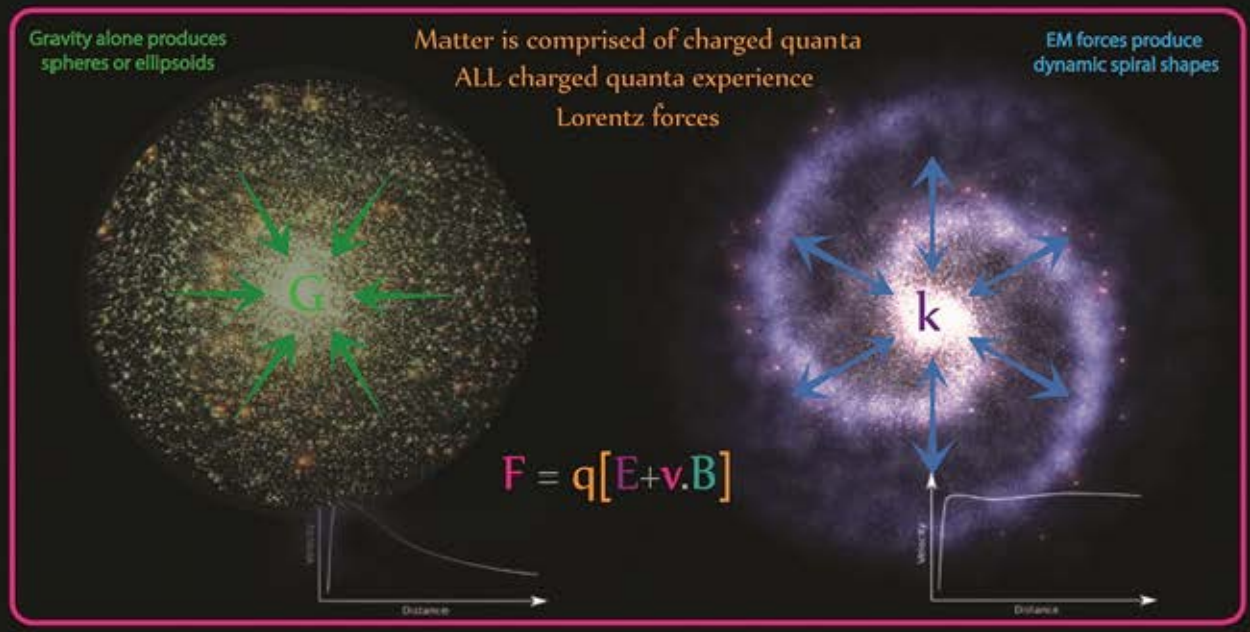
Newtonian gravity models convergent Gravity only

$$F = -G\frac{M_1}{r^2}$$

Gravity alone produces spheres or ellipsoids

Matter is comprised of charged quanta
ALL charged quanta experience Lorentz forces

EM forces produce dynamic spiral shapes



$$F = q[E+v.B]$$

The curves of the rotational velocities of stars within Galaxies do not decrease in the expected inverse square root relationship but are "flat", i.e. outside of the central bulge their speed is nearly constant from the centre out ot the edge of the galaxy [identical to the forces produced by homopolar motors]

SR

ElectroMagnetic mass-Energy is interactive

General relativity models interactive GEM energies

$$F = k\frac{Q_1}{r^2}$$

Tetryonics dictates that we must take into account EM forces as well as Gravity in order to account for any perturbations that convergent Gravitation alone cannot account for

Observations have shown there is not sufficient visible Matter in the Universe to account for the apparent strength of gravitational forces within and between galaxies leading to the hypothesis that up to 90% of the Matter in the Universe is

Dark Matter

Gravity alone does not hold the whole galaxy together
It is many orders of magnitude weaker than ElectroMagnetic forces

To account for the redshift–magnitude relation of type Ia supernovae General relativity requires that much of the energy in the Universe consists of a component with large negative pressure, this negative-gravity has been dubbed

Dark Energy

Gravitational attraction is the nett convergent force resulting from three distinct quantum forces

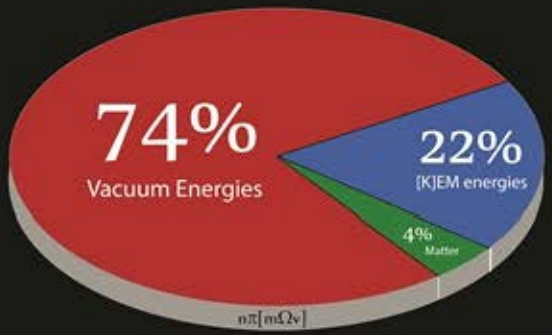
Dark Energy

Dark energy is a hypothetical form of energy that permeates all of space and tends to increase the rate of expansion of the universe.

EM mass-energies are conservative

Dark Energy is a nett repulsive force that results when Gravitational Matter topologies are destroyed by stellar GEM pinch processes

Matter is not conservative



Independent from its actual nature, dark energy would need to have a strong negative pressure (repulsive force or divergent energy opposite that of gravitational attraction) in order to explain the observed acceleration in the expansion rate of the universe.

Dark Energy is the divergent scalar field created by [K]EM field energies

2D [K]EM fields create interactive forces between Matter

The cosmological constant is physically equivalent to vacuum energy

All [K]EM radiation has a divergent component in its interactive field that increases when Matter is in motion

DARK ENERGY

or its standing-wave topology is destroyed

As Matter is destroyed and energy is released the attractive force of Gravity decreases and the divergent acceleration due to Dark Energy increases

The [K]EM fields of Matter are comprised of convergent and divergent Energy moments

DARK ENERGY

Divergent EM field interactions

The Dark Energy created by divergent KEM fields contributes to the total energies of the cyclic Universe

DARK MATTER

Convergent EM field interactions

A major outstanding problem is that most quantum field theories predict a huge energy value for the quantum vacuum, more than 100 orders of magnitude too large.

This would need to be cancelled almost, but not exactly, by an equally large term of the opposite sign.

DARK ENERGY

Divergent EM field interactions

In fact a negative pressure does not influence the gravitational interaction between Matter [which remains attractive] but rather alters the overall evolution of the universe at the cosmological scale, typically resulting in the localised accelerating expansion of the universe despite the attraction between Matter present throughout the Universe.

Energy-momenta geometry

The super-positioned EM fields of free space is comprised of Planck energy momenta

A major outstanding problem is that most quantum field theories predict a huge cosmological constant from the energy of the quantum vacuum, more than 100 orders of magnitude too large.

if the Higgs field does exist, another field with an unknown negative energy is needed to reduce the total energy in the vacuum to a slightly positive value to correspond with the current accelerated rate of expansion

Due to the equilateral asymmetry of all the energy momenta quanta in charged electromagnetic fields

Dark Energy is Divergent Vacuum Energy momenta in free Space

Summing over all possible Energy quanta at all points in space gives a large but NOT infinite quantity of energy-momenta

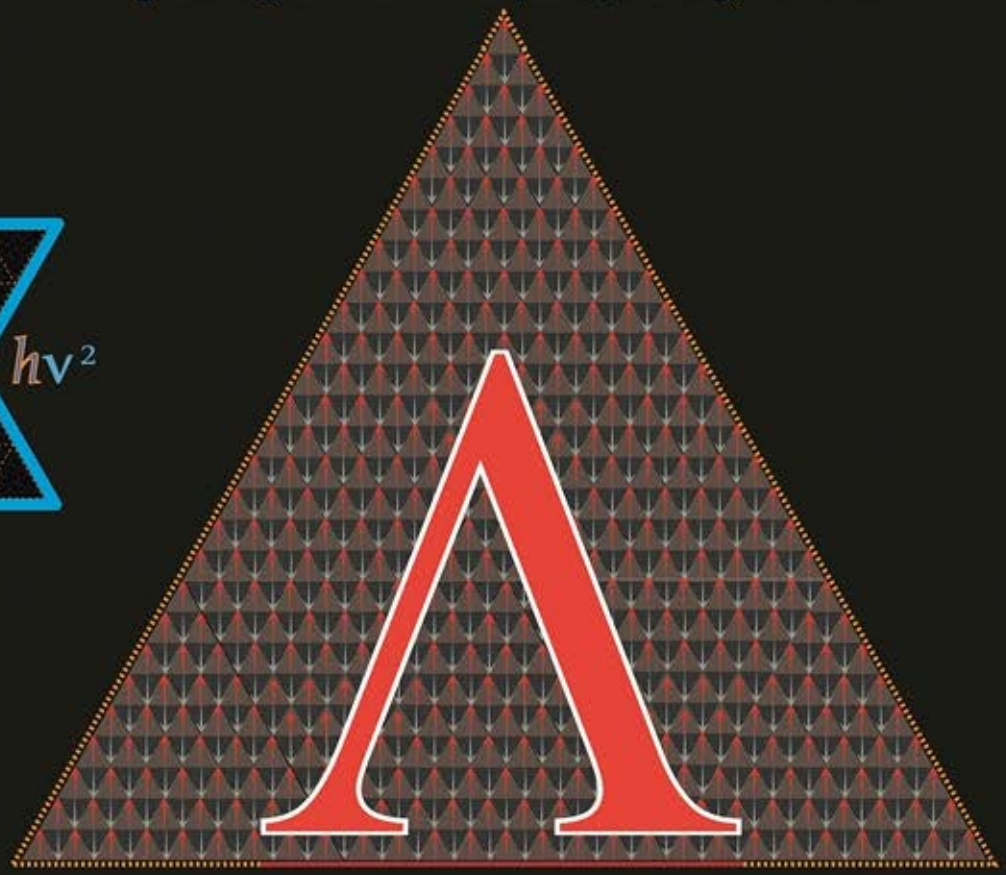
E Field Coulombic forces

convergent momenta

divergent momenta

Vacuum charge momentum

Convergent Vacuum Energy momenta in free Space is Dark Matter

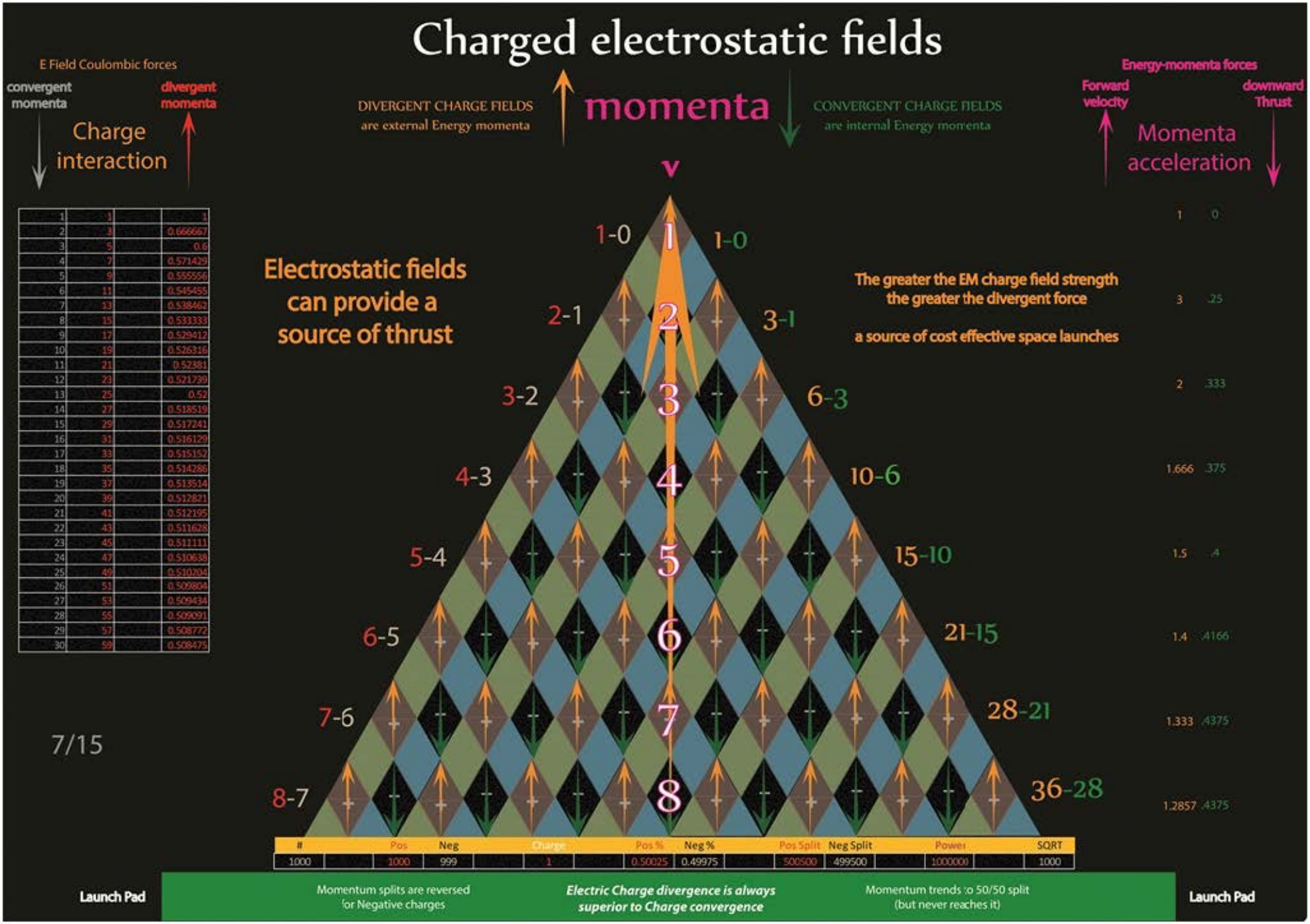


1	1		1
2	3		0.666667
3	5		0.6
4	7		0.571429
5	9		0.555556
6	11		0.545455
7	13		0.538462
8	15		0.533333
9	17		0.529412
10	19		0.526316
11	21		0.52381
12	23		0.521739
13	25		0.52
14	27		0.518519
15	29		0.517241
16	31		0.516129
17	33		0.515152
18	35		0.514286
19	37		0.513514
20	39		0.512821
21	41		0.512195
22	43		0.511628
23	45		0.511111
24	47		0.510638
25	49		0.510204
26	51		0.509804
27	53		0.509434
28	55		0.509091
29	57		0.508772
30	59		0.508475

The total Vacuum Energy in any spatial region contains fields of Planck energy-momenta seeking an equalised, homgenous state

2

Divergent energy momenta always dominates over Convergent energy momenta



Electrostatic lifters

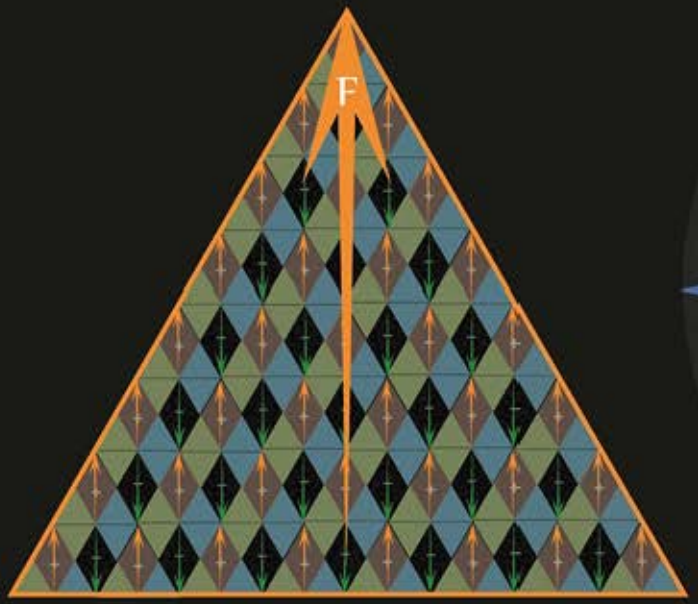
Electrostatic levitation is the process of using an electric field to levitate a charged object and counteract the effects of gravity

Electrostatic charges are always divergent from their sources

Static electricity is the result of electrostatic charges

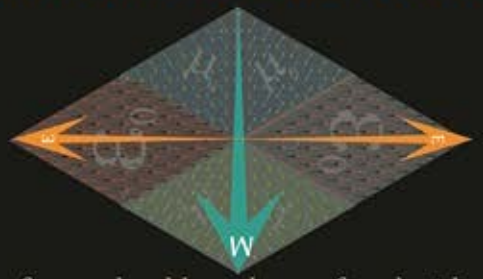
Electrostatic charges are comprised of divergent energy momenta

Tetryonic geometries and Coulombic forces offers an alternative means of propulsion for space lauches and frictionless transports

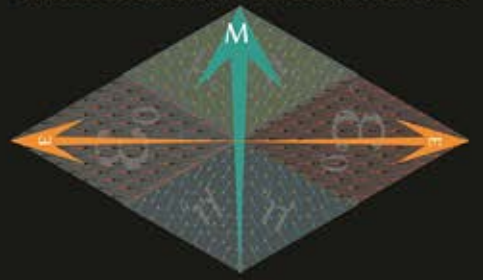


Charged voltage fields contain nett divergent energy momenta [Planck quanta] that can do work over distances

Electrostatic levitation



forces should not be confused with



Magnetic levitation

The Light speed barrier

BOSONS/PHOTONS
2D Planar massless particles
[EM mass-Energies]
'slice' throught the
vacuum energy aether

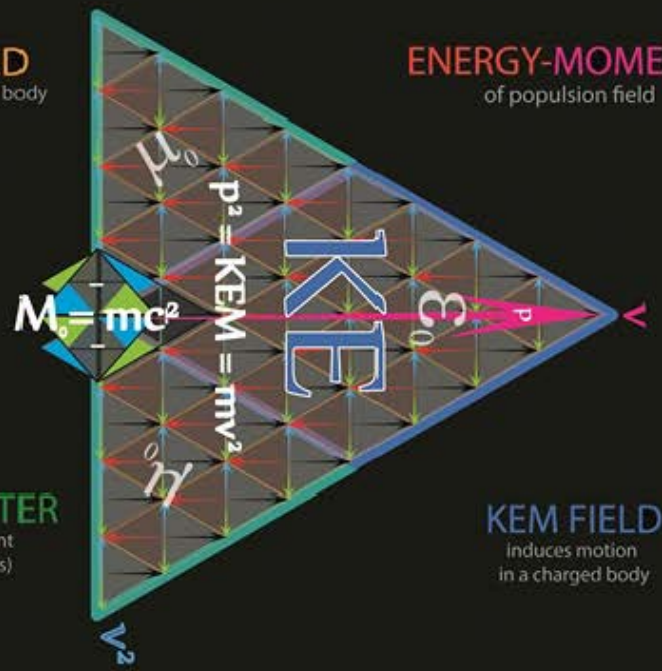
CHARGED
particle or massive body

ENERGY-MOMENTA
of populsion field

The Compton frequency of quanta
in any EM field is directly proportional
to the field's velocity of propagation

**The 'speed of Light'
is the limiting speed of
transverse EM accelerations
[it is not THE limit]**

$E = Mv^2$



$KE = \frac{1}{2}Mv^2$

MOTION VECTOR
direction of propulsion
of a charged body

REST MATTER
remains invariant
(but accelerates)

KEM FIELD
induces motion
in a charged body

TETRYONS/BARYONS
3D Tetrahedral EM Matter
[4nπ EM mass-Energies]
interact at various angles with the
vacuum energy aether

**Tetryonic geometry clearly shows that here is NO limit to the
energy content that can be released into any spatial region,
negating the long held belief of a Light speed barrier**

V

According to special relativity, **c** is the maximum speed at which all EM mass-Energy and information in the universe can travel.
it is predicted by General relativity to be the absolute velocity of all 'massless particles' and associated fields
- including ElectroMagnetic radiation such as Light in a vacuum.

Such particles and waves travel at **c** regardless of the motion of the source or the inertial frame of reference of the observer.
In the theory of relativity, c interrelates space and time, and appears in the famous equation of mass–energy equivalence E = mc2.

C

The speed at which light waves propagate in vacuum
is independent both of the motion of the wave source
and of the inertial frame of reference of the observer

$$E = n\pi\left[\left[m\Omega v^2\right]\right]$$

Planck quanta
mass
velocity

The speed of light in vacuum, usually denoted by c,
is a physical constant important in many areas of physics
and is determined by the impedance of the medium

Inflation

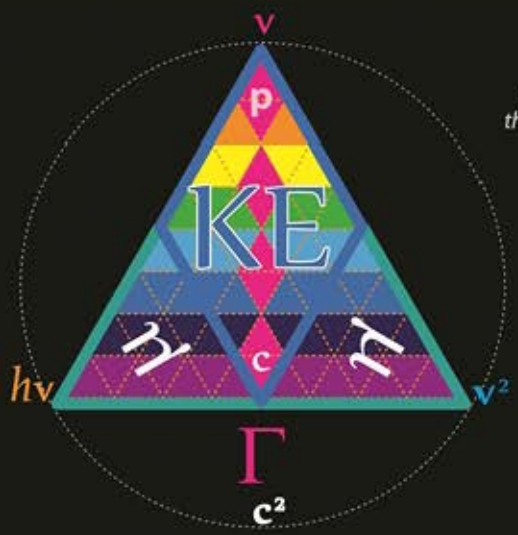
While the detailed particle physics mechanisms responsible for inflation are not known, the basic picture makes a number of predictions that have been confirmed by observation.

Inflation is thus now considered part of the standard hot Big Bang cosmology

$$\text{ENERGY}\ n\pi\left[\left[\text{Planck quanta}\ m\Omega v\right]^2\right]$$

momentum; mass; velocity

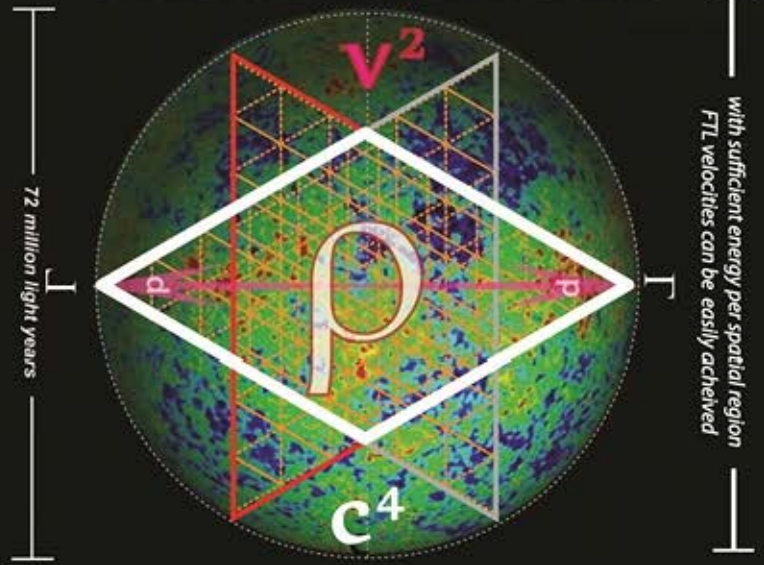
Tetryonics now provides a detailed physical model of ALL ponderable Matter and its kinetics through the charged geometry of mass-ENERGY-Matter



All mass-energy propagates at a velocity directly related to the impedance of the medium

The energy in any spatial region possesses a related mass-velocity [linear momentum] component

GIVEN SUFFICIENT ENERGIES ANY REGION OF SPACE-TIME WILL UNDERGO SUPERLUMINAL EXPANSION [INFLATION]



UNTIL IT REACHES A CRITICAL ENERGY DENSITY THAT RESULTS IN THE OBSERVED SPEED OF LIGHT THAT WE NOW MEASURE

The observable Universe could have originated from a region of pure energy in it's past.

This point would have contained all the Energy that ultimately formed all the mass-Matter of the Universe and Forces that we now observe and measure in two 2D planar fields

"And God said, Let there be light: and there was light"

The planar EM Energies released at that point would have resulted in faster-than-light divergence from that point as dictated by the geometric energy-momenta velocity relationship

$$\frac{\text{mass}\ n\pi\left[\left[\text{Planck quanta}\ m\Omega v^2\right]\right]}{c^2}$$

mass; velocity

It prescribes a dynamical EM Universe evolving over time

into a state of equilibrium between gravitational mass-Matter topologies and radiant, interactive mass-energy momenta geometries

$$\frac{\text{Matter}\ T\pi\left[\left[\text{Planck quanta}\ m\Omega v^2\right]\right]}{c^4}$$

mass; velocity

Superluminal velocities

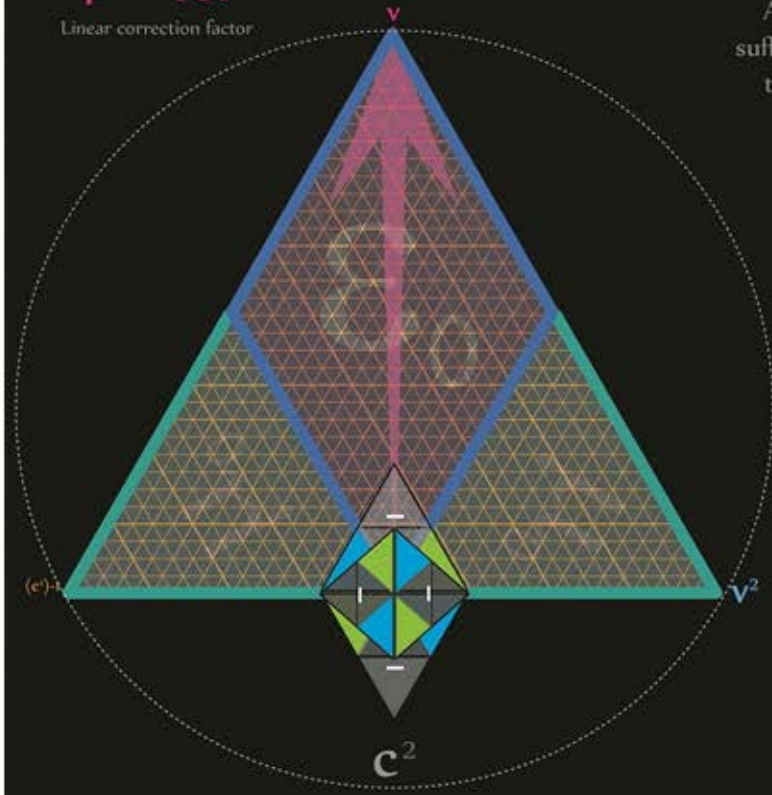
REQUIRED VELOCITY

$\beta = \left[\frac{v}{c}\right]$

Linear correction factor

Any velocity is obtainable by Matter providing sufficient energy is released in very short durations to a region of space containing a charged body

$$\Sigma F = \frac{\Delta p}{dt} = m.\frac{dv}{dt}$$



W bosons $[h\nu]-$ *decelerate*

E

W bosons $+[h\nu]$ *accelerate*

Every quantum energy level change requires a related change in the number of quanta compared to the previous energy level (ad infinitum)

Note: inertial considerations still apply
Instanteous release of energy to acheive superluminal velocities is not advised

KEM fields contain energy-momenta

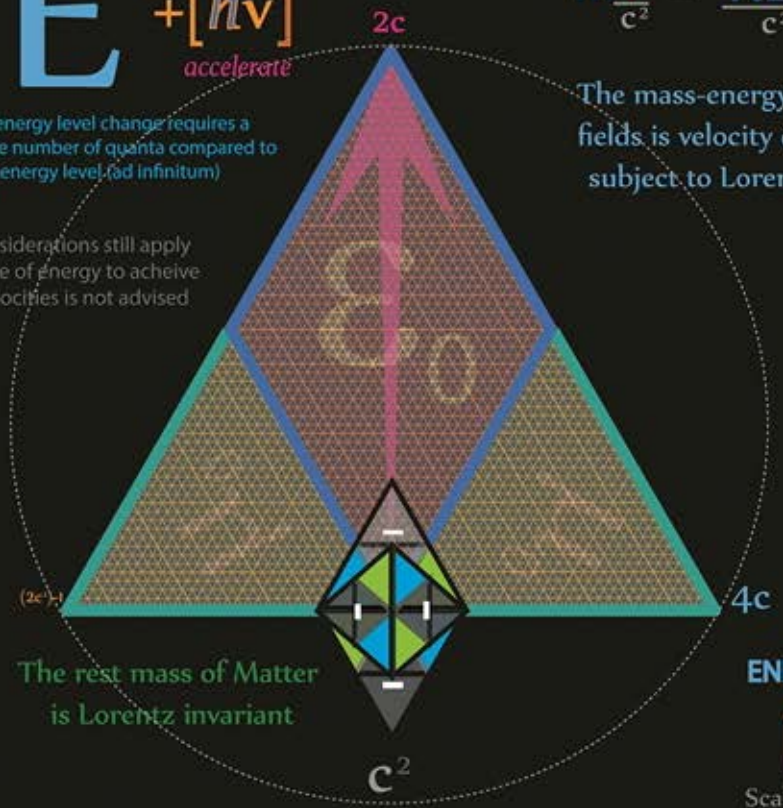
$p^2 = KEM = mv^2$

Any mass-energy field moving at superluminal velocities is still subject to Lorentz contractions

Any Matter held within, and moving along with, a superluminal EM field remains Lorentz invariant

$$\frac{mv^2}{c^2} = \frac{KEM}{c^2} = \frac{hv^2}{c^2}$$

The mass-energy of Kinetic EM fields is velocity dependent and subject to Lorentz corrections



The speed of light is a limiting velocity for accelerations due to transverse wave electromagnetic energies

Providing the KEM geometry contains enough energy per c^2 geometry the long held belief of 'the speed of light' being an ultimate speed barrier is shown to be invalid

The rest mass of Matter is Lorentz invariant

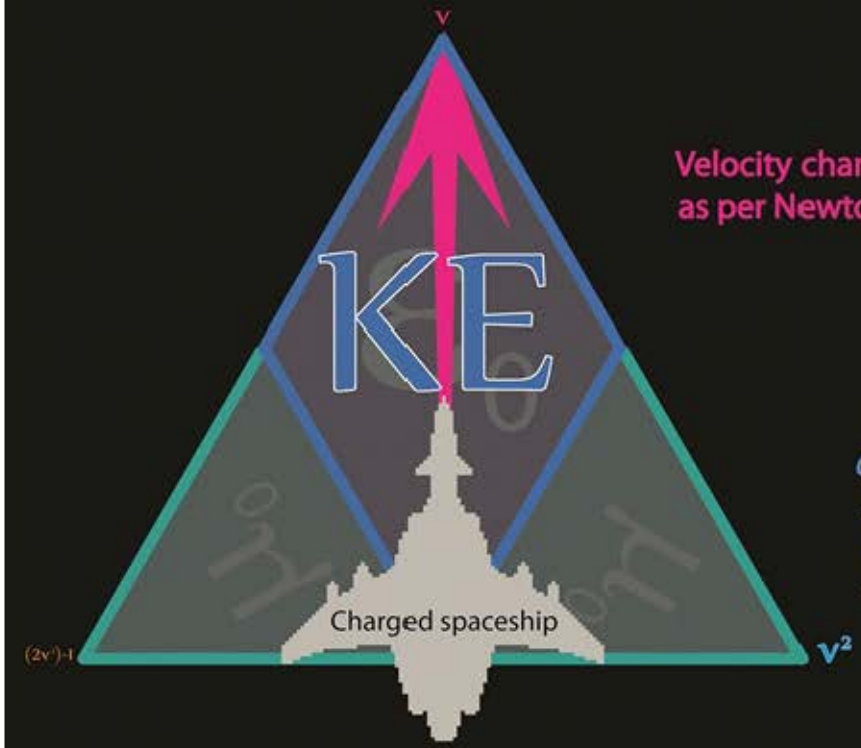
ENERGY REQUIRED

$\beta^2 = \left[\frac{v^2}{c^2}\right]$

Scalar correction factor

Faster than Light Travel

Any charged object in an Electric field will undergo acceleration

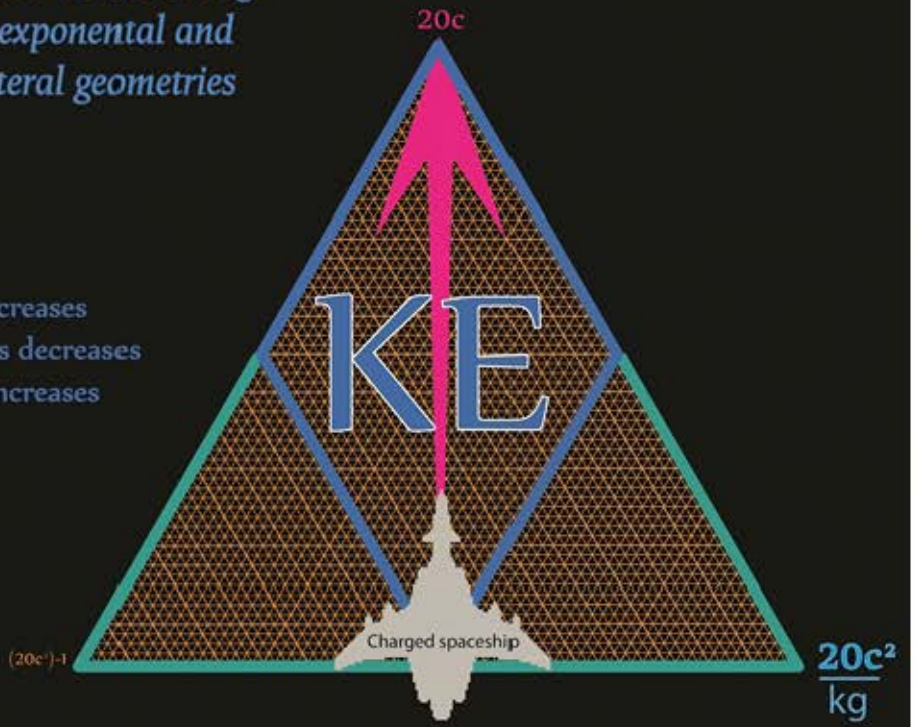


Velocity changes are additive as per Newtonian mechanics

It has been well established by Tetryonic geometry that the speed of light 'c' is not a insurmountable barrier as long expounded by Relativity theory

The natural speed of Light is easily surpassed given the right technologies (and sources of energy)

The energy requirements to accelerate Matter to increasing velocities are exponental and follow equilateral geometries



As the Spaceship's Velocity increases the wavelength of Kinetic Energies decreases and the Compton Frequency increases

Warp Speed Scotty

Proposed explanation for GAMMA RAY BURSTS (GRB)

Any massive body using KEM fields as a motive force for faster-than-Light travel would produce an extremely bright release of Gamma rays at their point of acceleration (as only 1/2 of the photonic energy would be used to accelerate the craft in any one direction), additionally anybody noticing the burst of required Energy would not find a 'source' for the Gamma ray burst when they looked as the craft would have accelerated away from that point in free space

Conservation symmetry

A conservation law states that some quantity X
(describing any physical system)
remains constant throughout its motion

$$\frac{\Delta x}{dt} = 0$$

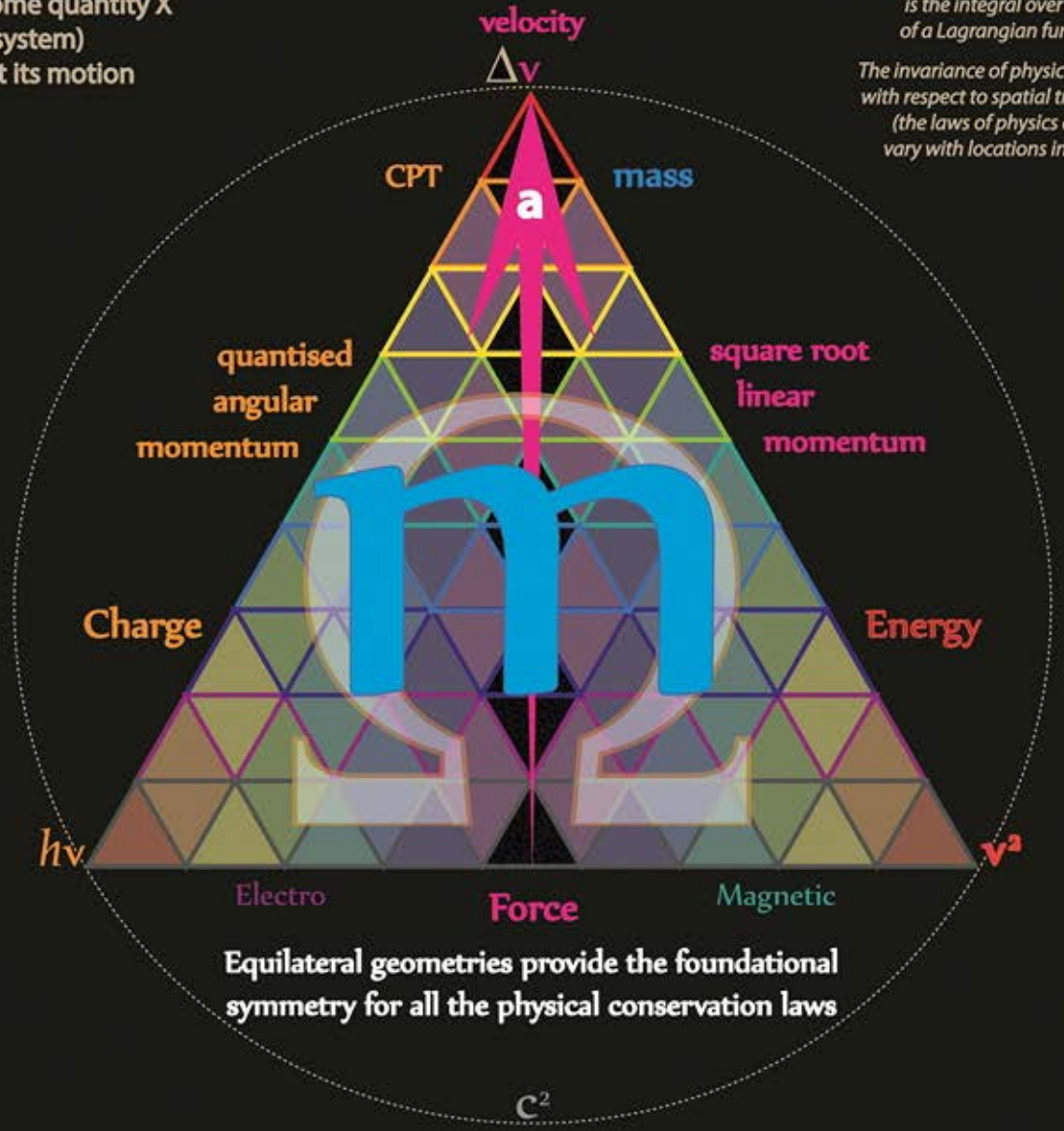
Rotation symmetry gives
conservation of angular momentum

conservation of angular momenta

$$\left[\frac{\Omega}{c^2}\right]$$

QAM / second

conservation of linear momentum



Equilateral geometries provide the foundational symmetry for all the physical conservation laws

Matter topologies are not conservative

Noether's Symmetry

The action of a physical system is the integral over time of a Lagrangian function

The invariance of physical systems with respect to spatial translation (the laws of physics do not vary with locations in space)

Amalie Emmy Noether

(23 March 1882 – 14 April 1935)

Time translation symmetry
gives conservation of energy

conservation of energy

6.629432672 e-34 J
Planck quanta

$$[m\Omega v^2]$$

mass velocity

7.376238634 e-51 kg

mass-ENERGY quanta

conservation of mass

Virtual Particles

In physics, a virtual particle is a particle that exists for a limited time and space.
The energy and momentum of a virtual particle are uncertain according to the uncertainty principle.
The degree of uncertainty of each is inversely proportional to
time duration (for energy) or to position span (for momentum).

In Tetryonics the Uncertainity principle
has been negated with deterministic, re-normalisable
charged mass-ENERGY geometries & Matter topologies

Positive Zero Point Field
energy momenta

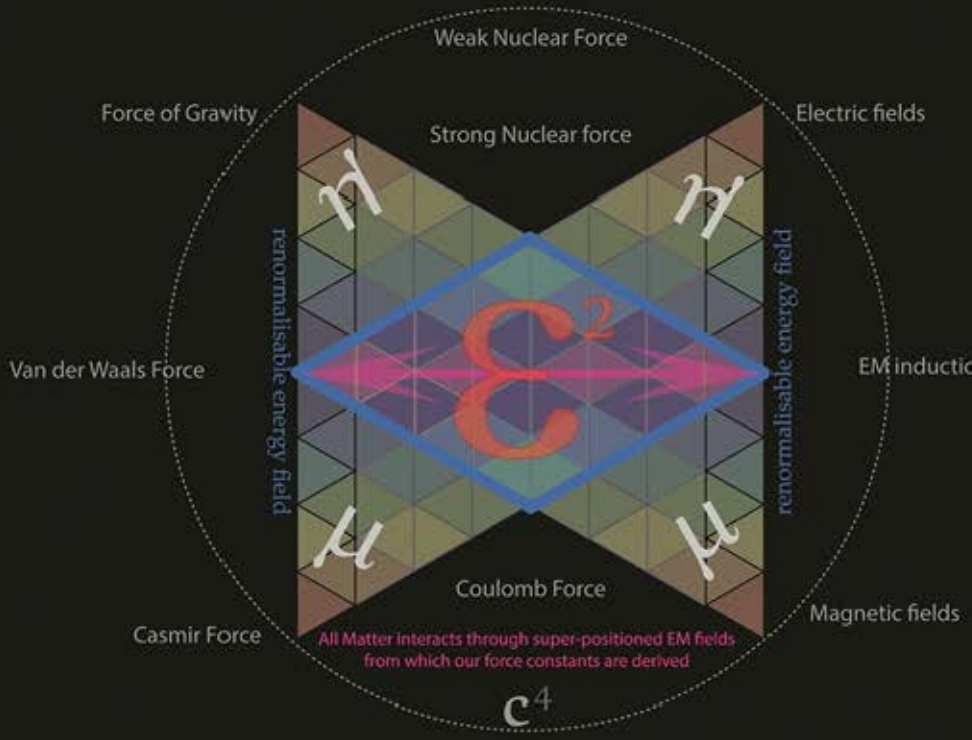
Longitudinal waves facilitate
action-at-a-distance

Convergent Gravitation
is attractive

Material Gravitation

M

Charged Matter topologies
in vacuum energy fields
create Gravity



Vacuum field Energies

$$m^2c^4 = E^2 = p^2c^2$$

EM mass momenta

virtual Particles are not a required part of tetryonic theory

Negative Zero Point Field
energy momenta

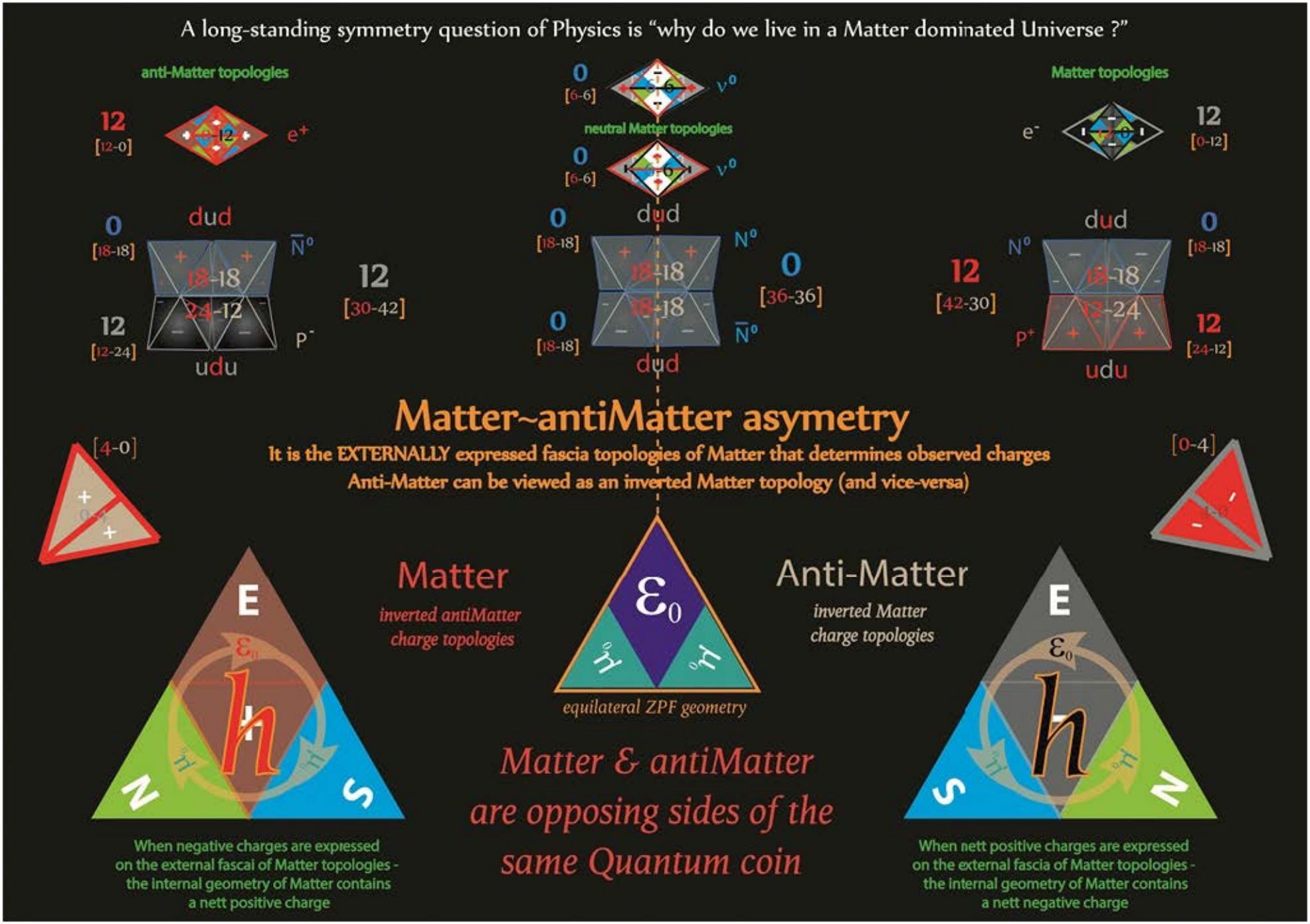
Energy propagates at the
speed of light

Divergent Coulomb forces
are interactive

EM Interactions

m

Superpositioned EM fields
create interactive
EM forces

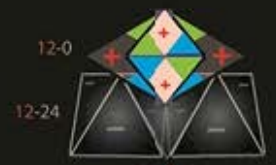


Types of Matter

In addition to the established Matter-antiMatter forms of mass
there exists a third form of Matter

Anti-Matter

anti-Neutron
positron
anti-Proton



48

0
[24-24]

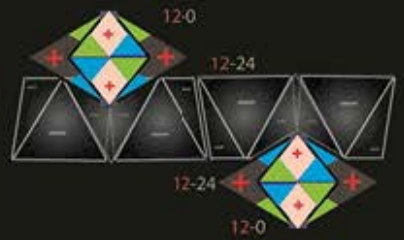
udu
anti-Hydrogen

dud

84

0
[42-42]

anti-Deuterium



96

0
[48-48]

di-atomic
anti-Hydrogen

Neutral Matter

Neutron Neutrino anti-Neutron

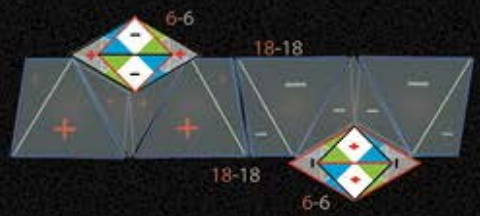
0
[24-24]
Neutrogen
48

dud

dud

0
[42-42]
Neutronium
84

0
[48-48]
di-atomic Neutronium



96

Matter

Neutron
electron
Proton

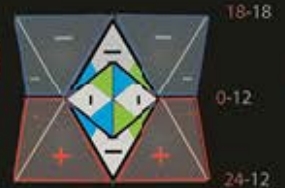
0
[24-24]

48

udu
Hydrogen

dud

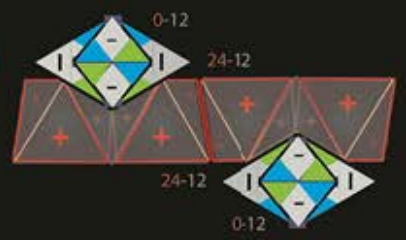
0
[42-42]



84

Deuterium

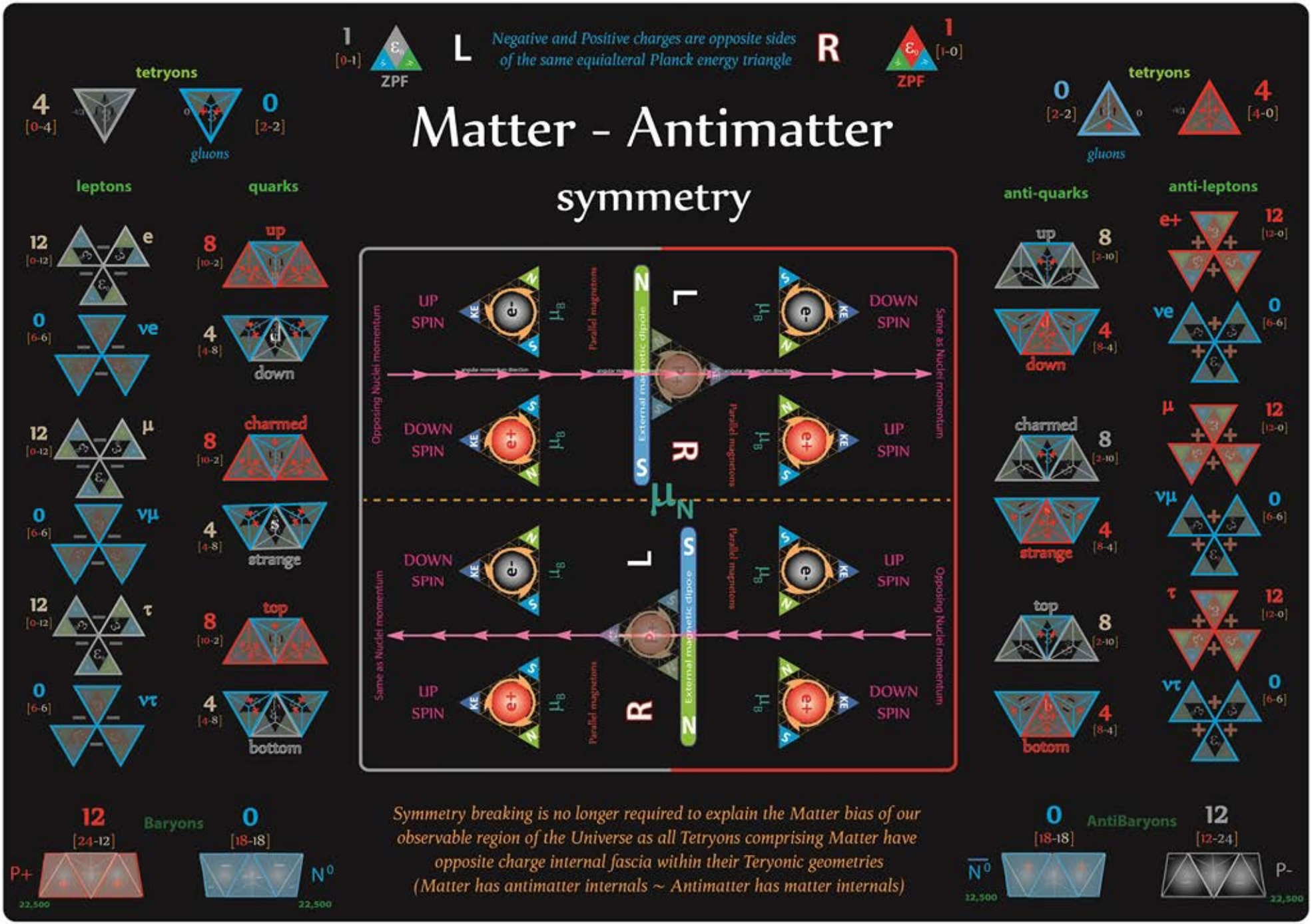
0
[48-48]



96

di-atomic
Hydrogen

The Universe is filled with Matter - Neutronium - antiMatter star Galaxies
and their emitted photons of light are identical



Anti-Matter

Baryon asymmetry

Matter

The Big Bang should have produced equal amounts of Matter and antiMatter, as such, there should have been total cancellation of both.

It is not yet understood why the Universe has more matter than antimatter.
It is generally assumed that when the Universe was young and very hot,
it was in equilibrium and contained equal numbers of baryons and antibaryons.

Protons should have cancelled with antiprotons, electrons with antielectrons (positrons),
neutrons with antineutrons, and so on for all elementary particles.
This would have resulted in a sea of photons in the universe with no matter.

However, observations suggest that the Universe, including its most distant parts,
is made almost entirely of normal matter.

dud

anti-Deuterium

0
[42-42]
84

anti-Neutron
positron
anti-Proton

0
[42-42]
Neutronium
84

Neutron
electron
Proton

dud

0
[42-42]
84

Deuterium

antiMatter dominated Galaxy

Clockwise rotation

Neutral Matter

Neutron Neutrino anti-Neutron

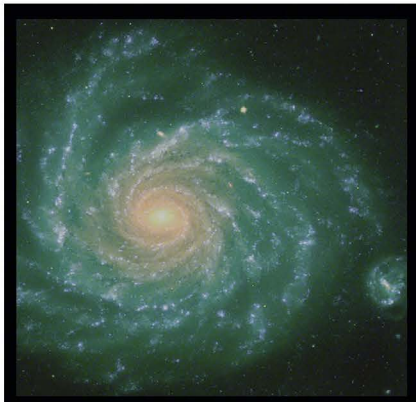
Tetryonics dictates that the Universe is filled with Matter - Neutronium - Antimatter star Galaxies and their emitted light photons are identical

Tetryonics also demonstrates that the charge topologies of each Matter type prevalent in the formation of each Galaxy determines the overall resultant EM field geometries that shapes their large-scale evolution

It is hypothesised that the rotation direction of galaxies is also influenced by how each galaxy was formed in particular the predominance of Matter over antiMatter interactions and the electrodynamic fields of each Galaxy's GEM pinch core

Matter dominated Galaxy

Counter-clockwise rotation



Opposites attract - Similars repel
even on the galactic-scale

Galactic Matter distributions

Tetryonics dictates that the Universe is filled with 3 forms of Matter - Neutronium - Antimatter stars and Galaxies their light is identical and cannot be used to distingush them

false colour image of the universe showing galaxy distributions

Matter

Neutron
Electron
Proton

Neutronium

Neutron Neutrino anti-Neutron

Neutronium is found predominantly in Neutron stars and Pulsars
spread throughout Matter and antiMatter galaxies
however it is conceivable that neutral galaxies may exist

Anti-Matter

anti-Neutron
Positron
anti-Proton