

Philosophically Explaining Life

Theory of Reality

A Humble Step towards Einstein's Dream

The New

SPACE
SPACE

Concept

Challenges Sensual Perceptions and that of Mind

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“I find the idea quite intolerable that an electron exposed to radiation should choose of *its own free will*, not only its moment to jump off, but also its direction: in that case I would rather be a cobbler in a gaming house than a physicist.”

I am quite convinced that someone will eventually come up with a theory whose objects, connected by laws, are not probabilities but considered facts.”
-Albert Einstein

"Once the validity of this mode of thought has been recognized, the final results appear almost simple; any intelligent undergraduate can understand them without much trouble. But the years of searching in the dark for a truth that one feels, but cannot express, the intense desire and alterations of confidence and misgiving, until one breaks through to clarity and understanding, are only known to him who has himself experienced them."
-Albert Einstein

CHECK-MATE OF SEVENTH SENSE!

The biggest and the strongest time bomb ever created in the earth is the earth itself. Therefore, mankind, ye need not toil to make your own but think of The Deluge, predicted in many Holy Books by great prophets who could overcome the unreal time. If Einstein's theory came in advance with the explanation of nuclear bombs, his predicted theory is for the biggest weapon in the world, gravitational time bomb, the earth!

While people are starving, the overweight politicians exhort to construct nuclear weapons to fight and destroy each other for earthly resources under the guise of nationalism and politics! So, please chew this divine bomb!

Dear nuclear scientists, ye who construct nuclear weapons, hear me! Believe it or not, the theory behind energy production is wrong! Mass is converted into space, the ultimate stuff and energy is only an expression. Gravitation is the conversion of space to mass and thereby inverse square law exists.

Messages are sent to start united efforts to struggle for survival to the heads of India, Australia, Canada, Japan, NZ, Israel, U.K. and the president of the U.S. four months before(in 2005). No response except the automatic ones. Who will hear an unknown person? Looking back in 2011 I see lots of havocs caused by Tsunamis and quakes. Still the world is sleeping. Should someone pour forth a lullaby?

The Deluge is not author's concept but that of the Great Prophets. He is just trying to express it scientifically ignoring his defects. If it is a distant possibility, the only chance for mankind to survive is searching our Maker. Hard work only is the remedy leaving the barriers of nationality, religion etc.

Please don't misunderstand the word 'metaphysical' that is commonly used keeping in mind a man-like God. Even Einstein committed the blunder using the word 'He'. God is beyond all gender.

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Highlights of the New Space Concept

1. The New Concept redefines space, matter, energy, life and time, the five basic expressions of the universe
2. It is the first step to unify space, mass and energy
3. It proposes a way to unify all forces
4. Explains why time dilates and mass becomes relative although mass and time are absolute. Newton's idea of absolute mass can coexist with relativistic effects and $E=mc^2$
5. Correlates the rotation times of all the planets and the moon by a single approximation, thereby pointing towards the possibility of a law of rotation as in the case of revolution.
6. It explains the 'Problem of Initial Condition, Olber's Paradox, Coincidence of inertial mass and gravitational mass and the reason for inverse square law based on cause of gravitation.
7. It can unify relativity and quantum theory through new sub atomic model
8. It has introductory explanation of life.
9. It explains the cause of gravitation and asserts scientifically the concept of The Last Flood predicted by Great Prophets.
10. It opens a way to solve millions of body interaction on spherical planets in a possible indirect way instead of Henri Poincare's unsolved 3-body problem.

Hope it is the beginning of the theory that Mr. Einstein predicted, and Simon De La Place (French mathematician) envisaged. It is just an introduction, the product of 33 years of search, considering and analyzing thousands of data philosophically in a moving universe. A long way is ahead.

Newton or Einstein does not say that spherical planets should be in the same plane and spherical bodies should revolve in the same direction as the central mass is. It is dealt as if it were a mere coincidence. But this space concept, based on the answer to life, explains why the real planets are not revolving around the sun in x, y and z axis, solving the Problem of Initial Condition, that Sir Isaac Newton had been searching his whole life. Please remember that both Newton and Einstein had been searching God, but they must have been haunted by a man-like god depicted in ancient books. If in any other solar system spherical planets are found revolving around the central mass in x, y, and z axis the entire philosophy following this collapses. If not, it is as valid as any other scientific theory and cannot be tested by common logic and reasoning.

O, world, what is the reward for him? Is it poison, cross, stone, fire, gallows or mere scorn? You have already tortured him severely. He is a sinner and has no halo around his head, still he claims that he was once enlightened! Moreover, in spite of all proofs of energy production he argues that mass is converted to space and that energy is only an expression. Please make one gram of any element created artificially out of energy by human technology and give him; it would be a good medicine to alleviate all his madness!

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Preface

Delving into one's own self, the method in The Upanishads may reveal more profound truths than particle accelerators costing billions although they do good work. There were great prophets and ascetics here and there around the world, who reached the ultimate truth possible for mortals through this method, and it made them immortals.

I have not much wisdom to declare such theories that state the formation of this universe by the explosion of an object of the size of 'Planck Length'. And I am not dare enough to say if there was Planck-time of creation and what had happened then and what would happen after millions of years. Although I could not fulfill Pierre Simon De La Place's prediction in a grand scale, a simple thing is there in my eyes that would happen in the nearby future. At a particular stage of gravitation, the particles of a spherical planet like the earth may undergo synchronous vibration causing tremendous heat production, resulting in the melting down of tectonic plates. It is analogous, not similar, to the production of laser. Present model of subatomic particles cannot explain it. A model showing integrated quantized mass that produces quantized units of space, expressing energy, can only explain it. I don't know when it will happen; may be at any moment or hundreds or a few thousand years later. Anticipating a fair chance of being ridiculed, let me present it.

I am not the advocate of any religion, or nation but a hard seeker after truth. If any part is offensive to anyone it is not intentional and I apologize sincerely. Valuable advices, criticism, opinion, correction etc. are most welcome. However the world has never been so dogmatic and narrow minded and business oriented as it is today. Even Socrates and Christ were subjected to lots of trial before the sentence. Due to the hard prejudices of know-all editors and referees, I am compelled to start this website.

Our science is fundamentally defective due to the foundation started more than 300 hundred years back based on effect-explaining philosophy. It does not help to realize space, the ultimate truth. Founders of religions realized space, the ultimate form of God. How many super-star scientists have more followers than any founder of religion? They are following prophets, the great saints because the so called scientists have no faith in their knowledge. Science should deny gods and superstitions, not God, because God, the all-pervasive Power and Wisdom is a reality. 'Problem of Initial Condition' is a big problem only for deep thinkers, not for the one who is satisfied with effect-explaining science.

Explaining Life is explaining Space. It is a venture no better than if a red blood cell inside a capillary were trying to comprehend a human being. So it will have demerits. The entire philosophy is the result of a search for the ultimate cause of DNA replication.

Fighting hard against poor economic background and lack of mathematical help I carried the work since 1990 all the way and now that I have some breakthroughs in comprehending at least a few of its ideas. If anyone feels these ideas to be absurd, let him/her 'sleep and feed and hoard' and lead a happy life on the Fool's Paradise.

On the other hand, if anyone cares, let him/her search and find out a way to survive if he/she feels that the survival of his/her race is worthy. As I am concerned the blows of life was so great and, 'for many a time/I have been half in love with easeful death' (Keats). I lost and gained everything in my life. Yet I have great faith in the power and virtues of mankind, in spite of all its vices and that a few *Homo sapiens* may survive by the infinite grace of Almighty. If the earth remains sufficiently long time, the New Space Concept predicts the advent of 5 more theories or a combination of these five.

1. An Oscillation Model (position interchanging) of materials against total universal motion that alters the present models of revolution.
2. A 'Minimum Distance Theory' to explain distance between particles to heavenly bodies based on rotation and mass of materials by unifying all the forces.
3. A 'Presence and Absence' theory that alters Heisenberg's uncertainty principle.
4. An inter connection between Avogadro's Law, Bernoulli's and Archimedes principles based on rotation and mass of constituent particles.
5. An equation connecting DNA replication and the velocity of light

The ideas with me are splendid and it requires mathematical help of the highest order (tensor and calculus) for its further exploration. I have done some work only in areas where simple mathematics is enough to convey them superficially. This is only an introduction of an endless science that no mortal including the author can ever complete.

1. Cause of Gravitation through Self Realization

A hyper dimensional unified theory or quantum account of general relativity is expected to explain the odd man out, the cause of gravitation.

Is there no way out of the mess?

There is! The method is unknown to physical sciences, but it is described about 5,000 years back by great hermits who delved into metaphysics and brought out the works, 'The Upanishads'. The characters mentioned in The Upanishads are seeking the toughest answer of life and death. It was almost impossible a task to comprehend about 108 Upanishads but the mission impossible was fairly executed by Lord Krishna and that is why he is considered as an embodiment of God and the Holy Gita is born. It is 18 different sciences to realize space, the ultimate form of God, the Great Life; in Newton's words, 'The Great Being' and according to Wordsworth, 'The Wisdom and Spirit' of the universe.

Following Einstein and Newton is good but one cannot win because they failed to find out the cause. Therefore one has to find out the alternative.

Responding to the severe criticism of Huygens and Leibnitz, Newton declared, 'The idea of gravity acting at distance is so great an absurdity that no man in philosophical matters a competent faculty in thinking can ever fall into it.' This is the frankness and greatness of Newton. All his equations and most of the present ones are based on effect, not cause. As spring theory worked for Boyle's Law, it may satisfy many but may not the one who searches for truth although compelled to accept because of no choice. Philosophers, including Newton were aware of its occult nature but the generations grown after Newton, accustomed with the equations never think alternatively as Aristotle was not questioned till Galileo.

The door to the cause of gravitation is still wide open in spite of Einstein's, 'distortion of space in the presence of matter.'

How can matter distort space at distance? If space is curved is it absolutely nothingness irrespective of whether it is understandable? Is time something to contract and dilate? That is why Mr. Einstein compelled to predict another space theory.

No theory in physics that deals things in terms of matter and energy can answer 'Life', the greatest wonder in the universe. Arrange nucleotides in specific sequence; life comes into existence. What is the difference between living and non-living things? Answer to life and death is hidden in the question of space and vice versa. Here is the failure of physical sciences but it does not give any edge to religions because most of the religions preach a man-like god sitting somewhere, ruling the universe and hence people are fond of creating idols and images of all sorts. Those religions that have no idols also have a concept in mind similar to those of others. There is no possibility of such a god (but some ancient prophets were compelled to mention so because people were not wise enough to think of real God) and hence science and religions argue against one another. God has no religion, nationality, sex or individuality, but all these are within God. The whole system of the universe is within The Great Life. Instead of impartial search, each religion and science is trying to find out proofs that assert their beliefs. Newton and Einstein were searching their Maker and that is why they could come up with new ideas.

Since science cannot describe life and death, people, including Nobel Laureates in physics and biology resort on religions towards the end of their life. Worse is that most of them are succumbing to priests who pretend mediators between man and god! Certainly, religions can change devils to imps and imps to men and vice versa but they never allow breakthroughs in sciences. If science is a way of searching the ultimate reality, looking into one's own self may suffice, irrespective of one's religion, sex or nationality by birth. Experiments are also required.

How can one look into one's own soul?

It is through acquiring subtle knowledge, meditation, detached duty and the realization of space thereby.

i. Realizing space

If any one reads The Upanishads or its extract, the Holy Gita, one can understand it only to a certain extent, according to the level of thought he is in. One cannot reach anywhere near realization. Better method is to read them and realize space through different methods and then once again verify the result with these great books whether one is out of one's wit or whether there were great ascetics who had been subjected to the fantastic effects that one has undergone during realization. As these books proclaim, 'There is only one among thousands who searches Me and among thousands who search, only one may reach Me'. This Me is not a person, but Space, The Eternity. But most of the readers misunderstand 'Me' and consider it as the prophet who wrote it! Therefore they make his statue and worship! Holy Gita clearly says, 'Fools who do not know Me and My ultimate form/Think that I have shape of man or of other such things'.

There is much difference between understanding and realization. For example, a man in a land-locked country may read about the ocean and can understand that it is vast, salty and wavy. But, if he really crosses his country, goes to a beach, takes some sea water and tastes it while looking at the ocean he can realize it to a certain extent. If he ventures a scuba diving, he can realize it further. Still there are many areas like coral reefs and abyssal realms that he cannot explore easily. The deeper one goes, the deeper his realization is.

'If all the particles of a human body are put together, leaving no space, it will come only up to the size of a pin-head.' Within a few seconds one can understand this philosophical data. But it may take years to realize it, to form an analytical image, according to his devotion on it. This key data, along with the size of an atom as against its nucleus, once a person realizes he is near to space realization.

There are different levels of realization. This is why one cannot realize space easily by reading or by a few years of deep thought and the reason why Mr. Carl Sagan (late asst. director of NASA) put it, 'discovery of space will be one of the greatest discoveries of all time'. It has been discovered by many great people, not only in ancient or modern India but in many other places in the world, here and there once in a while. Their levels of realization are different, although they were well beyond ordinary people.

However, realizing space is not an advisable thing, nor everyone should go for it. It is not an easy task and hence better not to take the risk. Although it requires less finance, the energy required for it is comparable to SCSC in a miniature scale. One has to risk one's own life. One has to sacrifice his/her boyhood and youth and sometimes even old age. But, if he/she is so determined, extremely thirsty to know what life and death are and what is space, if he/she does not repent over the golden days that he/she sacrificed, he/she may realize space one day. It is the biggest gambling; the most devoted gambling with

one's own life. Yet there should be someone for such a sacrifice.

ii. Is space a vacuum?

I have answer formed by 18 years of hard search. It is not a vacuum. It is a firm answer. Then what is space? I have a humble answer. Please realize it for yourself. Why? Why can't I explain?

No one can explain it. If I do, I will commit error. I can tell certain things about space, but it is already described in great books like Holy Gita. Since translations are available, I need not venture. However, to those who are not at all in touch with it so far, let me quote a few verses from Holy Gita that may clarify why it is inexplicable.

“It is inside and outside everything
Moving as well as static
Subtle, yet vast
Distant, yet near
It is not divided
But exists as if it were divided among things
It creates, sustains and destroys everything
Existing as light to all lights
It is beyond all darkness
This is the knowledge,
That is to be known
And that is to be ruled every heart.” (Kshethra Khethrajna Vibhaga Yoga)

One may feel it, ‘ignotum per ignotius’. No! It is a reality. This is written not by hallucination but by those who realized the ultimate form of God to a certain extent by hard meditation or by detached duty. I shall bet my remaining life (not much) over it. I have been trying to express it through science and mathematics all along the past two decades through the work. See, the works are quite imperfect! The approximation regarding planetary rotation connects mind and matter. But referees without asking me for explanation, reject! It is because of the ignorance regarding space that spooky and Schrödinger's Cat are still problems. But I am not discouraged because it is not an easy task to start a new way of thinking. One has to face the intelligence inertia of both religion and science and all the existing third rate philosophy.

A convict who committed an act of crime may produce hundreds of people who had not witnessed it. But the court accepts the testimony of a true witness against those hundreds. This is the case with realization of space. If a person fails in realizing space after a hard search, he may argue that space is a vacuum. If he is a good mathematician he can prove any irrational thing using mathematrixs, rather than mathematics. Mr. Bertrand Russell (?) put it, ‘I can prove one is equal to two using mathematics’. There are a few, who could, by perseverance, realize space. So, better rely on their words in this aspect.

iii. What are the methods?

As mentioned earlier, there are 18 methods described in Holy Gita. One can develop his own as well. The author developed a new branch called metagenetics, highly philosophical analysis of cell division, and it helped him to do it. Whatsoever be the method, the destination will be the same.

One must be introvert to do it. Humiliation, pain and sorrows help one look into one's own self and may help one in developing knowledge by renouncing the world and finally getting enlightenment. The whole process is like conquering a mountain peak. Passing all the difficulty, once a man reaches the top, he sees the testimony of those who have already reached there and he will see many paths from the other sides that lead to the same top on which he stands. He will see higher peaks that are still to be conquered. When he gets down from the top, the path that he perceived fade away but a vague memory may persist. None likes to descend, but sometimes destiny may push him down to impart the knowledge to those who are still in the valley, groping for a way towards it.

Asceticism is a good and simple method. It is not by renouncing one's duties, but executing every duty as perfectly as possible, but in a detached way. He should first understand the detachment of his organs. That is, he is not the subject of all his deeds. When at work he should feel that it is not he who is at work but mere organs. The more he is detached, the more near he is to truth. He starts seeing his own image in every living and non-living things, a condition of scattered existence. He may pass through the philosophy of Tat Tvam Asi(That is you). It is not yet over. The further he goes (if he has enough courage and concentration) he may start feeling life in life, life in death, death in life and death in death. He starts seeing an entity that is not mentioned in science books; a great and blissful entity. A divine blessing is needed to reach this level and to remain still alive. He feels an all pervasive something that is indescribable. It is nether matter or energy, but space. At that stage one can understand to a certain extent the verses given above.

He will not see any organism at this level. He feels mere organs beaded in the blissful space. This entity is not glittered by the sun, stars or fire but it is light to all light. Self starts shining in space through its realization. Now he is enlightened.

The moments are awesome. Time is exactly frozen and he may see past, future and present simultaneously (This is what Simon De La Place predicted). If one goes further he may leave his body behind, dissolving in this entity by a process called Nirvana, mentioned in ancient philosophy. One must not desire it. He is here to change the world. He must take back the space spread around as a spider takes its web back and try to lead a normal life. But he cannot. Why?

Since he has controlled his sense organs during the process to come in unison with space (it is the energy flow or expression that distinguishes a microcosm from macrocosm and that is why saints took the path to live a life of death- like condition while still alive. This is the purpose of all meditation. One has to control the energy flow) there is a fair chance of becoming proud while interacting again with the materialistic world. What he says no one can understand, although he has knowledge well beyond the earthly ones. And also he starts feeling that he is an embodiment of God. He feels that he and God are same (Advaita). This is absurdity, although there is no other man-like God. But if God is merciful, God will teach severe lessons so that his pride may lose and he may start living a humble life, a miserable one, feeling all deeds as futile, still working hard. No escape, no return! He will trust and respect all forms of life. But he will be cheated and ridiculed.

Once again he learns lesson (although he thought he had learned everything) through severe sufferings that the world is eager to provide. But God will not abandon him because he was an arduous seeker. It may not happen in everybody's life, but just warned the seekers because of the author's experience.

Still one cannot say he learned everything. The vast ocean of knowledge is still there. What he could realize is the most powerful entity, the space that looks the weakest. As gravitation, which is the weakest of all forces, but governs the universe, it is space and its power that controls everything, including gravitation.

It is at this level that one can feel the motion using the 'special eye' (mentioned in Holy Gita, in Vishwaroopa Darshana Yoga, means 'Science seeing The Universal Figure of God'. As Arjuna in Holy Gita, the author was shivering at this stage. It is the mercy of God that left the author alive. He suffered a lot afterwards due to disobedience and committing sins. Still God showed mercy) and see the cause of gravitation as space entry or space evacuation. One can see the particles separate and there is no stars or sun or earth but everything that are transparent to space, because he has become space. He feels that the universe is within him as he is within it. Had there been no such a book as Holy Gita, the author would have been in deep trouble considering it as Schizophrenia. Now getting confidence as well as fright only when it survives testing and when the things foreseen come true. Considering the significance I sent 20 pages of fax to the Royal Society (U.K.) on June 20, 2005 when I understood the constant formed in the approximation of planetary rotation was related to c and G (did not get even a reply).

There were great ascetics who passed these levels safely because they were pure souls. One realizes that matter is neither being converted to energy nor vice versa, but matter is converted to space, expressing energy. Space is being converted back to mass in gravitation. It does not come under human sense or mind and that is why no one, including Newton attributed the cause. Particle exchange theory cannot explain an attractive force as gravitation (I wonder who proposed particle exchange theory. Newton said that he could not find out the cause from phenomena and hence does not propose any hypothesis. If particles are exchanged, why these particles are not colliding and canceling out the effect? How does mass increase due to gravitation? During spring tides why the other side of the earth also is affected? Does the earth know that it should balance or else it would fall?).

Why should I express it? I don't know. But fate has given me a situation in which I cannot escape from this work, although I feel it is futile. Now the author is not better than any sinner who is attached with this world although mind thirsts for purity. The editors and referees think that my hearth is burning due to the work without understanding that it had not been burning properly due to it.

(Although the meanings of the words 'I', 'we', 'he', 'she' etc. are lost for the author to a greater extent, it is used here and there for expressing. Forgive 'me'.)

Coincidences

Intuition	Result
1. started the search with a hope to see the ultimate reality when aged 9	Finished by 1990 at 28
2. In 1990 started predicting that Kerala is going to shake (it was not subjected to mentionable earth quakes in the known history). Went to inform press; pushed out.	Started shaking 2001 onwards. Now many are running frantically over Mullapperiyar(A damn dam, the relic of imperial folly.)
3. The theory predicted halo around particles	3. mysterious halo detected around neutrons in some particle accelerators
4. There is law of rotation for spherical planets. Can bring the attention of mathematicians and astronomers by relating 5 or 6 planets	4. Could finish with a generalized approximation relating planets and the moon by 6 years, still no attention.
5. The constant will be related with a fundamental constant.	5. About 2 years after getting the constant, it is understood that it is related with c and G
6. The New Space concept declared relationship between universal gravitational constant and c	6 Connected them through sub realm concept and thereby with π .
7. absolute mass concept can coexist with relativistic effects and mass-energy unification	7. Describable using hidden velocity but the present understanding of the world regarding time and universal motion are poor.

This is in addition to lots of strange coincidences happened in author's life. I am not a great man, but a mere pawn destined to do something. Editors and referees can prevent me for any long time but not the New Space Concept, because it will come through someone else, a good mathematician with the same philosophy, who searched truth (and they are giving interesting reasons, in spite of Einstein's hard prediction! They think it will come from any conventional corner without any hard change in concepts, as from a research institute, without considering that Einstein was from a patent office and Newton was from middle class! Lord Buddha had to abandon the comfort of palace to become one of the greatest philosophers that the world has ever produced. Which great prophet came from luxury? Do they think Christ would appear on clouds, the water vapor?). Irrespective of the mathematical precision of the works it is The Deluge that is approaching. Otherwise how a biology teacher can meddle with physics? It is the result of searching the answer to 'Life' that is well beyond quantum theory or relativity. It is high time to think whether mankind should try for survival or perish and undergo evolutionary process once again. The author, having no wife and children even at 48, has no intention to terrorize the world. I want only 6 feet land (or water) to take eternal rest although I would like to assert that knowledge is greater than wealth and power. If any part of this is usable to develop some other ideas refine it. I don't know mathematics although in numerical analysis I can do hard work. Instead of helping the author with mathematics, physics and astronomy, those who receive it are just rejecting it by evaluation done based on present human concepts.

2. New Concept of Velocity

Trust not poor senses

Introduction

All along the history of science and religions senses have deceived mankind. Although breakthrough prophets and scientists could free from it to a certain extent by controlling their sense organs, their followers failed to do so. Eyes recognize a flat, stationary earth, and moving heavenly bodies around it. Ears have limitations in hearing sounds above and below audible limits. Olfactory and glossal sensations are almost weak when compared with that of other creatures. Skin cannot recognize what is below threshold stimulus. Many philosophers paid dearly for these limitations of their contemporaries. One has to break the barriers of religion, nationality, sex and finally the feeling of individuality to reach the reality, yet he has to survive without Nirvana.

Mind, which some considers as another sense, analyze data acquired through these poor sense organs. Therefore the analysis that mind conducts is defective. Any reasoning, logic, and deduction formed by mind has imperfection.

This does not mean that brain is poor. Although defeated, Kasparov could excitingly challenge machine. Brain has enormous power, but not unlimited. Finite neurons cannot have infinite capacity. When more data are gathered, some go out. Sir Arthur Conan Doyle's genius Mr. Sherlock Holmes does not accumulate unwanted data due to this reason. He is not at all worried if the earth goes round the sun or vice versa, but he assimilates data related to criminal domain which is necessary for his profession.

This is a very important point when one gathers data for analysis. Mankind is becoming overspecialized day by day. Overspecialization is proved perilous all along the history of organic evolution (although individually over specialized, are we under peril due to this?). In every particular field, there is bulk of data that one may find it difficult to assimilate for analysis. If one keeps these data in pigeon holes, certainly it will become full one day, overwhelming his memory. Therefore, if not for a special purpose, but for a general analysis, one should gather only basic and fundamental data scattered over religions, science, philosophy and other areas. Then, the output after a hard analysis will reveal that all these are inter related (I apologize for the poor drawings in the work)

VELOCITY

It is a property considered to have both magnitude and direction. It is true against material frames. In a real frame of space, one cannot increase or decrease the magnitude but can change only direction, with respect to its natural motion against space, in any case of changing velocity. That is why a man inside a tremendously moving system under uniform velocity cannot say whether he is moving or not. In extreme conditions as that achieved in particle accelerators, a very minute increase in magnitude of velocity occurs.

Space is a reality, not a metaphysical obscurity anymore, and where there is space there is part of the universe. There cannot be space without space and hence the universe should be infinite rather than finite, unbound. Yet, space exhibit the property of sub realms that manifest itself through inertia, centrifugal force etc. The invariance of electromagnetic radiation is not the nature of the radiation, but it is the expression of space and time. They are not propagating, but being propagated due to the powerful nature of space.

As Mr. Neils Bohr put it, 'a truth is the one if its opposite is also a truth'. Space is harder than the hardest in a universal outlook, yet softer than love in local effects.

We are inside a tremendously moving system: our sense organs cannot detect it directly, but only indirectly through the relative motion of other heavenly bodies. As one cannot feel the rotation and revolution of the earth, as one cannot feel the rotation and other motion of the galactic disc, one cannot detect the velocity with which the entire system is moving. Through secondary images, sense organs and mind declare their movement using material frames of references. If space is taken into account as the real reference and if the motion of materials is compared against it one can realize that it is almost impossible to increase or decrease the magnitude of velocity and the direction change is the only reality. Changing the magnitude, as one may feel it, is only changing one underpinning and acquiring another. As everything is subjected to limit, the direction change has its limit and that is c , the 'velocity' of electromagnetic radiations. Once it reaches the limit of direction change, it cannot retain the property of matter, but it has to disintegrate, become space, and that is expressed as energy. Matter is only a mirror image of space. One can consider otherwise also. But the quality and property of space is far nobler because it has no quality or property as such, yet causing all. It is not different from our own self. That is why space is not detectable to our mind. Space is not understandable, but can be realized. Once realized, space is a bit understandable. One can understand the significance of atmospheric pressure by going to a place where there is no air pressure. Can one go to a place where there is no space so that he could realize the significance of space?

When anything is accelerated, local frames of references declare that the magnitude is increased. It is not true. How can one prove this argument?

It is generally accepted that there is no straight path and no stationary object in the universe. The absence of a straight path is due to the general gravitation that in turn is the sum total effect of all the local fields. Therefore, the same path that an object covers in 100 m/s cannot be covered in 2 seconds at 50 m/s. This may be against our daily experiences. One's everyday journey from office to home takes only double time with half speed, but reaches home safely. It is true. But, as De Broglie's matter wave has not much effect on a cyclist, this has nothing to do with our everyday life because we are materialistic visionaries. Yet, when one deals with relativity, this philosophy becomes much significant, because Newton's concept of absolute mass is right and it can coexist with relativistic effects and $E=mc^2$!

Imagine a man in a spacecraft chasing the earth, along its orbit around the sun. Let the earth be moving at 30 km/s. Let the space craft be so far away that the gravitational influence of the earth can be ignored. If the person wants to follow the same path that the earth covers with respect to the sun, he should exactly take the same orbital velocity of the earth, not more or less. If he moves at 15 km/s he will have a slightly more continuous fall towards the sun. By adjusting the steering or exhausts, if he follows the earth, one may think he is moving along the same track. But, for a keen observer his movement is a different one. This is in addition to the greater difference he would make against the galactic motion by choosing 15 km/s instead of 30 km/s. Same ways, the exact path that a beam of light describes in one second, say at 3×10^8 m/s cannot be covered by an object at 10000 m/s in 30000 seconds although the starting and finishing points are the same with respect to material frames. This is due to the existence of local and universal gravitational fields in addition to the existing movement of matter against space.

Core of Argument

In the case of the space craft mentioned above, when magnitude is changed from 30 km/s to 15 km/s, the direction also is changed, although negligibly. This is the point where Mr. Holmes' method of analysis and deduction are required. Without changing direction one cannot change magnitude of velocity because what is perceived as 'magnitude' is direction change.

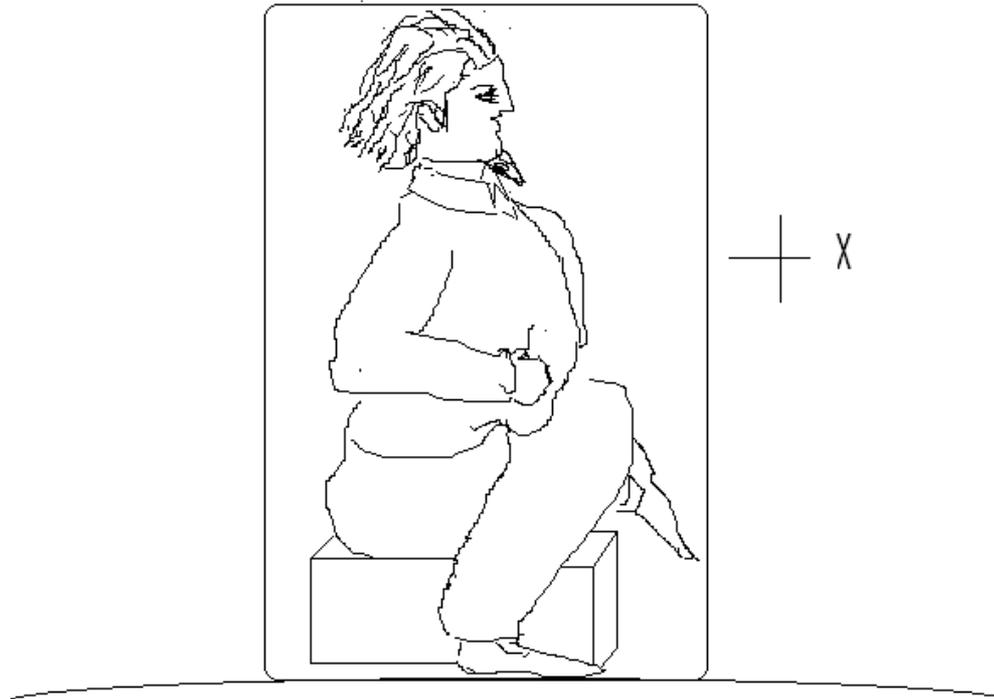
Any uniform velocity, as one might call it, is actually a centripetal acceleration, against one central mass or another. Straighter the path an observer feels for an object under uniform straight line motion the greater will be the distance from the central body around which it moves and anything that moves so is destined to come back to its starting point of material frame one day or another. Electromagnetic radiations(if not neutrinos) take the straightest path possible and here the central mass is the mass of the sub realm as a whole and the electromagnetic radiations propagate along the boundary of one sub realm or another(given in the chapter, The Cosmos).

Any acceleration in magnitude, even in the same direction as one might feel it, is only a direction change against space. This is the very reason for the existence of inertial frames and the invariance of c , the velocity of electromagnetic radiations. That is, as stated earlier, magnitude is changeable only against material frames and not against real space under consideration.

One may ask, "If we go outside the universe will there be no straight line? Will there be gravitational influence to distort space? Can't we then increase or decrease the magnitude of velocity without changing its direction?" This is my humble reply. I cannot go outside the universe even by thought or imagination. The universe is endless because space is a reality. In this space concept the universe is only space with a negligible amount of matter. We are yet to explore the nearby planets and we have not even the data of another solar system although much work is done on black holes. Movie makers and fiction writers may use (rather misuse due to misunderstanding) Einstein's concepts to shoot fantastic effects of time dilation or other effects in quantum theory. We should be a little practical when deal science. Present destiny of mankind is to be contented with and within the system. The stark reality cannot be ignored. Even light cannot escape a sub realm of the universe and is destined to revolve around its boundary. Who, other than a dogmatic scientist or priest would say that the universe is like this or like that? Present data will change in future as it had in the past. So, it would be wiser to keep everything as 'optional philosophy and deductions' based on present data. This is also a good way to tackle 'intelligence inertia', about which lot of hue and cry is going on.

Gravitational effect is a bitter reality even if one likes to chew it or spit it out. One cannot close a hole with darkness. Let us go through certain thought experiments to see if one can increase or decrease the magnitude of velocity.

Thought Experiment; Case-I



A man is placed in an opaque house on an appreciably large spherical spacecraft made of high density that imitates earth's gravitation towards the floor. It is in an intergalactic space without much specific gravitational influence. He cannot see any star or other heavenly bodies to indicate whether he is moving or not. He is given all the four horizontal directions as W, X, Y, and Z or as imaginary West, East, North and South. He is facing the direction X or the East. There is enough light in the room. He is sitting on a wooden piece. Let him think of relativity or of his old fiancée. It does not make much difference.

Suddenly he felt a force that pushed him and the things around him forward, towards the direction X or the East. He hits the wall hard.

Can he say for certain (not guessing),

1. that the spacecraft was rotating westward and now that its speed of rotation increased?
2. that the spacecraft was moving westward at uniform velocity and now that it started accelerating?
3. that the spacecraft was not moving at all and now it started moving westward?
4. that the spacecraft was rotating or moving eastward and now it started decelerating?

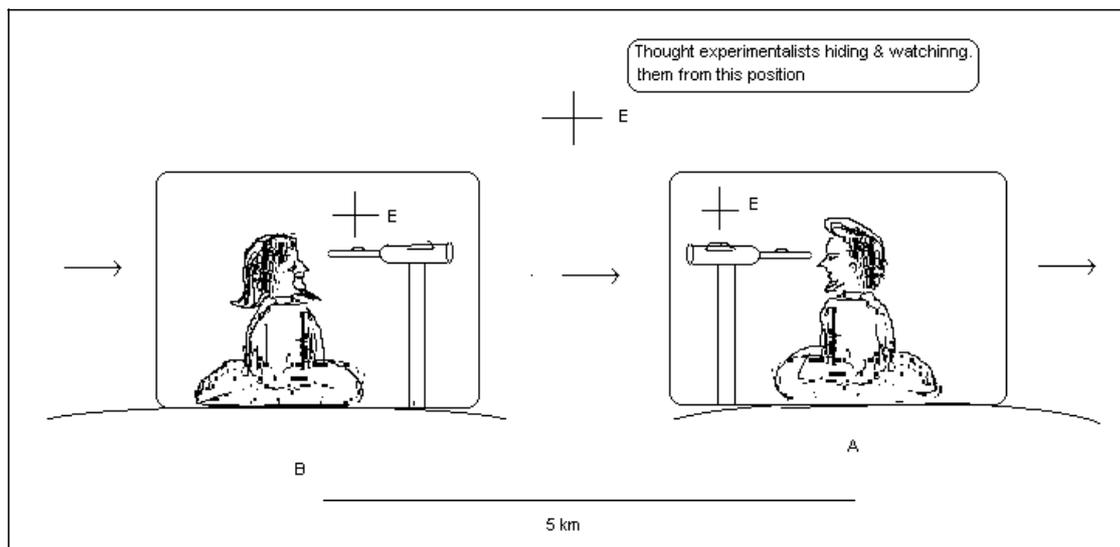
He cannot say for certain. Why?

Thought experiment-Case-II

Suppose the same spacecraft has a glass house on it and a man is kept inside the house with a telescope. Let it be spacecraft A. Let another similar spacecraft B with glass house and another man be kept 5 km away from the first one. Although there is no direction in space let us imagine that the space crafts are moving with the same high uniform velocity towards direction E, the East. The experimentalists are hiding and watching them approach and move past as from an over-bridge an approaching train.

Both of these travelers are unaware of their motion because they have only one frame of

reference-the spacecraft of the other man. They are watching each other through the telescope because their rooms are illuminated. As in the first case they are given all the four directions of the room.



Now the first spacecraft (A) started deceleration. The first man, along with his telescope hits his back hard on the Eastern wall. He is so determined a daredevil that he did not leave watching B. What will the man in A feel (in addition to pain)?

By way of experienced force he deduces that he is accelerating towards the west, towards spacecraft B because the spacecraft B is approaching him. He did not notice any shake in the man in B.

The man in spacecraft B experiences no force on him and he correctly deduces that the spacecraft A is accelerated towards the west because it is approaching him. He saw that the man on A was thrown away by force.

What really happened? Spacecraft A changed the magnitude! But both of them experienced a direction change (.because up to that time they were not aware of their direction of motion) along with a change in magnitude. The picture is clearer in the next case.

Thought experiment-Case-III

Consider the same spacecrafts moving towards the direction that is termed East. As in the case-II they are watching each other. Suppose the spacecraft A started accelerating towards the East. Man in A hits the western wall and hence he feels that he started accelerating towards the east. He sees the spacecraft B receding away from him. He deduces with certainty that all the while he was stationary and now that he got a direction towards the east by way of acceleration. The man in B does not feel any force and hence he deduces the same thing what the man in A deduced. Both of them will unanimously bet their lives and argue in any court of science that the man in spacecraft A was stationary and that he was accelerated. Here also only magnitude is changed. But both of them felt direction change as well.

It is true that a change in direction also is acceleration. By way of inertia one can feel any appreciable direction change. But the argument is that when the magnitude is changed in the same direction also both of them felt as direction change along with magnitude.

The main point is yet to be discussed. Here the thought experimentalists were hiding and watching those two 'guinea pigs', their space crafts, their behavior, analysis and deduction. They watched them heading towards the direction that is termed east.

How can one say that they were moving towards the east? Can one say for certain that those two spacecrafts were stationary and that the experimentalists were moving towards the west? Actually this is a widely discussed problem and it has lot of significance here. Can the experimentalist argue against the two men with certainty? But experimentalists cannot agree with both of them.

But there is a case in which all of them can agree. What is it? See the next one.

Thought experiment-Case-IV

Suppose both the spacecrafts were moving as before. The hidden experimentalists are moving westward, anti-parallel, relative to them.

Now the spacecraft A is changing its direction and started moving towards South. He feels a force and confirms it by seeing the spacecraft B deflecting towards the North with respect to his one. The man in spacecraft B feels no force and confirms the same thing by seeing the spacecraft A deflecting towards South. The experimentalists hiding and watching them also feel the same thing because the spacecraft A deflected from B and from their own. If the experimentalists were deflected towards north, they would have seen both A and B deflecting towards the south. But they watched only A moving towards the south. Here all agree.

What does this show? Direction change is the only reality. Changing magnitude is only an illusion of senses and mind. There is no magnitude and direction but only magnitude of direction change. As everything has limit in this system there is a limit in this also; it is c . (But what should be c , the ultimate velocity? Is it the velocity of light?) Deal simple things. Can any pilot boast on the earth that he is moving at 2 mach speed as against 30 km/sec orbital velocity of the earth? Can one forget that an object falling (merging) towards the earth at 9.8m/s^2 is simultaneously covering about 450 m due to the rotation of the earth? Can one forget the galactic motion and red limit? Can one argue that there is no other motion undiscovered? Without fulfilling Simon De La Place's prediction ("An intelligence knowing, at a given instance of time, all forces acting in nature, as well as the momentary position of all things of which the universe consists, would be able to comprehend the motions of the largest bodies of the world and those of the lightest atoms in one single formula, provided his intellect were sufficiently powerful to subject all data to analysis; to him nothing would be uncertain, both past and future would be present in his eyes" Only God can fulfill it) it would not be possible to describe the real path of an object even against all other material frames in the universe. Man or machine may not be able to comprehend it. Unless it is done, to admit that 'the entire philosophy of mankind is defective' is an appreciable thing an honest philosopher or mathematician should do. That is the significance of Poincare's 3-body problem.

Against the real space frame, every object is moving very close to the velocity of electromagnetic waves in all direction.

What is relative? Mass, length or time? None! It is distance!

In a moving system displacement by time is not equal to velocity nor is time into velocity

displacement. The light rays from the sun reach the earth in approximately 8 and 1/3 minutes. How is it calculated? Distance between the sun and the earth divided by velocity of light! Since the sun and the earth are under tremendous motion, the real displacement of light in 8 and 1/3 minutes is far, far higher than it. No method to describe it although one can measure it thanks to Mr. Einstein, who trusted the sense organs, proposed time dilation. But it is very useful. If time dilates or contracts by velocity, it should be by a cause and the cause is the relativity of distance in a moving system. Experimentalists prove it using atomic clock, depending human senses. It is not the time but the distance that is really deceiving senses. Please go to the next part.

3. Secret of Mass Relativity

Introduction

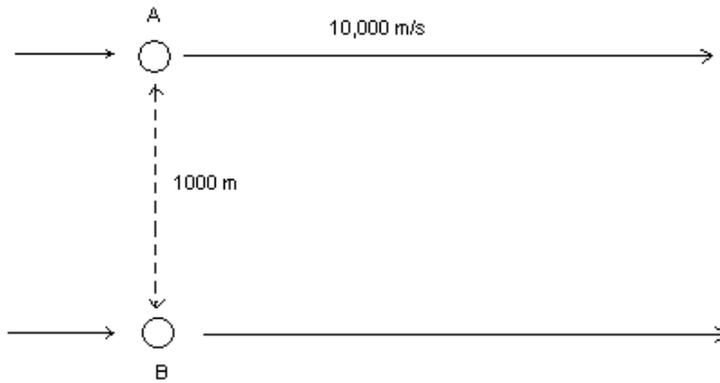
Invariance in special relativity primarily dealt with space, time, and relative velocity of frames and speed of light. Mass is incorporated with it.

Looking at a shadow, if a man concludes that an object is tall in the morning and evening and too short at noon, it won't be more irrational as deducting mass to be relative by observing the experimental result and proofs. Here time is acting as shadow. The content is not relative in spite of all proofs.

Sorry for deviation. In one of the game with Deep Blue, Mr. Garry Kasparov had a chance for a draw by perpetual check by playing Qe3 but he could not see it in time and he resigned and the game became crucial in his defeat. Does this mean that Kasparov is a weak player? No! Of course unifying mass and energy was a great break through that helps us to move towards better reality. But it is a blunder (that is still cherished as one of the highest human intellectual achievement) that made the world sadder (and wiser? or arrogant?), which later compelled him, because he was honest, to predict the advent of another space theory. It is due to the very reason why special relativity could not touch gravitation and after pupation he had to emerge out with general relativity because gravitation is a manifestation of space (as wild goose berries, reality is bitter first but it will become sweet later. People are fond of a warp of space -time, an absolute vacuum. Why can't it rotate or move? There is no vacuum and virtual particles bubble up! Is it from energy, without any carrier of it?)

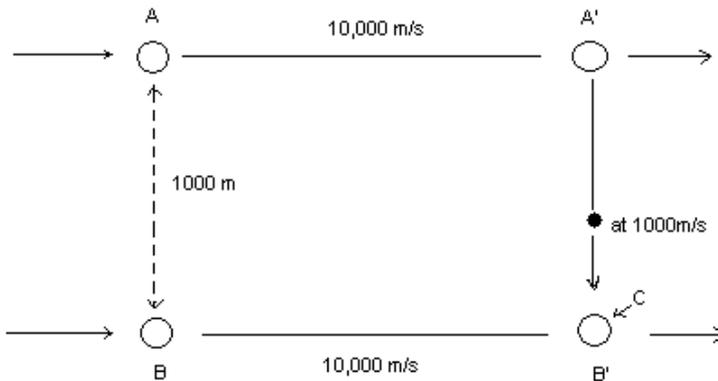
Writing $m = E/c^2$ and $E = mc^2$ arise no mathematical problem. Philosophically these are different. Why? Finite mass can produce only finite energy by its disintegration, its ultimate conversion from one form to another. Therefore, $E=mc^2$ is the best proof that mass is not relative. Had there been no limit to velocity, mass relativity would have been a sublime philosophy. But it is chained by limit of velocity whether it is of light's or Tachyon's. But relativity is proved hundreds of times in particle accelerators. Yes, so what? Mass is absolute and great Newton was right after all! But we have proofs against it. So?

Let two spacecrafts A and B be moving parallel to one another, with a uniform velocity of 10,000 m/s. These are separated by a distance of 1,000m. Since A and B are moving in the same direction, parallel to one another at the same velocity, they form the same inertial frame although not connected. Therefore, an observer in A and B feel no relativistic effects on each other since they are forming the same system.



Now, that a man from spacecraft A shoots an object to B, at 1000m/s. The path (the distance covered) that both A and B feels is 1000m. because with respect to B the object took a straight path.

Let there be a relatively stationary observer C (with respect to whom these A and B system are moving at 10000m/s) at B' replacing it.

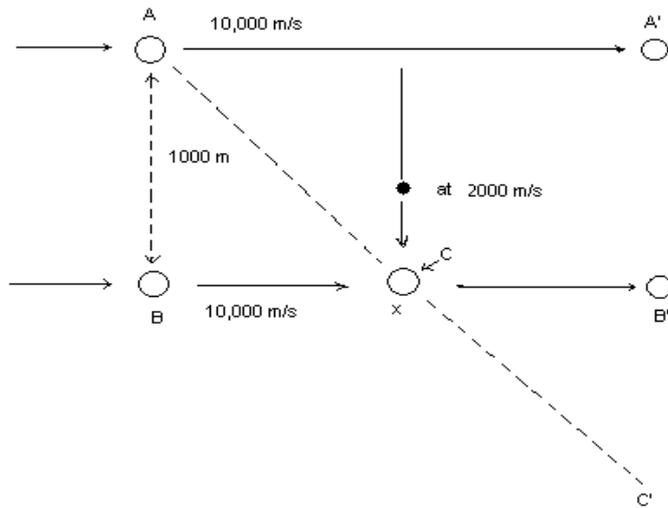


With respect to C the object took a diagonal path of AB' or let us call AC, with a velocity higher than 10000m/s.

$$AC = (10000^2 + 1000^2)^{1/2} = \mathbf{10050 \text{ m}}$$

Now that in a second case the man on A shoots a similar object at 2000m/s. It reaches B in 1/2 second.

But the path c feels is different.



At 1/2 second C is at x, 5000 m away from B, and in one second the object would have reached C'.

Therefore the real path, that is, the path that C feels at x is

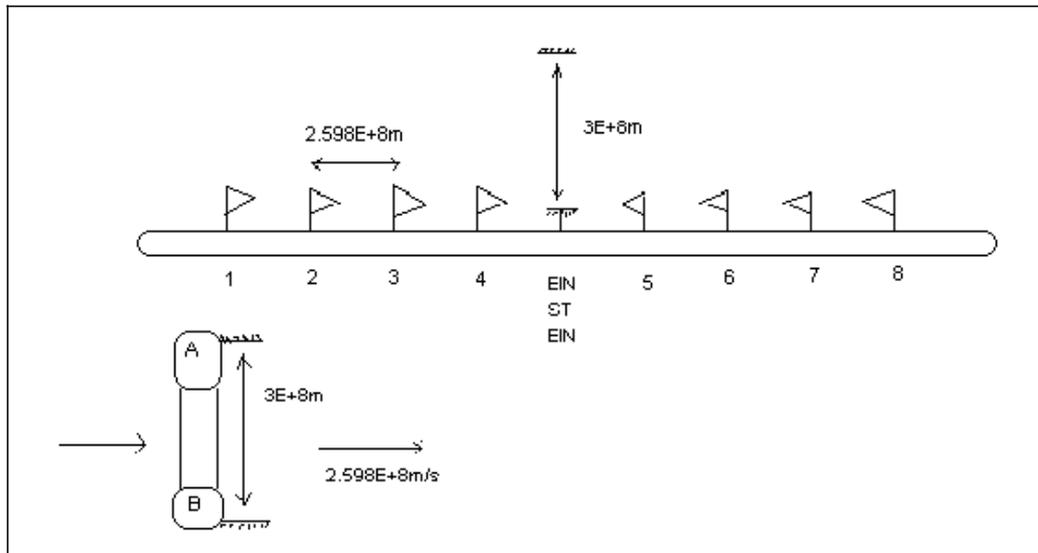
$$(5000^2 \times 1000^2)^{1/2} \text{ in half second or } (5000^2 \times 1000^2)^{1/2} \times 2 \text{ in one second as if C were at C'}. \\ = \mathbf{10198 \text{ m}}$$

When the velocity of the object doubled, the real path (distance) that the object covers increased but neither A nor B can observe it. Here, the increase of 1000 m/s to 2000 m/s is observable for A and B and all the equations are developed accordingly. But real increase and real change in path are unobserved and that is why $F=ma$ Einstein was compelled to modify. When a particle moves in particle accelerator from one end to another, just against the orbital velocity of the earth the real displacement is increasing but the experimentalist cannot detect it. But our galaxy is at red limit with respect to far away ones and undiscovered motions shall be there. Or, against all combined motions, the path that a particle takes shall be hyper dimensional. Neither A nor B nor C can say the exact path. There is absolute time but to find it out one must start from the end to beginning. As $F=ma$ is changed, everything has to be changed. A new science is to be born.

Any earthly observer is like A and B. They do not know at what rate these objects are moving. An absolute observer C is impossible. So the error continues. Every experiment conducted is as done by A and B. They cannot see the change in path when velocity changes. Newton's equations are working well. But these equations are developed as if the system we are in were not moving through space. That is why Poincare stunned physicists; Newton's equations are effect-explaining approximations!

Thought Experiment-1

Since everything is relative we cannot take anyone's word for granted. So, a referee of high caliber is needed. Let us beseech Mr. Einstein to be one because he well judged Mr. De Broglie's paper while the committee was skeptical about its sanity. Let Mr. Einstein be with a modified Feynman's clock, having a light source on a mirror and another mirror at 1 second apart, at $3E+8m$ (Feynman could use the clock to express time dilation because the distance is relative; as Kepler could not find out inverse square law, in his own law that Newton traced out, Feynman, the great genius forgot to notice it as Kasparov overlooked the possibility). He is provided with a very long scale and flags erected at regular intervals of $2.598E+8m$ (to get the time dilation approximately double).



Einstein is standing at the middle point of the scale. We are here to describe relative motions of frame and hence the question whether Einstein and the scale are moving is of no much significance here.

Now that a spacecraft AB of negligible width, but very tall, with the same type of Feynman's clock attached with it appear from one end of the scale at such a velocity that Einstein sees it covering one flag in Einstein's one second. When the spacecraft AB coincides flag No-1, both the clocks started working, as prearranged. Einstein sees the compressed spacecraft AB covering each flag in one second of his clock, so that it coincides with his position in 4 seconds of his clock. He sees the time of AB dilated and according to Einstein's observation, it takes only 2 seconds in AB's clock to coincide with his position. However, Einstein trusts his own clock and concludes that the velocity of AB is $2.598E+8$ m/s (this is a serious problem that let us discuss after the next thought experiment). For the observer in AB a compressed Einstein and a shortened scale is approaching. For him Einstein's time is dilated. In AB's own clock it takes 4 seconds to coincide with Einstein. If the observer in AB knows beforehand the distance between two successive flags, he can conclude that he is traveling at $2.598E+8$ m/s. Otherwise, due to Lorentz' contraction of Einstein's scale, the observer measures the distance he covers with his own scale, he concludes that he is at half velocity than what he really is at. Here is the vital point and the secret of mass relativity. Using one's own time, he should measure the quantities of his own frame. He should not measure the quantities of another frame under relative motion with his own time and equipments. That is, when AB wants to measure length of Einstein's scale (or displacement) under motion, he should use Einstein's time. Relativity of simultaneity and many such pet terms can attribute against it without understanding that this is a real thought experiment in which mind, which is the fastest (simultaneous) entity, should be used. Our mind is part of space, The Divine Mind and therefore Schrödinger's Cat is not at all a problem!

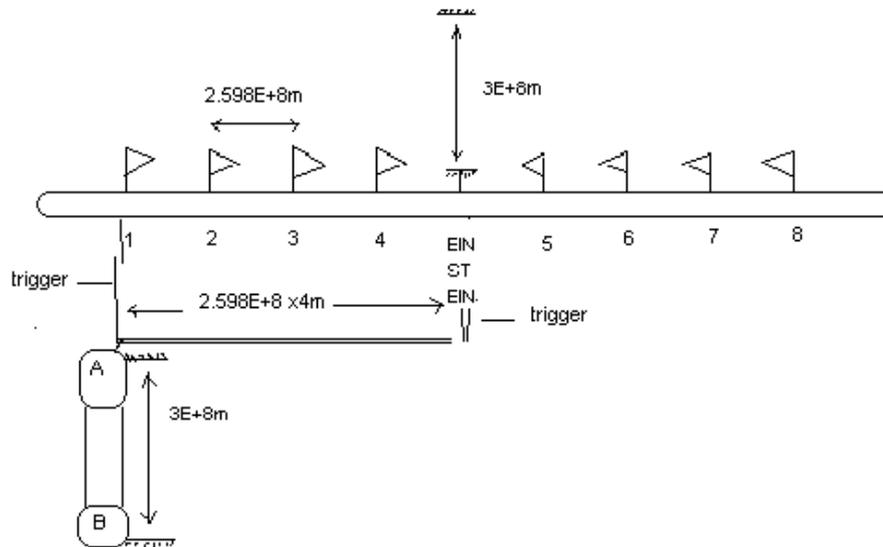
By length contraction, AB measures the distance between flag No-1 to Einstein as $2.598E+8m \times 4 \times (1-v^2/c^2)^{1/2} =$ half of the real distance. This is when he uses his own time. If he uses Einstein's time, he covers this distance in 2 seconds and hence the absolute velocity is the same for both of them.

The serious problem is that when anyone measures the velocity of another frame with his own time, he never gets the real measurement.

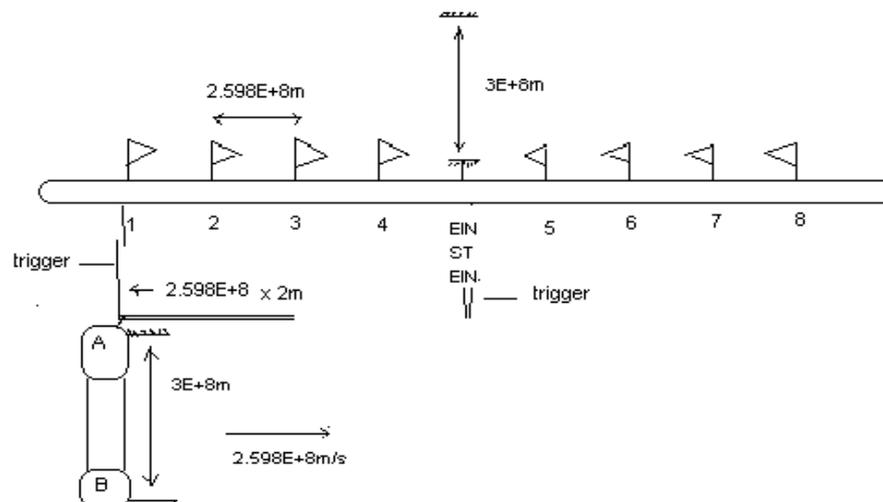
Thought Experiment-2

One may argue that when the space craft AB appears at flag No-1 Einstein cannot see it because the light will take some time to reach him. For them an iron rod is needed! Let us

modify the space craft AB with an attached iron rod of $2.598 \times 10^8 \times 4\text{m}$ length. Before starting the experiment, the space craft and the iron rod are placed side by side to Einstein's scale so that everyone appreciated its accuracy. That is, as the space craft AB reaches flag No-1, the other end of the iron bar should touch the trigger of Einstein's clock. A similar trigger is there at the ends of the space craft so that they should also start working simultaneously when Einstein's scale touches it as showed in the figure.



Now that the experiment is all set to start and the scale and the space crafts are moved far apart. It is arranged and agreed that the space craft should coincides with flag No-1 sharp at 9 a.m. so that the iron bar should trigger Einstein's clock at 9 a.m. itself. What will be the view of Einstein at 9 a.m.?

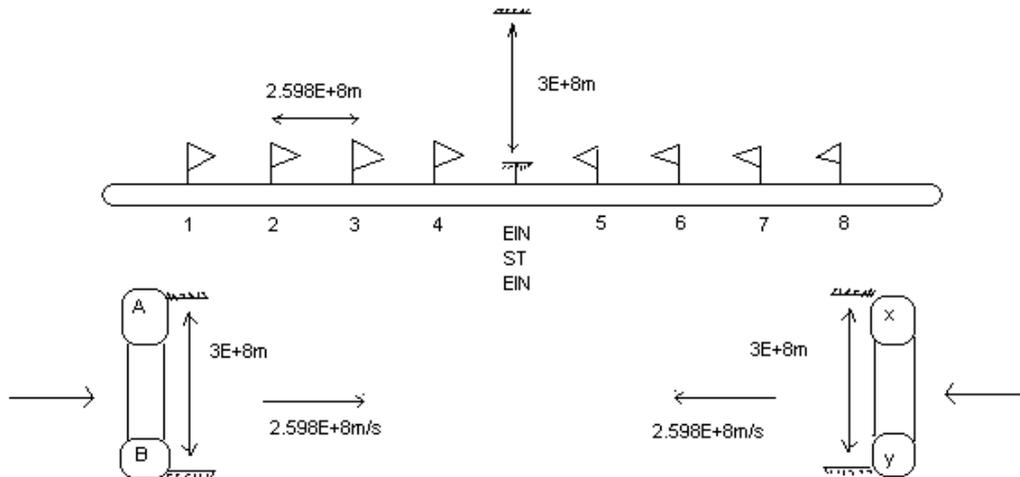


At a velocity of $2.598 \times 10^8\text{m/s}$ of space craft, due to Lorentz' contraction, Einstein sees the iron bar reaching at flag-3 (the compression of the space craft is negligible). Irritated Einstein sees his clock starts working only at 9: 00: 02. That time the space craft reached flag-3 and tip of iron bar coincided with Einstein. Within 2 seconds the space craft coincides with him. So, in his 2 seconds the iron bar entirely crossed him. What was the length of the iron bar? So, what is the distance it covered in 2 seconds of Einstein, the referee.

This is the real velocity. At a time dilation of 2, the absolute velocity is double to observed velocity. This is a way to overcome the problem of relativity of simultaneity and to bring in absolute time in experiments.

Thought Experiment-3

As in the first thought experiment, Einstein is standing in the middle of the scale with his Feynman's clock. As the spacecraft AB reaches the flag No-1, another spacecraft XY reaches the flag No-8 from the opposite end.



It is also equipped with the same type of Feynman's clock and is moving at the same velocity, but in the opposite direction. We are not going to look at what the observers feel one another but just look at Einstein's observation. Einstein is looking at one of them only. But the experiment is prearranged and hence he knows that the spacecraft XY has appeared simultaneously at flag No-8 as he saw the spacecraft AB at flag No-1. Arrival of another spacecraft from the other side will not influence Einstein's clock against one of them. He calculates the total displacement of the 2 spacecrafts in 4 seconds. In his 4 second, as before, the first spacecraft AB covered $4 \times 2.598E+8m$. He knows that XY also must have done the same. So the total displacement is $4 \times 2.598E+8m \times 2$.

But, both the observer in AB and XY, by looking at each other cannot feel that because of the unreality of time. But Einstein knows that a headlong collision of these 2 spacecrafts is more dangerous than what both of them might imagine; not because the content being relative but due to the hidden distance in absolute time that a referee can only understand, not the travelers. Because Einstein knows that their real displacement is double to their observed velocity.

At a time dilation of 2, the observed velocity is half of the real velocity. Why it happens is due to the change in track that no observer can detect because there is no absolute observer. A few such data will show that the real velocity,

$$V_r = v \times 1/(1-v^2/c^2)^{1/2}$$

because unit time expands to cope up with real distance. Otherwise

$$V_r = v/(1-v^2/c^2)^{1/2}, \text{ where } v \text{ is the observed velocity.}$$

Let us discuss the problem of the first thought experiment.

Einstein observed, using his own time that the spacecraft. AB is moving at $2.598E+8\text{m/s}$ crossing each flag in one second. This is not true. As soon as a person observes a moving body his own time collapses. So he has to take the time of the moving body to measure its velocity if he wants to calculate the real distance that the object covers and hence the real velocity. He sees that the time of the AB's clock dilated and it took only 2 seconds to coincide with his position. So the real velocity is equal to the distance that the object covers divided by the time taken by the object, not that of the observer. Here the time is just a shadow and it deceives anyone in measuring the real displacement. This is what happens in particle accelerators.

Similarly, when AB measures the distance of Einstein's scale, he should use Einstein's scale and Einstein's time. Then he gets the real distance that he covers through space in one second. That is, he covers $2.598E+8\text{m}$ in 2 seconds. But one cannot observe it. The observed velocity is less.

The real displacement through real space a particle is subjected at high velocity is thousands of fold higher than what is observed by our time although the material frames of reference tells that the starting and finishing point are the same. This is why it is difficult to accelerate particles closer to the velocity of light. It is the observed velocity by the observer's time.

Light, at its velocity breaks the barriers of time as per $t' = t_0 / (1 - v^2/c^2)^{1/2}$

Then how can one say that light is propagating this much or that much distance at unit time? The wave length what one observes is not the real one but it is the length that is described by observer's unreal time. It is against the observer's time that the velocity of light is the limit of displacement in unit second. If everything is relative, can one trust his own time to measure the dimensions of another moving frame?

Therefore, momentum, the impact by a body,

$$p = mVr$$

Where, m is the total content, whether it is energy or mass. Or $p = m \times v / (1 - v^2/c^2)^{1/2}$

Where, v is the observed velocity.

There is a limit for movement within the system. The maximum observed velocity is c, the velocity of electromagnetic radiations (If there is anything moving faster than electromagnetic waves, that should be taken as c). An observer's time is contracted maximum against the time of light. As the relative velocity or direction change with respect to each other increases for two objects, the objects express energy nature gradually, losing their material property. Or rather its perception declares it as energy than matter (eg. Gamma rays). This is how De Broglie's equation works.

Since mass is expressing energy nature with the increase in velocity, the kinetic energy of a moving object is,

$$\text{K.E.} = \frac{1}{2} m_0 \times (1 - v^2/c^2)^{1/2} \times Vr^2$$

Why $m_0 \times (1 - v^2/c^2)^{1/2}$, not $m_0 / (1 - v^2/c^2)^{1/2}$? because, material nature of mass is gradually changing (or at high 'velocity' our measurement declares it as energy) along with velocity (direction change) to become space (or energy), and that we are calculating the total energy.

But

$$V_r = v/(1-v^2/c^2)^{1/2}$$

$$\text{K.E.} = \frac{1}{2} m_0 \times (1-v^2/c^2)^{1/2} \times \frac{v}{(1-v^2/c^2)^{1/2}} \times \frac{v}{(1-v^2/c^2)^{1/2}} \dots\dots\dots(1)$$

$$= \frac{1}{2} m_0 \times \frac{v^2}{(1-v^2/c^2)^{1/2}} \dots\dots\dots(2)$$

$$= \frac{\frac{1}{2}m_0}{(1-v^2/c^2)^{1/2}} \times v^2 \dots\dots\dots(3)$$

And causes the illusionary concept of mass relativity! Equations-(2) and -(3) give the same result but what really happens is equation -(2) and what is perceived by sense organs is equation-(3) because one cannot see the hidden velocity. Mass, measured as a factor of impact of collision or force required to accelerate or deflect is increased due to the hidden velocity.

What is the distance between a man and the wall of his room? Is it two meters? It is true and in a flat, motionless, geocentric earth when one moves towards it. But really the wall is millions of kilometers away when one moves towards it and the distance one covers to reach it depends on how fast or slow one reaches it. Please recollect the verse in Holy Gita that says, 'it is distant yet near.' Matter is only an expression of space but it does not have all the noble qualities that space has (people may have a notion that The Holy Gita is the book of Hindus. It is not of any religion, but great science, the science regarding life, death and the universe. And now, during the editing of this work, the author is too surprised to see uproar in Russia and India over its ban! Holy Gita is poorly understood because most of them who read it think that Krishna is claiming to be god. It is just as most of the Christians believe Jesus as the son of god, keeping in mind a man-like god, sitting in heaven on a throne!)

The force given to accelerate in particle accelerators is used for the hidden velocity, not to increase the content, analogous to latent heat in thermodynamics(analogy destroys beauty). Therefore, the impact of collision and the force needed to accelerate or deflect the particle also will be proved relative. That is, energy is neither being converted to mass nor vice-versa. But mass is converted to space and back. Then how will we unify it? Since mc^2 is valid let us use it for the time being.

N numbers of photons are produced from rest mass with $h\nu$ energy from mass m

$$N h\nu = mc^2$$

This is a constant since finite mass disintegrates and produces finite energy. For another method, using velocity, as Mr. Sherlock Holmes' method, we must call in Mr. Archimedes here. One may wonder what the relevance of Archimedes here is. He can only do something with his age old principle! And also help in future to make some antigravity if God allows (It is explainable with The New Space Concept that I am afraid to venture with. Yet soon it will come out. There is very interesting and amazing reason why $E=mc^2$ rather than $E=1/2 mc^2$ as the velocity reaches c. Since the reason is stranger than space rotation attributed for planetary revolution, I am not describing it for my good health for the time being. It would be equal to Galileo's declaration of round earth to a world that observed flat one). For the third method, showing the inter conversion of mass and space expressing energy, I hope, no existing mathematics is sufficient because mathematics is becoming relative for the first time. Since I am not a mathematician, I tried it with some of my students in Kerala, who grew to mathematics teachers.

Charge

It is a question of energy as declares by tiny antagonist electron that matches with a proton. Since the K.E. is very high due to hidden velocity, the particles may show greater charge as well. It is not due to an increase in content but due to the hidden velocity.

4. THE COSMOS

Universe and its Sub Realms

Here is an anecdote. The readers familiar with it please forgive me for the monotony.

There were 4 brothers born blind. They were eager to know what an elephant is. One day a Good Samaritan brought them near a tamed young one and helped them to feel it. The eldest one caught it by its tail, the second one its leg, the third one its ears and the youngest one its tusk (luckily they did not touch some other parts). They were happy and proud to touch one elephant. Later, after returning home, they started quarrelling on the issue of the elephant. The eldest brother claimed that the elephant was like a broom. The second brother denied it and asserted that the elephant is like a pillar. The third one argued that it is like a winnow. The fourth one shouted, "Are you all blind? The elephant is just like a spear!"

We are like the blind brothers when deal with the cosmos. Some talk of Big Bang (luckily no small bang), some of an oscillating model; still others are fond of a steady state. The truth may be beyond all these. There shall be one proof or another, like CBR or the red shift. Yet who knows for certain, except the dogmatic blind brothers? One can say firmly that the universe is formed these many years back or so and these and those things will happen after these many millions of years. Who can verify it? This forest has these many millions of leaves, if you doubt, go and verify it. With much trouble, if one verifies it using random sampling and if the prediction is nowhere near his result, he will still argue, 'there are three types of lies-true lies, false lies and statistics' (Mr. Gladstone?). Therefore, in my humble opinion, let us try to explain things in its present state. Then we may be able to extend it to future and past. Without knowing the cause of gravity, charlatans are eager to talk of anti gravity. Of course one can approach a problem from the beginning or from the end. But, in the case of the universe one cannot see the end and hence one should rather start from the beginning.

To explain many existing phenomena, there is no choice but to attribute the property of sub realm to the universe.

What is the end of the universe? Is it up to where matter exists or space spreads or energy flows? No mortal brain will directly answer it unless the owner of it is dogmatic and arrogant.

The universe may be finite or infinite, bound or unbound; but we do not know for certain. Dogmatic hypothesis will not bring us anywhere near the truth. So let us keep this option an open one. Irrespective of whether the universe is finite or infinite it must have finite property that causes such factors as inertia and limiting velocity. Let us term **sub realm** to that entity of the universe, which shows finite, unbound property. This can answer many riddles.

What is a sub realm? How does it exist? Are we able to find out the mass and radius of a sub realm?

A sub realm is defined as an enormous, spherical volume of space surrounding every particle at a given time. As the particles are not stationary, the sub realms are also ever changing. Sub realms do not move, but where the particle is at an instant there a sub realm surrounds it, as long as the particle exists as mass.

Therefore, with respect to a particle a sub realm can be considered stationary since a particle always has its sub realm; as an object is stationary with respect to its own shadow even if the object moves.

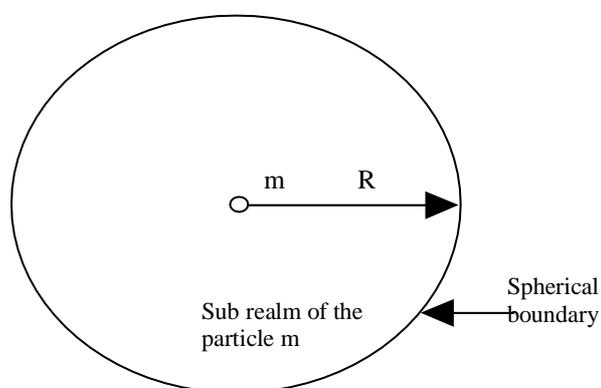


Fig. 2.1. A particle with its sub realm

There are so many other particles in a sub realm. So, the sub realms of most particles overlap, unless the two particles are separated by a distance $2R$, where R is the radius of the sub realm of a particle. The other particles are considered as evenly distributed in a sub realm even though local aggregations of particles like stars, and other bodies exist. Millions of galaxies exist in a sub realm so that the local aggregations become a part of even distribution of mass due to the enormous space in a sub realm. Each particle should be considered to be at the centre of its own sub realm and hence the centre of mass in a sub realm should be towards the centre of a particle. At the same time the particle is pulled by other surrounding, infinite sub realms.

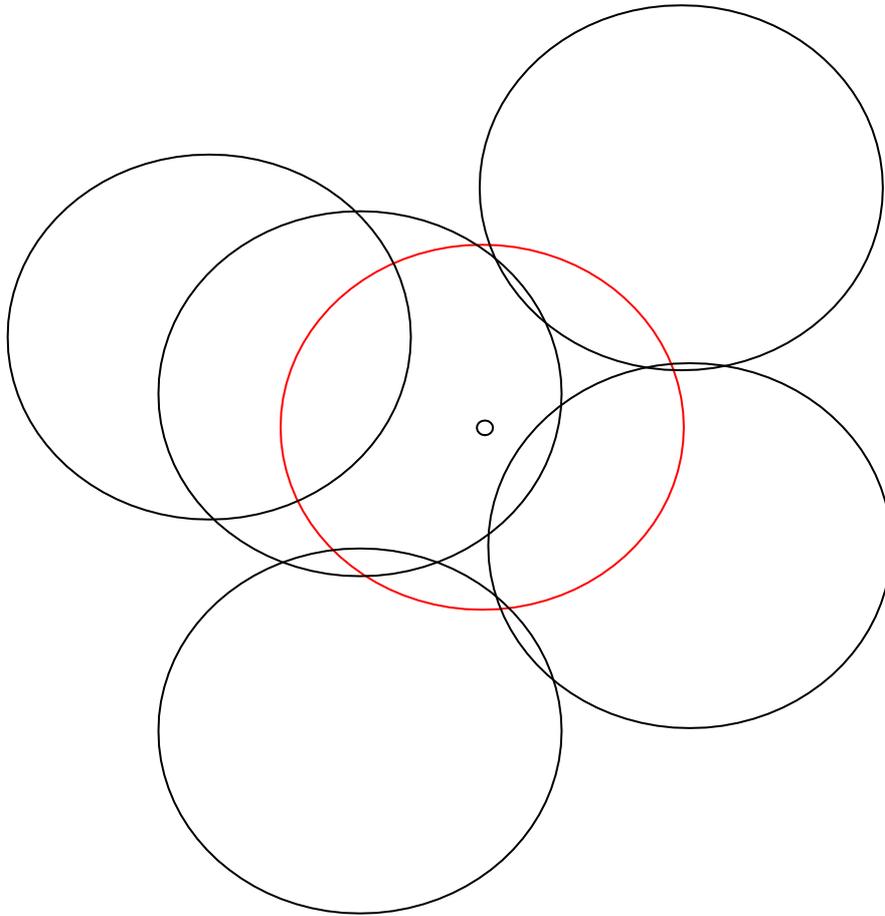


Fig. 2.2. – **A sub realm with a few overlapping sub realms**

It is difficult to impart the idea of sub realms by diagrams. However, in the above figure, a few sub realms are shown to express the overlapping nature of a few neighboring sub realms. They are quite infinite and overlap in all possible ways. Sub realm of the particle concerned is marked red.

A particle is kept in position due to the overall forces acting within a sub realm. It is limited. This total force on a particle by its sub realm is called **inertia**.

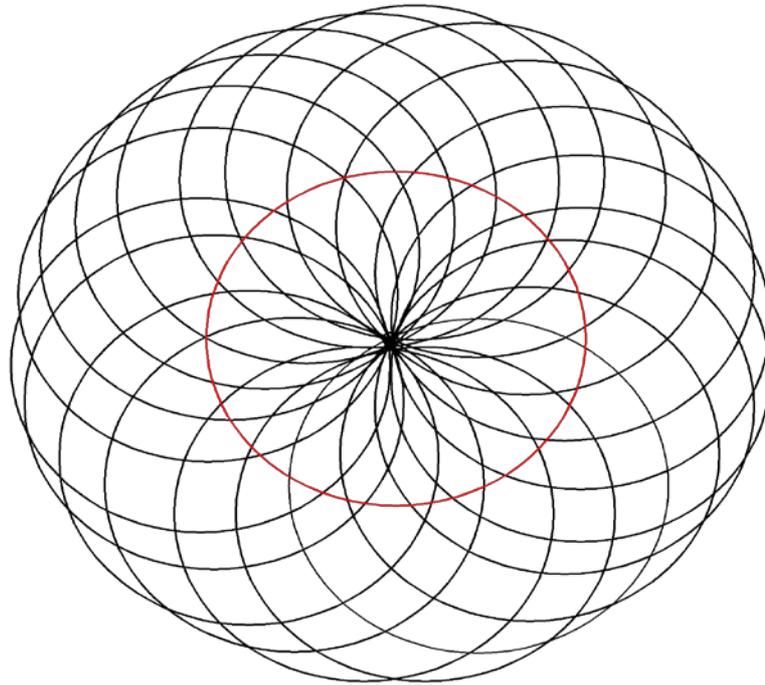


Fig – 2.3. A sub realm with its few neighboring sub realms, whose boundaries pass through the centre of the particle m , the sub realm of which is marked red. One cannot draw the whole sub realms.

Compare it against the ultra structure model of particle given later in this work. When a beam of light starts from a source that comprises lots of particles, our earthly observation says it will go straight. It is not true. But each of the ray has its own path and it will split off in the long course. No coherence. As soon as it is pinched off from a particle, its path is determined.

In effect, a particle while being at the centre of its own sub realm is also at the spherical outskirts of infinite sub realms surrounding it. When any photon is pinched off from the mass m , it has to pass through the circular path along the spherical boundary of any one neighboring sub realm, whose boundary passes through the centre of mass m . That is, the light produced from mass m , has to pass theoretically around the sub realm of another particle situated at a distance of R where R is the radius of a sub realm. Really a straight R cannot exist.

Theoretically, light has to come back to the particle m from where it is originated. Practically it can never happen because the energy and time needed for the journey is enormous (calculations follow). If light has to travel through such a circular path along the periphery of one sub realm or another, it has to bend. How much should light bend? If we know the answer we can calculate the radius of a sub realm and hence its mass.

But this is not possible. So, one should choose another method. Since electromagnetic radiation is centripetal acceleration along the periphery of one sub realm or another,

$$c = (GM/R)^{1/2}$$

$$G = Rc^2/M$$

Where c is the velocity of electromagnetic waves, R is the radius and M is the mass present in the sub realm.

If one knows the density of material distribution in the known universe, one can do it approximately.

$$M = 4/3 \pi R^3 \rho$$

$$G = Rc^2/M$$

$$G = \frac{Rc^2}{4/3 \pi R^3 \rho}$$

$$G = 3c^2/4 \pi R^2 \rho$$

$$G 4 \pi R^2 \rho = 3c^2$$

$$R^2 = 3c^2/4\pi G \rho$$

$$R = (3c^2/4 \pi G \rho)^{1/2}$$

Taking the density distribution as three hydrogen atoms in 1 m^3 space,

$$R = 2.5334 \text{ E}+26 \text{ m and } M = 3.4184 \text{ E}+53 \text{ kg}$$

It is well below what is expected (may be due to our distance concept).

One may note the following points

1. Light that has the maximum speed tries to escape the force of a sub realm. But, as a satellite revolves around the earth, trapped by the latter's gravity, light also is destined to travel in a huge circular path along the periphery of a neighboring sub realm. It cannot cross to any other sub realm nor can it go straight. **The effect of a sub realm is limited.** So that, even if the universe is endless, light from all the galaxies cannot mingle. The maximum range of light is **2R** along a curved path of **R**. Therefore the night sky is not illuminated nor is the local gravitation overcome by infinite galaxies in the universe. This answers **Olber's Paradox**. This sub realm with limited property shall be mistaken for the universe. It may be a part of the universe that we generally call universe.
2. The light that propagates at a uniform velocity is expressing centripetal acceleration due to the force of the sub realm. Since the propagation of light is due to the force of the sub realm, the equation

$$v = \sqrt{\frac{GM}{R}}$$

is applicable, where $v = c$, M is the mass of the sub realm, R is its radius and G is the universal gravitational constant. Light travels well below the escape velocity of a sub realm. Since the mass of a sub realm is almost constant, the force exerted by the sub realm is also constant. This helps light to travel at a constant velocity.

3. When we accelerate an object more and more on the earth, it overcomes the escape velocity of the earth, that of the solar system or even that of our galaxy. But no particle can cross the escape velocity of a sub realm because the force applied for such a velocity may overcome the force that prevents a particle from being converted back to energy (space) and hence the integrity of the particles is questioned and so it is converted into energy (or space). If God had created any particle (as Tachyons that Dr. George Sudharshan claims) which can overcome it can only move faster than light. The force that keeps the integrity of particle is not the strong and weak nuclear force (although unified it), but a force that is keeping mass as mass. That is why the author was compelled to propose a new model for sub atomic particle. The strong and weak nuclear force is only an expression of this undiscovered force.

5. If light is considered as propagating along the periphery of a neighboring sub realm any particle moving at a velocity below light should be considered as taking more curved path. That is, it should be considered as moving in a radius shorter than R . An object moving at v , below light's velocity in a sub realm can be represented as follows. This is with respect to the sub realm, not in the total universe.

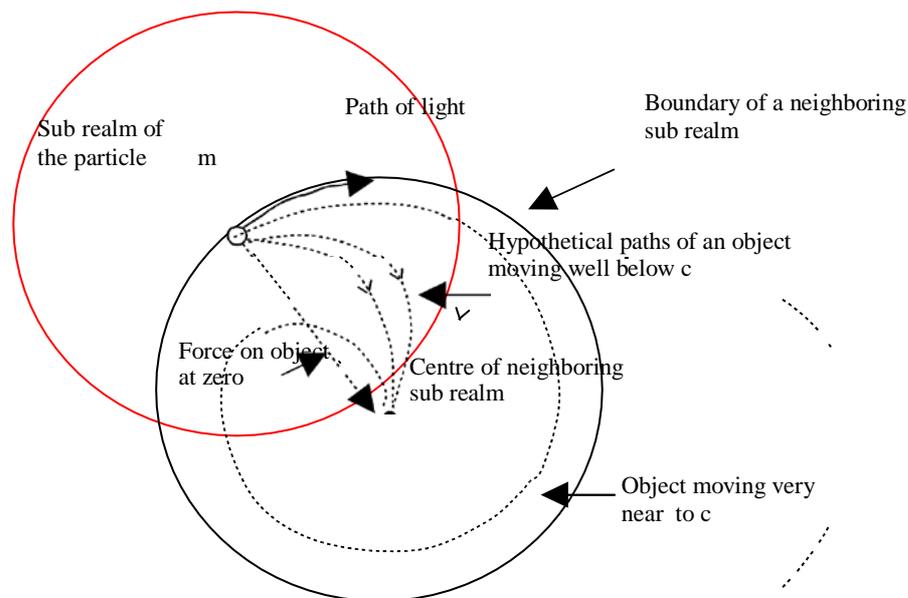
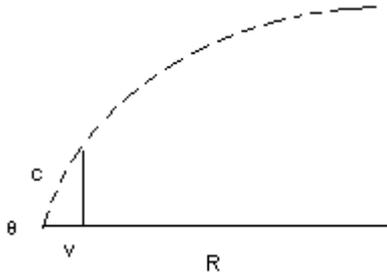
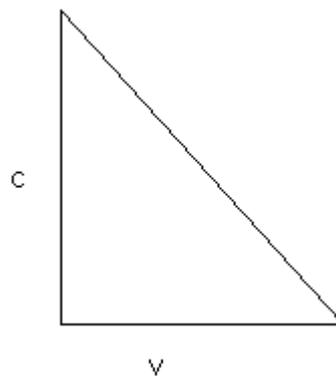


Fig.2.4; path of any moving object compared against one of its neighboring sub realm.

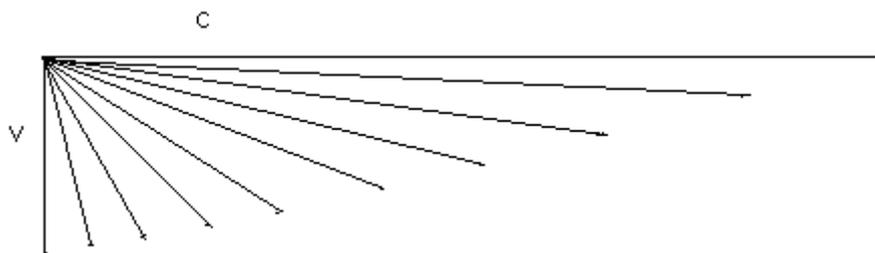
Since everything is already under tremendous motion, acceleration of an object should be expressed as a shift of a fraction of the radius (velocity of 'non-moving' objects) to an arc of the circumference of the sub realm (velocity of light) as showed in the figure below. So, relativistic effects can also be expressed in terms of $(1 - \sin^2 \theta)^{1/2}$ or so (I don't know) instead of $(1 - v^2/c^2)^{1/2}$ if the negligible curvature of light is ignored.



Since c is a fraction of so great a boundary of sub realm, c can be represented as perpendicular axis against the velocity v of 'stationary' objects in the time scale of the observer.



But, if it is represented as a shift to the real velocity against the contracted time of the observer, it looks like the following. Velocity is only direction change against real space frame with negligible increase in magnitude in a moving universe.



5. Mass –Space inter conversion Vs Mass-energy equivalence

One who thinks deep will reach a stage at which his mind declares that mass is converted into energy and vice versa. This is due to the analysis and deduction that mind conducts using the data accumulated through the sense organs. Once a person reaches it he wants to express it. The only way is to marry velocity, and mass relativity is born.

Mass-energy equivalence although proved through human folly exploded in Japan, Chernobyl and many other underground rendezvous cannot answer space.

Energy has no existence of its own. It is an integral property of space and mass. Mass is the perceivable form of space. Movement or vibration of space or mass is expressed as different forms of energy.

When mass disintegrates it is converted into space, expressing energy equal to mc^2 . Gamma rays are not real energy form. Space is the real form of energy and matter is formed out of space. Think of Heisenberg's uncertainty and formation of virtual particles, the argument is clear.

Objects that are aggregate of particles evacuate space and it is expressed as gravitation. There is very gradual, undetectable changes happening to every particle due to this process.

Atom is unbreakable!

Yes, we have broken atoms. This is not the ones that philosophers would term atom. What we today call atom is an aggregate of particles.

Philosophically an atom is a particle that cannot be split into still smaller relatively stable material units but can only be disintegrated into space by expressing energy. Since the word atom is widely used to denote small units of matter with protons, neutrons, etc. let us call the philosopher's atom as electromagnetic units.

While the sun produces energy it is disintegrating mass into space, expressing energy in the process. During gravitation this is converted into mass. Space entry cannot explain using the present sub atomic model, but a new model is needed.

If one can break a stone into smaller pieces, it is due to the fact that the stone is made of smaller units. Similarly, if one can break a particle into quanta of energy, the particle should be an integrated quantized entity or fields.

Prospect for the new model

It should express how the space packets, the quanta of energy or fields, are orderly arranged to form such electromagnetic units. It should explain why mass, which, from a present philosophical point of view is 'frozen energy', is not being disintegrated back to

energy or space. The model should explain β -decay, how 2 unequal masses (proton and electron) with perfectly equal and opposite charges are formed. It should also explain the reason behind the difference between these charges; or in QCD, how the 'colour charges' are distinguished. It should also deal 'energy absorption and release' as one might call it.

The model should explain why quarks have fractional charges and how these are assembled to form integrated particles like proton or neutron and that in turn assemble forming bigger clusters that we call 'atoms' today.

A model that can explain all these things is believed to explain space entry, the cause of gravitation and other forces like electromagnetic and nuclear forces and other phenomena (polarization, spooky etc.) in a better way than any single theory can do today. This is the incorporation of quantum theory to gravitation and other forces. Since the author is unaware of the existence of such a model, a new one is proposed. It is this property that causes halo around every particle. In corner news it appeared that mysterious halo was detected around neutrons in some particle accelerator. What we call the boundary of atom is the halo around its nucleus, not the outermost 'shell'. There are no material shells.

SPACE ENTRY-THE CAUSE OF GRAVITATION

Introduction

Every material object, according to its mass, requires a particular amount of space every second. This process of devouring space is called space entry or space evacuation. Tiny particles to huge heavenly bodies that are aggregate of particles evacuate space. So they keep distance. Or else, only a single large mass was sufficient in the universe. An animal cell or plant cell cannot be huge because their ratio of volume to surface area should be suitable for their osmosis and diffusion. Similarly, there is limit for such masses. But, as stated earlier, the space evacuation is unthinkable for mind. Gravitons, neutrinos etc. shall be coming in. But these are not the cause. As one cannot perceive the real tremendous motion of the earth, one cannot perceive space entry. Where from the space, the real ultimate stuff of the universe formed? It is during the process that we call energy production.

Long term gravitation results in an increase in mass (a final neutron star may be more massive than its main sequence one). There is no inflow of energy in gravitation. Energy is the ability to do work. Then why it is particle exchange? It is not the conservation of energy to mass that causes the increase in mass but the conversion of space to mass.

So there is another interesting relationship between gravitation and energy production in addition to the conventional relationship. The normal, well known relationship is as follows. Gravitation, which is considered as the weakest of all forces is the ultimate source of energy production in the universe. In spite of all nuclear physics, it is the gravitational crushing that triggers all nuclear reactions in the stars.

Here is the second relationship. Since gravitation is the formation of mass from space, and since energy production is its opposite process (formation of space from mass) there should be a strong relationship between energy production and gravitation. The sum

total 'gravitational potential energy', as we call it, should be almost equal to the total energy production as long as the universe exists.

Particle exchange theory may be valid in some cases. But in the case of gravitation it is perfect blunder. Why? A single body can produce gravitational field. It influences the space around it. That is why light should bend. Moreover, how can it be valid except in repulsive forces?

Newton was perfectly right! Gravity acting at distance is so great an absurdity. The generations after Newton, grown accustomed with Newtonian effect-explaining science may not find much awkwardness in it because the equations work well and familiarity breeds consent as it might cause contempt. There is no force at distance; at least it is true with gravitation. Every movement in a system is by close contact; either due to perceivable matter or through non-perceivable entities. One may argue, 'I believe only what I see or feel; I will not believe in hidden things' (please wait, hidden variables are coming in the part 'Music of Spheres' also). How far can one trust one's sense organs? (Let us not forget the flat earth and geocentric concepts that crucified many). Can we disbelieve everything that will not come under common sense? ("The one who is not willing to hear what he does not believe is as foolish as the one who believes all what he hears"-Lord Buddha.)

The sun is not commanding by will the earth. It is acting through space by the movement of space (equation proving this is given in analysis of Planetary Rotation). Living things are doing work with their space or soul, not by energy. Energy is utilized in that process, that is all! Material objects have no individual souls, although they have one or another form of energy. The universe is moving not with energy, but with its soul or space. Energy is used for it. The whole universe is living and life originated not by the random assemblage of chemicals. To understand it at least to a certain extent one should meditate a lot after his materialistic science education. It is the Primitive Life of the whole universe, which is empowering a miniature form as a DNA or a cell, the microcosm as dew drops reflect million suns. The potentiality of such a form is unimaginable. It can diversify itself. That is what is seen as the present biodiversity. Grinning at Darwin is due to the concept of a man-like god deeply imprinted in human mind.

Since Newton explained things fairly well based on the effect of gravitation, any equation explaining the cause of gravitation will be related with Newton's equation since effect is due to the cause. So, there are no wonderful equations to develop here. However, going through this method, one can at least explain how Newton's equations came into existence.

According to mass of each object, space is merging into it. Space entry shall be general or specific. Gravitation is general space entry while magnetism is specific one. The movements of objects in a gravitational field or magnetic field should be compared against the total motion of the bodies. An iron piece moving in the vicinity of a magnet or the moon affected by the earth from distance makes one awestruck. It is because of considering space as mere vacuum and since one cannot feel the tremendous motion of the earth. Let us discuss here the power of space to a certain extent (because it is beyond descriptions) and the relationship between cause and effect.

As stated earlier, the first data that one must deeply imprint to understand space and its power is a philosophical one; 'if we put together all the particles of our body, leaving no space in between them, it will come to the size less than that of a pin head'. That is, everything including us ourselves is matter that space puffed up.

To fulfill Simon De La Place's prediction to a certain extent, one should assimilate so many such philosophical data simultaneously. In the total universe, as many of the people know, the concentration of particles is 2 or 3 per cubic meter volume. This shows the importance of space in the existence of the universe. Matter is null and void compared with the grand exploits of space.

The essential difference between any existing concepts of space in physical science (irrespective of whether it is full or vacuum) and the New Space Concept is that here space is not static but highly moving. At the same time, in age old systems their movements are expressed as the motion of matter within the system and hence, with respect to matter in motion, space is static. In conventional space concepts space is stationary, absolute vacuum and matter is moving against it. Think of an absolute non-moving space. Even then space is moving relatively with respect to the moving matter.

Space is moving and matter, mere puppets in the hands of space exhibit properties of space as stabilized movements within the system. First let us deal with the system and then we should discuss what are moving against it. One has to discuss the Problem of Initial Condition that Sir Isaac Newton was searching his whole life. That is, we should see why the spherical planets and spherical satellites are revolving in the same direction as the rotation of the central mass is.

The planets are revolving around the sun because space is rotating around it. The rotation of space is expressed as the revolution of the planets. This may be more maddening than the concept of time dilation appeared in 1905, but please bear with me a little more; there are proofs already! There is no continuous push or pull except in local gravitational or magnetic fields, where space entry is being executed. Though one cannot understand space, one can understand the behavior of space in time tested system through the behavior of matter or energy. Also space is inter-permeable in itself. It is expressed by the light rays crossing each other unhurt. Movements of space in solar system are expressed as the movement of planets and the movement of space around planet is expressed as the movement of spherical satellites around them. Let us now deal with the solar system. If one age old system is explainable, it should be valid in other such systems (as Mr. Holmes was crying for data, the author was in trouble due to lack of data of another solar system to assert whether the assumptions are valid or not)..

Had gravity been a straight line force between two bodies, the planets need not revolve, need not glide along the space that sun distorted from distance. Moreover, had space been a mere vacuum, the attractive force need not diminish in the order $1/d^2$ with an increase in d , the distance.

Even before the full formation of the solar system the space has been rotating in the system. Therefore, the planets are expressing the rotation of space at various distances, provided the planets are formed and evolved along with the system because these are formed out of space. As stated earlier, there is no push or pull but the planets are just moving along with space. One may wonder how comets and other bodies can exist. Some rock pieces are moving against the rotation of central mass. Those which are not in unison are either intruders or formed by explosion. Space offers no resistance. It can act as if it is not there. That is why even the deepest thought cannot understand space. Movements of planets cannot be compared with logs drifting along with water. Luckily we have a better analogy here. Although analogies are dangerous, spoiling the essence, it is like still air rotating along with the earth. A body suspended in the air can move in any horizontal direction above the surface according to the force applied on it. Forget negligible effect due to the centrifugal force of the rotation of the earth

because this is a mere analogy. The air is rotating along with the earth, but for the suspended body, the air is stationary and hence the movement is according to the force applied in any horizontal direction. Thus, comets or artificial satellites can move around a central mass in any direction once enough force is given that would balance the force of space entry although no force can overcome the universal force of space.

With respect to the orbital velocity of the earth, space is stationary. That is, the earth is expressing the movement of space around the sun at a distance of the earth's orbit. It must be due to the en masse movement of space and due to the inter relationship of space in the total universe that Michelson-Morley experiment came out with null effect. Space or its movement cannot be detected by any machine or human mind.

Space entry of the sun is felt as gravitational pull of the sun on the planets and other bodies in the system. It is a process of continuous space evacuation. A system comes into existence by this process. If space is ever distorted and if it is expressible through geometry as Einstein did in General relativity (the author is not a mathematician and had no chance to go through it even) it is due to the miraculous space entry. Something can bend. Can absolute nothingness curve?

Arguing again and again is of no use. Let us now slowly start with simple mathematics to display the already existing proofs of space entry.

Proof-1 Inverse Square Law

It is well known that Sir Isaac Newton mined out inverse square law that was hidden in Kepler's law. Newton could not realize space or space entry (although he was closer to truth by attributing space as the dwelling place of God). Yet it is hiding in $4\pi r^2$, with which he derived it.

To heavenly bodies space enters through an area $4\pi r^2$ every second. This $4\pi r^2$ area increases with increase in distance r from the centre of the body. When r is doubled the area increases 4 times. If such a space entry or space evacuation happens it should be a constant volume according to the mass. Since the volume of space enters is a constant, the thickness of space that has to pass through $4\pi r^2$ area decreases with increase in r . This results in the diminishing of attractive force with distance. The force caused due to space entry should be directly proportional to the mass and inversely proportional to the area through which it passes.

$$F \propto 1/4\pi r^2$$

because, as stated earlier, the thickness of space passing through $4\pi r^2$ decreases with increase in r .

Since the space enters is proportional to the mass

$$F \propto M$$

Where, M is the mass of the body.

$$F \propto M/4\pi r^2$$

$$F = KM/4\pi r^2$$

Value of K = $4\pi G$

That is,

$$4\pi GM/4\pi r^2 = GM/r^2 = g \text{ where, } g \text{ is the acceleration due to gravity.}$$

When $4\pi G$ force acts through $4\pi r^2$ area it results in g. Here g is the force caused due to space entry. There is tremendous philosophical difference between using GM/r^2 and $4\pi GM/4\pi r^2$. The former shows the effect while the latter the cause.

The simplified version gives a false notion that the attractive force between two bodies is inversely proportional to the square of the distance. Of course r is also distance. How or why the force of attraction should reduce if space is absolute vacuum? Imagine two men pulling a rope in the opposite direction, as in tug of war. The length of the rope has not much role in the pulling force between them if they are in deep space when the rope is unaffected by gravitational pull perpendicularly.

It is the falling of one body into the gravitational field of another one that causes attraction between the bodies.

That is,

$$F = \frac{4\pi GM}{4\pi r^2} \times m$$

$$F = GMm/r^2$$

A particular volume of space enters that cause g, and the space entry should be at or near the velocity of light. $4\pi GM$ is the effective volume that causes the force, not causative volume that result in effect. Attempts made to calculate the volume failed so far; waiting for divine grace and a few more data.

Proof-2 Had Newton Been Given g and v

It is true that Brahe pushed Kepler and in turn forwarded Newton.

Just for an aesthetic value let us see what such a great genius as Newton would have done if he was not given Kepler's 3rd law and if he was given various data of g at various distances from the sun and v, the orbital velocity of planets at that distances. Certainly g is calculated using Newton's equation but imagine it is available using some machine at different distances from the sun. Newton is provided with the concept of space entry and space rotation.

The planets are moving at the same rate at which space is rotating around the sun at their respective distances. At the same time sun is excreting force of attraction on the

planets due to space entry of the sun. So the value of g at a particular distance should be proportional to the orbital velocity at that distance. Or else, they should fall into the sun. By analysis of data of g and v he will find out by trial and error (as Kepler found out $T^2 \propto r^3$ by Pythagorean heritage) that,

$$v^4 \propto g$$

That is,

At $r_1, r_2, r_3, \dots, r_n$, for a given central mass

$$v_1^4/g_1 = v_2^4/g_2 = v_3^4/g_3 \dots = v_n^4/g_n$$

Where, $v_1, v_2, v_3, \dots, v_n$ and $g_1, g_2, g_3, \dots, g_n$ are orbital velocity and acceleration due to gravity at $r_1, r_2, r_3, \dots, r_n$ distance of planets from the sun.

Since g towards the sun is depended on the mass, he can generalize (if he has such data of the earth and a few more position from the earth) by trial and error as,

$$v^4/gM = \text{a constant}$$

Where M is the central mass.

What is the constant? $G!$

What is its unit? $\text{m}^3 \text{kg}^{-1} \text{s}^{-2}$. It is the effective volume, not causative one that causes g . It is also $\text{N m}^2 \text{kg}^{-2}$

Since $v = 2\pi r/T$ he would reach

$$T = \frac{2\pi r}{(gMG)^{1/4}}$$

This is the same thing that Newton did using Kepler's law. The cause of gravitation could also lead him to the same derivation.

Proof 3- Coincidence of Inertial & Gravitational Mass

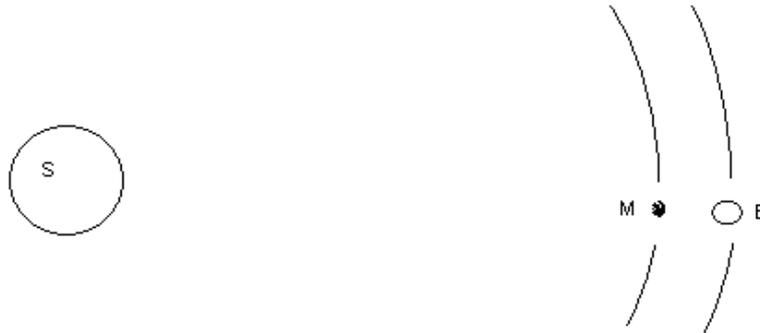
Gravitation is a continuous force. Even if the body is falling (merging) freely, the force is still there and hence the body is accelerated continuously. Therefore it is not like any contact force. As stated earlier, gravitation is caused by the incoming space. A freely falling body obeys the nature of space in a gravitational field and hence it feels weightlessness. But, with respect to space the body is still changing its direction. In the chapter **velocity** it is already explained that one cannot increase or decrease the velocity with respect to space. Although the body seems to an observer to be falling down in straight line, it is not so in real space.

Blocking an object against gravitational field is equal to accelerating it against relatively stationary space because gravitation is incoming space. When one measures inertial mass and gravitational mass, he is doing the same thing. How can one get different values when one does the same thing? Since one does not know what gravitation is, he thinks that he is doing different thing when he accelerates an object at the same rate at which it would fall. Can one rely on mind?

Proof-4 Music of Spheres

(The author is not claiming as Mr. Pythagoras that there is any music. The title is just given due to its aesthetic value)

Suppose the moon were at 3.844×10^8 m away from the earth and were directly revolving around the sun in concentric circle parallel to the earth, as shown below, what harm is there in its working?



Why should the moon revolve around the earth? The attractive force between the moon and the sun is more than double when compared with that between the earth and the moon. In a situation given above also the movement of the moon can be described by Newtonian equation if the central mass is taken as the sun instead of the earth. But the moon revolves around the earth as Galilean satellites around Jupiter, Titan around Saturn and Triton around Neptune as they go around the sun. Again here Henri Poincare's 3-body problem is valid. In any moving system one cannot easily comprehend the interaction of 3 bodies. Then, can one incorporate the interaction of all the forces of the stars on earth or any other planet? But here is a way out of the mess.

In age old systems what matter does is what space does. Therefore, the rotation of the sun is the rotation of the space in and around the sun. The planets are moving just at the same rate of space at their respective positions. Likewise, for spherical bodies (planets or satellites) the rotation is due to the rotation of space there. Rivers flow, but small whirlpools exist. This does not mean that if a central mass turns opposite the secondary bodies revolving around it would start revolving in the opposite direction. What at present happens in the solar system is only describing here.

If the space rotates in and around the sun, it cannot rotate up to infinity. Then up to where?

Up to the synchronous satellite position!

Why?

This is the only position outside a central mass where the orbital velocity required coincides with the angular velocity of the central mass. Below this position, the orbital velocity required is more than the angular velocity. Please remember that we are not

dealing with any hypothetical system but the naturally existing system. Therefore one should show the real things, not hypothetical ones to argue against this proposal.

Below this position the orbital velocity required is more than the angular velocity of the central mass. Since space has been rotating at the same rate, it had not provided the orbital velocity required and hence no spherical, true planet or satellite will be seen below this position.

At synchronous satellite position,

$$r = (GMT^2/4\pi^2)^{1/3}$$

Where, T is the rotation time of the central mass (orbital time of the revolving body). This rotation time of the central mass is the revolution time of space around the central mass at that distance.

For planets beyond the position also,

$$r = (GMT^2/4\pi^2)^{1/3}$$

Where, T is the rotation time of space at that distance from the central mass that is expressed as the revolution time of the secondary body revolving around it. This is why true planets and satellites are almost in the same plane and in the same direction as the rotation of the central mass is. What harm was there with Newton's equation if the planets were revolving around the sun in x, y and z axis? The gradual decrease in the orbital velocity is due to the gradual decrease in the rate of rotation of space with an increase in distance. Certainly the force is decreasing. It is because the thickness of space passing through $4\pi r^2$ decreases with the increase in distance that is explained earlier in inverse square law.

Possibility of Law of Rotation for Spherical Bodies

Since space entry is depended on mass, a body that has more mass has more space entry and rotates faster as they move around a central mass. The faster one rotates means the space is rotating faster in and around them. So it has more privilege to keep smaller bodies around them. Although the data of only one solar system we have at present, data of Jupiter and Saturn expresses this fact to a certain extent. Even Pluto has one to its credit. Mercury and Venus that are very slow do not show any. Huge masses require more space and hence they keep more distance. This is seen from atom to stars.

A virus behaves as molecule as well as living thing. As the complexity increases, it attains more living nature. This is the difference between worms and mammals. The same thing is there with meteorites and spherical planets. Everything cannot be dealt with physics and chemistry. There is life that eludes quantum theory or relativity. Touch things with soul or space. Or, why most of the Nobel laureates in physics at last succumb to religions after unifying one force or another? They cannot attain what their prophets acquired through meditation. This is the difference between earthly knowledge and enlightenment.

For large central masses like that of the sun or the planets, space rotates at the same rate up to their synchronous satellite position. There is no question of, 'if the earth

were rotating faster'. Why? Simply because it is not rotating according to our wish, but by a strict law that is yet to be discovered. These are rotating and revolving as these are to. It is governed by the power of Space, the mind of God. That is why Einstein and Max Planck admitted that everything is in mind.

Since the rate of rotation of space decreases with distance, a planet or satellite formed within the system and evolved along with it should obey the following criteria.

1. It should be huge, spherical one
2. it should be beyond the synchronous satellite position
3. it should revolve in the same direction as the rotation of the central mass is.

This does not mean that the bodies that obey all the three criteria are essentially evolved along with the system. All Keralites speak Malayalam*, but all those speak Malayalam may not be Keralite.

*Malayalam is the language of Kerala, perhaps the only name of a language that shows palindrome when written in English. The author, though not good in English, is not so bad in it and has humble achievements to boast in its literature.

Since the velocity of rotation of space gradually decreases from the synchronous satellite position, there comes a data ($V_s - V_o$) that shows the gradual decrease in the velocity. Where, V_s = velocity at synchronous satellite position and V_o is the orbital velocity of the planets or rather the velocity of space revolving at that position. The relationship between ($V_s - V_o$) and distance from the central mass is unique. It is this relationship that enabled to bring the widely varied rotation times of the planets by a single approximation and solve millions of body interaction to an appreciable level. The force between two main bodies, plus interaction of all bodies is expressed as specific characteristics.

Harmonic Rotation of the Sun and his students

Is there any harmony in the rotation times of the sun and the planets? Are they rotating randomly, with the initial momentum acquired during their formation? Is the initial momentum formed at random? Do the mass and distance of the sun or any other central body affect the rotation times of the planets and satellites around it as it do with revolution? True, there exists equation relating energy and rotation. But this is a search to analyze an interrelationship in the rotation times.

Here what is going to deal with is not the simple Gaia theory but the profound metaphysical search that The Upanishads dealt with. The whole universe is living. Life originated not from non-living things, but from the Great Life. Individual souls are wonderful miniature of that Macrocosm. As the complexity increases it shows more divine nature. This distinguishes man from other animals and superiority to boast of.

The solar system is a part of it. As hair and nail have no individual life in a molecular level of consideration, although they grow, certain laws that the big, spherical bodies express may not be applicable to comets, asteroids, etc. (as one cannot train an earthworm the same discipline one can do with an elephant although both of them obey the general laws like growth, reproduction and death). These rock pieces

that revolve around central mass are like hair and nail growing from living body. The solar system is part of Great Life and is self-adjusting. Take the case of a cell. One might call it living, but there are cell inclusions like starch or glycogen and other molecules that one may term non-living. The sun can be compared to the nucleus of a cell, while mitochondria, plastids, etc. are like planets while comets, meteoroids etc. are mere molecules. There are hidden variables that will not come under the final result in calculating certain entities like the orbital velocity of planets. This was what Einstein was arguing for and that the quantum theorists were opposing. The work on planetary rotation shows how hidden variables can exist. The same thing is applicable to subatomic world also. Neither quantum theory nor relativity can be expected to explain life and death and the question of entropy in organic evolution. Such things made Einstein discontented of his own conception of space and quantum mechanics and prompted him predict another space theory.

The Music of Spheres show some disharmonious notes like that of Uranus that can be corrected using the rectifiers of better mathematics and observation. Expecting whole number exponents may not be so rational in it. The author does not boast that he can solve it in any hypothetical or artificial system. It is nature that gives the choice of the exponent, not the author (can one say why the mass of a proton or neutron are as they are, not otherwise? Can one say why nature created m mass to express only $E=mc^2$ energy and not $E=mc^3$?). There is no Newton's equation or Einstein's law. All are nature's law that human imperfectly comprehends. It is the interaction of all the bodies, factors and the specific track of each object in the total motion that cause specific eccentricity, inclination, tilt, etc. for different planets. It is the ignorance and reluctance in searching the solution that makes one speak of 'coincidence', 'random', etc.

THE EQUATIONS

By trial and error it is found that,

$$K \simeq \frac{(T \times M_p)^{1/2} \times (V_s - V_o)^{3.38} \times (180 - \text{Tilt}^0)^{1/1.8}}{(C_m \times R_p)^{1/2} \times d^{1/2.5} \times S_v^{1.1} \times e^{1/8} \times r^{1/4} \times (1 + \text{Incl}^0)^{1/5}} \text{----- (1)}$$

$$T \simeq \frac{K^2 \times C_m \times R_p \times d^{1/1.25} \times S_v^{2.2} \times e^{1/4} \times r^{1/2} \times (1 + \text{Incl}^0)^{1/2.5}}{M_p \times (V_s - V_o)^{6.76} \times (180 - \text{Tilt}^0)^{2/1.8}} \text{--(2)}$$

$$K^2 = 8.01 \text{ E}+8$$

Where, \simeq approximately equal to.

T = Time of rotation of planets

M_p = Mass of the planets

Tilt = Degree of inclination of equator of planets to orbit (tilt and inclination are taken in degrees here)

V_s = Orbital velocity of an object required at the synchronous satellite position of the sun or any central mass. Taking the rotation time of the sun as **25.38** days, the synchronous

satellite position of the sun is at **2.52815599 E+8** meters away from the centre of the sun and hence,

$V_s = 72440$ m/s

V_o = Orbital velocity of planets.

R_p = Radius of the planets.

V_v = Orbital velocity required at the surface of the planets (acceleration due to gravity also may work as well).

d = Distance of the planets from the sun.

r = relative density of planets

Incl. = Inclination of orbit to ecliptic

e = eccentricity of planets.

C_m = Central mass (mass of the sun for planets and mass of the planets for satellites).

Times observed against the times obtained using the equation –(2) are given below.

Planets	Observed time	calculated time
Mercury	58.6462	58.6169
Venus	243.0187	243.0025
Earth	0.99739	0.998295
Mars	1.025957	1.024417
Jupiter	0.41355	0.43447
Saturn	0.44401	0.44822
Uranus	0.71833	1.04822
Neptune	0.67125	0.611926
Pluto	6.3867	5.8849
Moon	27.32166	27.33094

For moon the central body is the earth and hence the data should be processed accordingly.

Reversal of rotation for Uranus must have happened not so long past as that of Pluto and Venus. So Uranus will take more time to come under this equation. Also, the

data used for the work may not be so accurate. Rotation takes long time to display perfect harmony. Only spherical, stabilized systems can produce harmony.

Slightly more minute fractional adjustments in exponents can bring all the planets and the moon to complete perfection except Uranus. -1 can be incorporated with tilt factor to show retrogression.

When using cosine values for tilt and inclination it is very difficult for the author who is not a mathematician to find out the exact values of the exponents. Yet an appreciable relationship follows.

$$K \approx \frac{(T \times M_p)^{1/2} \times (V_s - V_o)^{3.61} \times (1 + \cos Tilt)^{1/2.82} \times (1 + \cos Incl)^3 \dots (3)}{(C_m \times R_p \times d)^{1/2} \times S_v^{1.06} \times e^{1/4.2} \times r^{1/4}} -$$

$$T \approx \frac{K^2 \times C_m \times R_p \times d \times S_v^{2.12} \times e^{1/2.1} \times r^{1/2}}{M_p \times (V_s - V_o)^{7.22} \times (1 + \cos Tilt)^{1/1.41} \times (1 + \cos Incl)^6} \text{-----}(4)$$

Here $K^2 = 1.2 \text{ E} + 9$

Times obtained using the equation (4), using the constant 1.2 E+9 are

Planets	Observed time (days)	Calculated time (days)
Mercury	58.6462	59.029
Venus	243.0187	242.386
Earth	0.99739	0.99434
Mars	1.025957	1.086643
Jupiter	0.41355	0.457758
Saturn	0.44401	0.424877
Uranus	0.71833	1.266054
Neptune	0.67125	0.520309
Pluto	6.3867	7.0622
Moon	27.32166	26.57858

Two more approximations were derived by trial and error method, showing appreciable relationship. One shows a constant $(2\pi c)^{1/2}$ and another one its square $2\pi c$ (given in **Annexure**). Whether these are coming under dimensions or whether space is beyond all dimensions is a question that future should decide.

Possible Reasons for Imperfection

- 1. Mathematical imperfection:** better mathematical techniques may be required. Method used in the incorporation of eccentricity, inclination and tilt may need revision.
- 2. Imperfection of data:** The average rotation of huge gaseous planets and that of the sun may be slightly different from that is observed from outside. Also the data used for the work may not be accurate.
- 3. Unavailability of data:** The data of another nearest solar system is required to formulate an equation.
- 4. Possibility of intruders:** Although the revolution of all the planets expresses harmony, it would be a little premature to ascertain that all these are formed inside the system. Intruder will take more time to obey the law of rotation, unlike the law of revolution.

CONCLUSION

There is harmony in the rotation times of stable systems. The time of 24 hours for the earth that is well suited for the existence of life came into existence not at random. The 2/3 harmony of Mercury is not a mere coincidence. The rotation of the sun has also relationship with the mass and distance from the galactic center. A long, long way is to be covered. The task is not so simple, yet not impossible. An explosion may trigger a rotation according to the force and direction of explosion. So, a neutron star or a pulsar may show rotation that may not come under this law until they settle down. But once it is part of a system, for instance, part of a galaxy, it will finally obey the law of rotation. It will take time.

This equation is applicable to any spherical body formed inside the system and evolved along with it. It should not be an intruder.

Although the data of this solar system only is available, no spherical satellite is seen below the synchronous satellite position. In this concept Moon, Galilean satellites, Titan, Triton, etc. shall be real satellites. Phobos and Deimos of Mars, Metis, Adrastea, Amalthea, etc. of Jupiter and other such rock pieces are not real satellites although ordinary nomenclature put them in the same status. These are hairs and nails of the living system.

SAMPLE CALCULATION WITH $K^2 = 8.01 \text{ E}+8$

$$T \simeq \frac{K^2 \times C_m \times R_p \times d^{1/1.25} \times S_v^{2.2} \times e^{1/4} \times r^{1/2} \times (1 + \text{Incl}^0)^{1/2.5}}{M_p \times (V_s - V_o)^{6.76} \times (180 - \text{Tilt}^0)^{2/1.8}} \quad \text{--(2)}$$

Mercury

$$\frac{8.01\text{E}+8 \times 1.989\text{E}+30 \times 2439700 \times 5.791\text{E}+10^{1/1.25} \times 3005^{2.2} \times 0.2056^{1/4} \times 5.44^{1/2} \times 8.004^{1/2.5}}{3.303\text{E}+23 \times 24570^{6.76} \times 180^{2/1.8}}$$

$$= \frac{2.561194053\text{E}+62}{5.057149244\text{E}+55} = 5064502 \text{ sec.} = 58.6169 \text{ days.}$$

Moon

$$\frac{8.01\text{E}+8 \times 5.976\text{E}+24 \times 1738000 \times 3.844\text{E}+8^{1/1.25} \times 1680^{2.2} \times 0.05^{1/4} \times 3.34^{1/2} \times 6.1564^{1/2.5}}{7.353\text{E}+22 \times 2055^{6.76} \times 178.4576^{2/1.8}}$$

$$= \frac{1.367560242\text{E}+54}{5.791327434\text{E}+47} = 2361393 \text{ sec.} = 27.33094 \text{ days.}$$

Jupiter-Io

$$T \simeq \frac{8.01\text{E}+8 \times 1.899\text{E}+27 \times 1815000 \times 4.216\text{E}+8^{1/1.25} \times 1812^{2.2} \times 0.004^{1/4} \times 3.55^{1/2} \times 1.04^{1/2.5}}{8.94\text{E}+22 \times 10806^{6.76} \times (180 - \text{tilt}^0)^{2/1.8}}$$

$$= \frac{1.553621159\text{E}+56}{(180 - \text{tilt}^0)^{2/1.8} \times 1.655437047\text{E}+50}$$

$$\text{Time} = \frac{938496}{(180 - \text{tilt}^0)^{2/1.8}}$$

Rotation time of Io = 1.769138 days. = 152853 sec.

$$T = 152853 = \frac{938496}{(180 - \text{tilt}^0)^{2/1.8}}$$

$$\text{Tilt} \simeq 175^0$$

Tilt obtained for Europa, Callisto, Ganymede, Titan and Triton are between 179^0 and 180^0

Brief Note on Music of Spheres

The approximation has many physical characteristics incorporated and hence one may think it would be easy to construct a coincidence intentionally. It may be true in some cases. But, regarding planetary rotation let me earnestly request anyone to try with as many relevant physical factors as one can have (may use a super computer). If anyone can make such a generalized relationship with less standard deviation or mean deviation from the actual rotation times, this approximation has no validity. But if the newly derived one is similar to the present one, the argument of coincidence should be suspected.

A very deep, new vision of space, with appreciable capacity to analyze hundreds of data using the skill in chess problem solving and composing with devoted hard work of more than six years were there behind the development of the approximation (the work destroyed the author's health almost completely). The space concept as well as its method to arrive equations is unconventional. It is by trial and error, a very hard but a promising one because how can one trust only dimensional analysis alone, since mass, length and time are proved relative with respect to our observation. All the planets except Uranus and the moon can be brought to complete perfection by slight adjustments in the exponents and it will bring the constant to perfection. It is God(not the man-like one) that decides whether Pluto is a planet not astronomers.

Although the data of one more solar system is required to test the validity of this approximation, precise observational verification of Galilean satellites, Titan and Triton may bring it to truth at present. If there is any slight retrogression in their rotation, even it is at the rate of once in a century, this approximation is valid. If the claim is found wrong ignore the work and the approximation. Ideas that won't work are of no use. Since the factors S_v, r, M_p, R_p and the constants are related, the approximation can be simplified. This work is to draw attention of mathematicians, physicists, biologists and astronomers into this matter.

[In 1996 or 97 before starting the work the first thing did is searching in the internet whether such an equation is there since I am not a physicist. Someone had a website (a German?) in which he had written that if we include many factors like distance, surface gravity, escape velocity etc. we can bring the rotation times of planets under an equation, if it is done as a big project. It is done almost as a one man army, without any funding. Even if the whole amount used worldwide for defense and offense are diverted for the further exploration of The New Space Concept, the survival chance of a few Homo sapiens is almost negligible. This is why the author is not much hurt by the decisions of editors, based on the present belief and faith. They do not know that this work is not for any paltry Nobel Prize (although the author was ambitious in boyhood and youth) but the result of a life long search for truth. Had I enough money I would have published as a book rather than approaching journals.

Swami Vivekananda was enlightening people through his preaching. He spoke for two days. It is only a farmer who asked him at last whether he had anything for the last few days and provided him something. The incident is comparable to that happened with Romaine Rolland. No dimensionality is applicable to the sorrows of life. As a great critic (Mr. Kuttikrishna Marar) of Kerala rightly pointed out, 'The Mahabharata', the greatest epic, is the success of its author to denote the failure of even Holy Gita to ward off

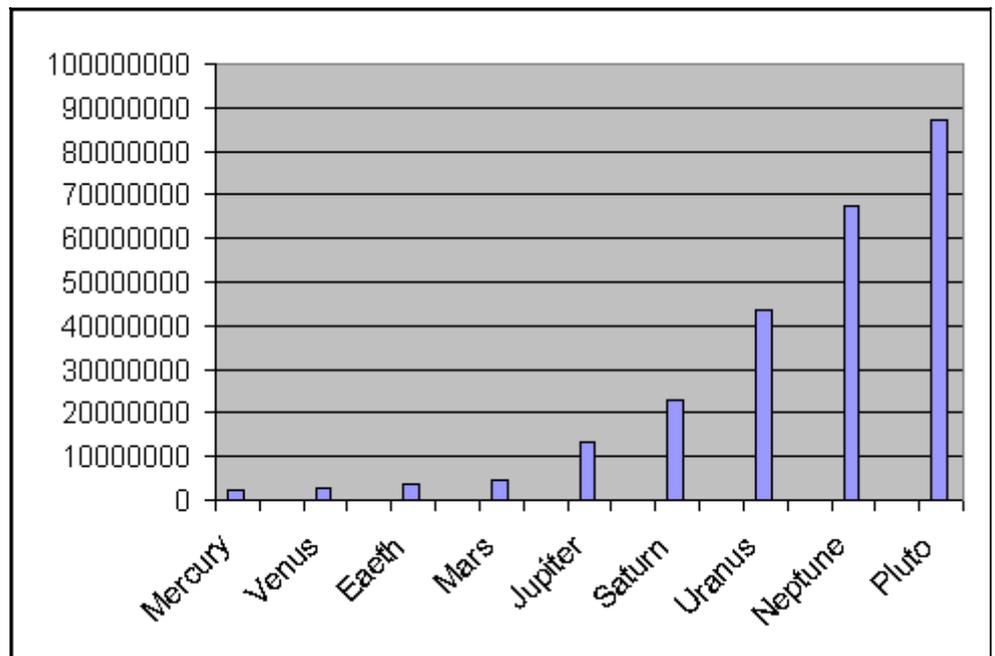
sorrows that war presented to Arjuna, the hero, when he met his only cousin sister, widowed, carrying her child, weeping.]

EXCERPTS FROM ANALYSIS

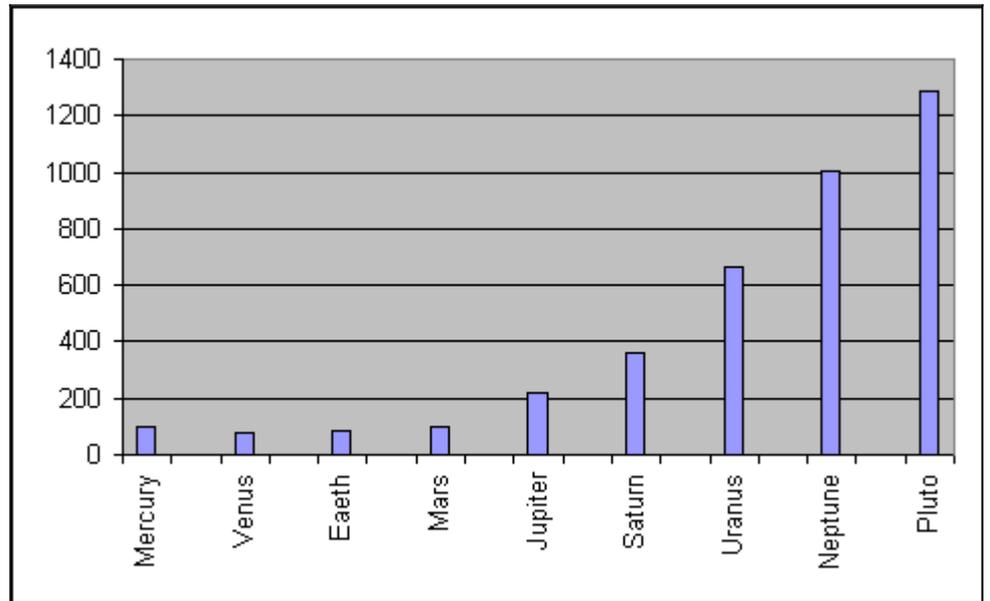
Craggy road towards the approximation, showing the key role that (Vs-Vo) played. Its magical relationship with distance may help in future to solve Bode's law, if it is a real law, rather than a coincidence through combining 'minimum distance theory' and 'oscillation of matter' instead of present revolution models.

$$d/(Vs-Vo)$$

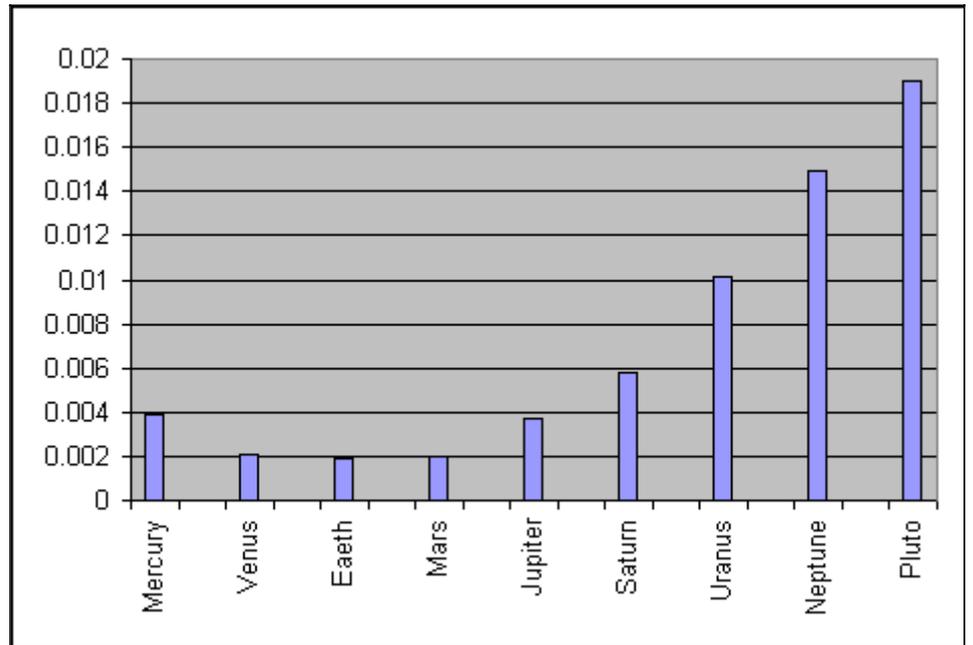
Mercury	2356939
Venus	2891502
Earth	3509620
Mars	4718278
Jupiter	13107612
Saturn	22768397
Uranus	43738421
Neptune	67228358
Pluto	87343731



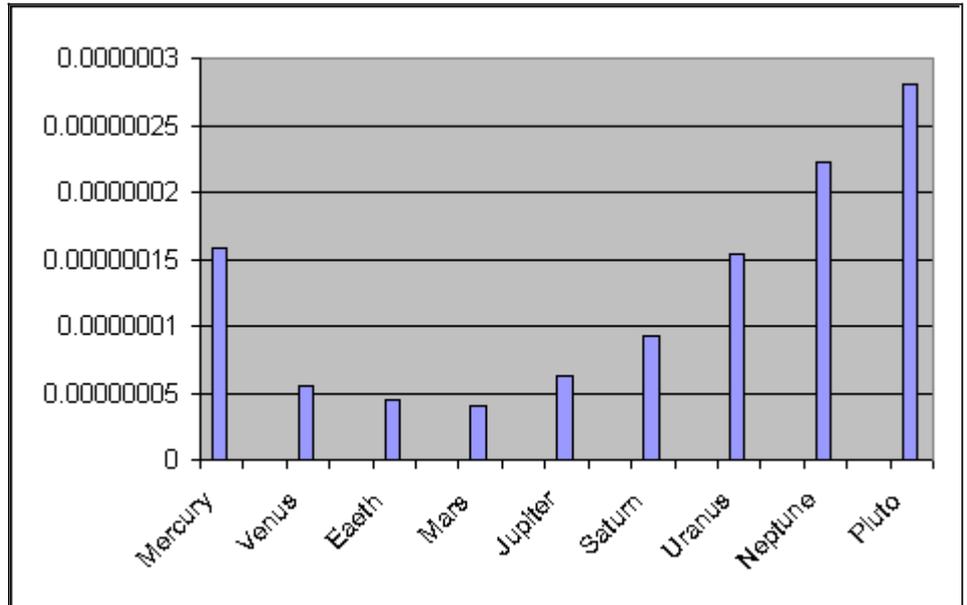
	$d/(V_s - V_o)^2$
Mercury	95.92
Venus	77.27
Earth	82.24
Mars	97.66
Jupiter	220.74
Saturn	362.67
Uranus	666.3
Neptune	1003.4
Pluto	1290



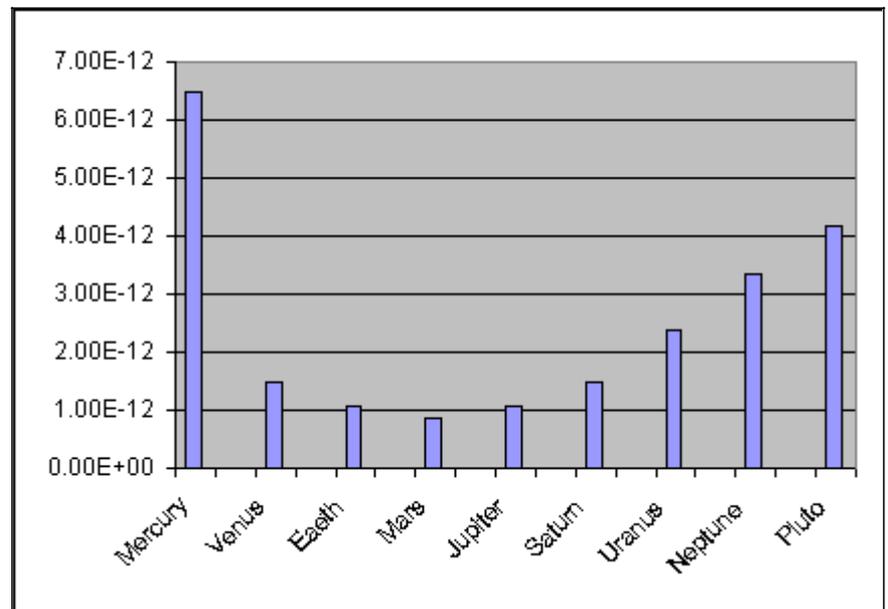
	$d/(V_s - V_o)^3$
Mercury	0.0039
Venus	0.00206
Earth	0.001928
Mars	0.00202
Jupiter	0.00371
Saturn	0.00577
Uranus	0.01015
Neptune	0.01497
Pluto	0.019



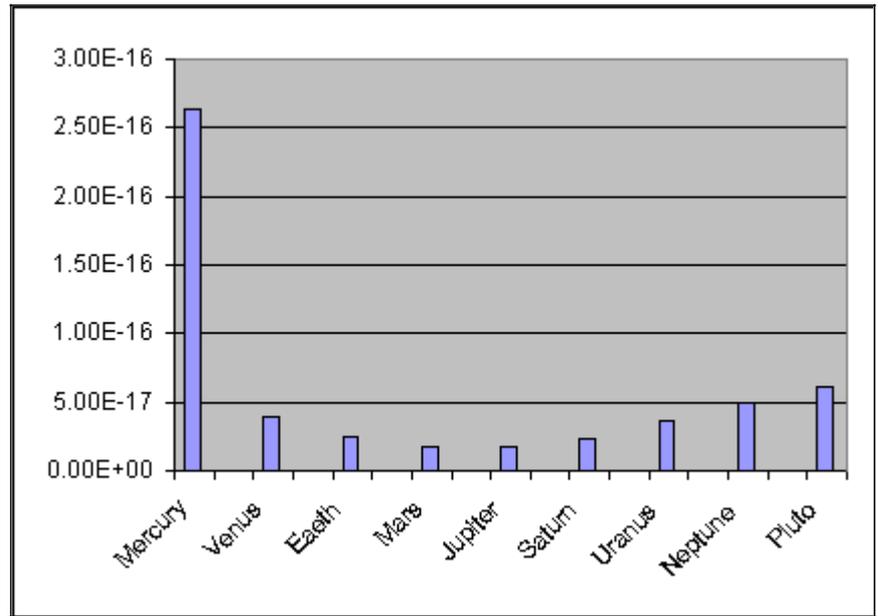
	$d/(V_s - V_o)^4$
Mercury	1.58E-07
Venus	5.5E-08
Earth	4.5E-08
Mars	4.1E-08
Jupiter	6.2E-08
Saturn	9.2E-08
Uranus	1.54E-07
Neptune	2.23E-07
Pluto	2.81E-07



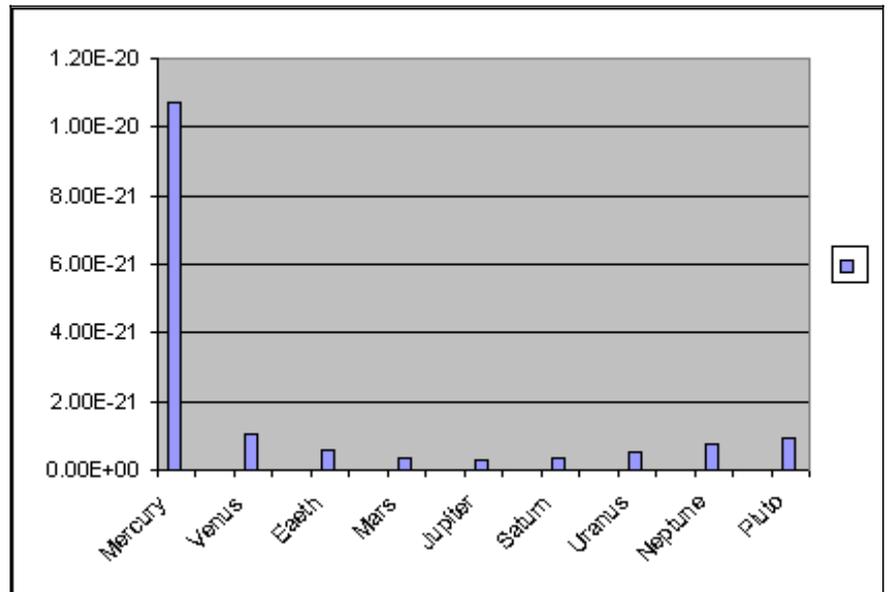
	$d/(V_s - V_o)^5$
Mercury	6.47E-12
Venus	1.47E-12
Earth	1.06E-12
Mars	8.66E-13
Jupiter	1.05E-12
Saturn	1.47E-12
Uranus	2.37E-12
Neptune	3.34E-12
Pluto	4.16E-12



	$d/(V_s-V_o)^6$
Mercury	2.63E-16
Venus	3.94E-17
Earth	2.48E-17
Mars	1.79E-17
Jupiter	1.78E-17
Saturn	2.33E-17
Uranus	3.59E-17
Neptune	4.98E-17
Pluto	6.14E-17



	$d/(V_s-V_0)^7$
Mercury	1.07E-20
Venus	1.05E-21
Earth	5.82E-22
Mars	3.71E-22
Jupiter	2.99E-22
Saturn	3.72E-22
Uranus	5.47E-22
Neptune	7.43E-22
Pluto	9.07E-22



Values formed by $d^{1/1.25}/(V_s - V_0)^{6.76}$ used in the approximation
Lowest values are for Jupiter and Saturn that show the lowest times of rotation

Mercury	8.53E-22
Venus	8.19E-23
Earth	4.38E-23
Mars	2.64E-23
Jupiter	1.75E-23
Saturn	1.95E-23
Uranus	2.52E-23
Neptune	3.15E-23
Pluto	3.65E-23

ANALYSIS (Continued)

“History shows that even greatest minds can construct theories that work but that have one minor flaw—they are completely erroneous”.

-Mr. Brian L. Silver (Late professor of physical chemistry at Technion Israel Institute of technology in ‘The Ascent of Science’)

PROBLEM OF INITIAL CONDITION-Why do planets revolve?

Let a blacksmith be forging a knife. His metabolism increases. Blood takes heat from the muscles to other parts. His heart beat increases, blood vessels dilate and he sweats. These all happen to regulate his body temperature. He is not commanding all these by will. He is a system. It is self-adjusting, involuntarily. He cannot lift up his hand without changing many physical and biological factors, although the changes are negligible.

This is the case with any stabilized system. Newton was great and will be so. But the word of any mortal is not the ultimate one on anything. For example, $v = (GM/r)^{1/2}$ can describe a few things, and that too, perfectly. So, one may be satisfied. But it cannot deal with the other factors in the system. The equation does not describe what would be the eccentricity, inclination or tilt of a spherical, true planet at a particular distance. It cannot describe at what rate a spherical planet at a particular distance from the central mass would spin. Everything is described as if the entire things are at random as revolution of planets is dealt before Kepler and Newton. Here is the draw back of Newtonian Mechanics or of any other effect-explaining science. It will work perfectly just as spring theory worked for Boyle’s Law. One should be sloppy to challenge a

perfectly working Newtonian equation with an approximation. What intended is to point out the necessity of a review on everything and to derive a more perfect equation connecting all factors that is applicable at least to the specific position of the solar system in this galaxy, if science is a search for ultimate truth. It is the interaction of millions of bodies and specific track of each object that endows specific physical characteristics, at least for the spherical bodies in the system; not by mere probability or by random assemblage.

The approximation formulated to calculate the rotation times of the planet is not perfect. Yet this is a method to relate all factors. The incorporation of more physical factors is its merit rather than demerit as might be judged by superficial analysis because this could be simplified. From approximation-(2)

$$V_o = V_s \cdot \left[\frac{K^2 \times C_m \times R_p \times d^{1/1.25} \times S_v^{2.2} \times e^{1/4} \times r^{1/2} \times (1 + \text{Incl}^0)^{1/2.5}}{M_p \times T_p \times (180 - \text{Tilt}^0)^{2/1.8}} \right]^{1/6.76}$$

Where T_p = Time of rotation of the planets, or of spherical bodies around central mass.

Let r be the distance from the centre of the sun to the synchronous satellite position, from Newton,

$$r = (GMT^2/4\pi^2)^{1/3}$$

Velocity at synchronous satellite position $V_s = (GM_s/r)^{1/2}$

$$V_s = (2GM_s\pi/T_s)^{1/3}$$

Where T_s is the rotation time of the sun and M_s is the mass of the sun or other central mass.

$$V_o = \left[\begin{array}{c} \text{1st half} \\ \frac{2GM_s\pi}{T_s} \end{array} \right]^{1/3} - \left[\begin{array}{c} \text{2nd half} \\ \frac{K^2 \times C_m \times R_p \times d^{1/1.25} \times S_v^{2.2} \times e^{1/4} \times r^{1/2} \times (1 + \text{Incl}^0)^{1/2.5}}{M_p \times T_p \times (180 - \text{Tilt}^0)^{2/1.8}} \end{array} \right]^{1/6.76}$$

Here M_s = mass of the sun = C_m

The equation sheds light to the Problem of Initial Condition that puzzled Newton. It does not deal with the rock pieces below the synchronous satellite position that astronomers might call satellites because there is no such spherical body below it (rock pieces are there). This is a biological equation that shows the living nature of the solar system or such stabilized systems. How? Any slight change in one or more factors in the second half affects the other factors there and the system will adjust. This is a very complicated interaction, not under the control of any astrophysicist. Why? Space

is, as Wordsworth put it, is the ‘Wisdom and Spirit of the universe!’ Everything in the universe is interconnected. For example, a change in tilt will affect eccentricity, inclination and time of rotation in such a way that the orbital velocity of a planet is not affected because just as the first half of the approximation, the total value of the second half remains constant. Hidden variables with no alteration in the final outcome (here Einstein beats Bohr)! Thus Newtonian equations remain valid for ever unless the Intelligence that works behind the entire system decides otherwise. How it remains valid is not a simple matter.

One may wonder if there is any relationship between the rotation time of the sun and revolution time of the planets. There is or rather there was! This was what argued all along the entire work. The planets are revolving not because the sun rotates but planetary revolution is an expression of solar rotation! Rotation and revolution are same. It is a question of continuity or discontinuity of matter. Therefore, one cannot say for certain that the core of huge bodies is rotating at the same rate that their surface exhibit if one sees the particles separately. The surface is revolving with respect to the core but morphology declares it as rotation. If the sun were rotating faster (although such a question does not arise because these are rotating as these are to), the value of T_s would have been less and hence V_o should increase. How is it possible? By adjusting their distance in initial condition, during their formation. That is, the planets would have been nearer to the sun than they are at present! Think of the Galilean satellites and the moon of the earth comparing mass and rotation of Jupiter and Earth. An ordinary astronomer (not a philosopher or philosophical astronomer) may gladly believe that the revolution of all the spherical planets and satellites around their respective central masses in the same direction as the rotation of the same central masses is, is a mere coincidence. If the solar system and these planets are originated from a common gaseous cloud, or if the planets are broken away from the sun, there should be relationship between the rotation of the sun and the revolution of the planets. Is there any equation to describe that?

Once the planets or any secondary body start revolving during the formation, then the rotation of the central mass has nothing to do with the revolution. If the central mass turns 180° also the secondary bodies will continue to revolve in the same direction as they did before because of the force that once they attained during the initial condition. But it is not our science that reverses the rotation. It is the space that provided the power, not Newton or Einstein or any other scientist.

Interaction of tilt, eccentricity and inclination in the two approximations.

From approximation-(1)

$$\frac{(180-\text{tilt}^0)^{1/1.8}}{(1+\text{Incl.}^0)^{1/5} \times e^{1/8}}$$

Planets/.bodies

Mercury	14.39
Venus	2.37
Earth	27.63
Mars	17.97
Jupiter	21.92
Saturn	18.38
Uranus	15.16
Neptune	23.8
Pluto	6.35
Moon	18.016

From approximation -(3)

$$\frac{(1+\text{CosTilt})^{1/2.82} \times (1+\text{CosIncl})^3 \dots (3)}{e^{1/4.2}}$$

Planets/.bodies

Mercury	14.74
Venus	2.29
Earth	26.7
Mars	17.67
Jupiter	21.06
Saturn	20.03
Uranus	15.79
Neptune	30.63
Pluto	7.95
Moon	20.74

See how closely they match.

Why argument for retrogression for Galilean satellites?

The interaction of orbital velocity of planets or satellites (V_o) and that of orbital velocity required at the surface (S_v) of these bodies is given below. This is because V_o

represents the rotation of space of the central mass and Sv that of the secondary body although Sv is greater than the rate at which space rotates with respect to the central body.

Planets/.bodies	Vo	Sv	$\frac{Vo}{Sv}$
Mercury	47870	3005	15.93
Venus	35020	7325	4.78
Earth	29790	7905	3.7685
Mars	24130	3550	6.797
Jupiter	13060	42091	0.31028
Saturn	9660	25083	0.385
Uranus	6800	15054	0.4517
Neptune	5440	16615	0.3274
Pluto	4736	834	5.6786
Earth			
Moon	1020	1680	0.60714
Jupiter			
Io	17330	1812	9.564
Europa	13740	1428	9.62185
Callisto	10880	1937	5.617
Ganymede	8210	1731	4.743
Saturn			
Titan	5570	1870	2.9786

Go through the values formed for the planets. One may not feel much significance. A keen observation shows that for the planets the tendency of rotation increases with decrease in the value. Now incorporate relative density, a factor of mass and radius, and tilt.

Planets/.bodies	$\frac{\rho^{1/4} \times Vo}{(1+\text{Cos Tilt})^{1/3} \times Sv}$	
Mercury	19.315	b
Venus	70.9125	a
Earth	4.6496	e

Mars	7.72	d
Jupiter	0.2664	i
Saturn	0.2832	h
Uranus	0.5052	f
Neptune	0.3008	g
Pluto	8.57	c

Arrange their values in the descending order (a,b,c,d,e,f,g,h,i). Venus-Mercury- Pluto-Mars-Earth-Uranus-Neptune-Saturn-Jupiter. This shows the descending order in the rotation times! This is like the coincidence in Bode's series. But this shows the possibility of some harmony. Here no artificial number but only physical factors are used and hence this is no less an idea compared with Titius-Bode 'Law' where artificial number is used. Unlike revolution, many factors are interacting in the case of rotation of spherical planets and hence there is no proper order superficially. But years of searching will bring them under perfect law, not by making coincidence.*

Rotation of age old spherical planets in no way can be compared with that of the broken away rock pieces. When the values of V_o/S_v are smaller, the tendency of rotation seems a general increase although influenced by other factors. It is in this context that there is possibility of retrogression for Galilean satellites, Titan and Triton. These cannot rotate forward against their orbital velocity. So, their tilts must be (180-tilt^0) of what one observes. Data from NASA show their tilts as between 0^0 to 2^0 . If there is any slight retrogression in rotation, their tilts calculated using the approximation closely matches with what is getting by the approximation. Since the value of the moon is less, it may be able to rotate forward, defying the orbital velocity and hence the tilt may be the one we observe. That is, the coincidence of the rotation time and revolution time of the moon is different from these satellites of Jupiter, Saturn, etc. The time taken for the revolution also should be accounted. Increase in revolution time enables the bodies to rotate forward. This is why mercury can rotate forward. Had mercury and moon been a little closer to their respective central masses, they could not have been rotating forward.

(*Making coincidence for a steady ascending data is easy as did by Bode. Yet it was published as an option because who knows that it won't be explained in future? For example, the coincidence of inertial mass and gravitational mass was a mere coincidence in classical physics. Einstein took it to sky high. Nowadays people are overspecialized and preconditioned. Referee of an astronomical society advised not to publish the preliminary work (not this little more refined one) on rotation, because he/she concluded that it might be a coincidence. Closing the mouth of the opponent and arguing against him! However, such decision helps one in alleviating the antipathy towards the medieval religious fanatics who tried to crucify scientific breakthroughs. I am not blaming the referee because it improved me lot. Blunders are easily published because it complies with the wisdom. For example, a professor suggested, 'the moon came from somewhere,

hit Venus, bounced back and revolved round the earth'. It is easily published and astronomers happily carried it about 15 years.

Philosophers, not dry mathematicians, know that coincidences and random variations should be treated with prudence as the story of Christians and Turks given by Claude – Gaspar Brachet de Merzinac. A boat, crewed by 15 Turks and 15 Christians runs into a storm. The boat can be prevented from sinking only if half the crew is thrown into the sea. A Christian suggested that they form a circle and throw in every 9th man until there are 15 left. This is done. Lo! All the Turks are thrown and all the Christians survived. The secret is that the organizer of the fiendish scheme knew his Renaissance puzzle book. He arranged the circle like this: CCCCTTTTTCCTCCCTCTTCCTTTCTTCCT and started counting from the first Christian. The Turks had assumed that the process was at random. In Turkey they tell it differently (courtesy- Mr. Brian L. Silver, 'Ascent of Science' OUP; ISBN -0-9-513427-3). More Complicated things like this can be constructed that look random superficially. The stars seem scattered here and there, but a distant view of galaxy reveals the beautiful, spiral arms. Observing this spiral arms is sufficient for one to believe in space rotation!)

Another way of analysis of the approximation-(2)

$$T \approx \frac{K^2 \times C_m \times R_p \times d^{1/1.25} \times S_v^{2.2} \times e^{1/4} \times r^{1/2} \times (1 + \text{Incl}^0)^{1/2.5}}{M_p \times (V_s - V_o)^{6.76} \times (180 - \text{Tilt}^0)^{2/1.8}} \text{--(2)}$$

Keep the earth in all the other planetary positions with the distance, orbital velocity, eccentricity, inclination, tilt and relative density specific for the particular planet. Although relative density will not match with these, take it out later.

So split the approximation into 2 and keep the R_p , S_v and mass of the earth as such in every case and multiply it with other factors what the planets have.

For the earth

$$\begin{aligned} \frac{K^2 \times C_m \times R_p \times S_v^{2.2}}{M_p} &= \frac{8.01E+8 \times 1.989E+30 \times 6378140 \times 7905^{2.2}}{5.976E+24} \\ &= \frac{3.8224821E+54}{5.976E+24} = \mathbf{6.3963892E+29} \end{aligned}$$

Multiplied with factors specific for each planet, that is, multiply it with

$$\frac{d^{1/1.25} \times e^{1/4} \times (1 + \text{Incl}^0)^{1/2.5} \times r^{1/2}}{(V_s - V_o)^{6.76} \times (180 - \text{Tilt}^0)^{2/1.8}}$$

The time getting for earth at the position of each planet is.

At Mercury: $\frac{1470892425}{1.5310775E+32} \times 6.3963892E+29 = 6144953\text{sec.} = 71.122\text{days.}$

At Venus: $\frac{804388741}{2.4134059E+31} \times 6.3963892E+29 = 21319179\text{sec.} = 246.75\text{days.}$

Earth: $\frac{735519060}{5.4545144E+33} \times 6.3963892E+29 = 86252\text{sec.} = 0.99828\text{days.}$

At Mars: $\frac{2034835047}{1.2531165E+34} \times 6.3963892E+29 = 103866\text{sec.} = 1.202\text{days.}$

At Jupiter: $\frac{2457318599}{5.8506111E+34} \times 6.3963892E+29 = 26865\text{sec.} = 0.31094\text{days.}$

At Saturn: $\frac{3528784725}{7.3442168E+34} \times 6.3963892E+29 = 30733\text{sec.} = 0.3557\text{days.}$

At Uranus: $\frac{6114818702}{4.9129523E+34} \times 6.3963892E+29 = 79611\text{sec.} = 0.921429\text{days.}$

At Neptune: $\frac{7872759426}{1.1051721E+35} \times 6.3963892E+29 = 45565\text{sec.} = 0.52737\text{days.}$

At Pluto: $\frac{5.1267662E+10}{4.1145021E+34} \times 6.3963892E+29 = 797005\text{sec.} = 9.2246\text{days.}$

Compare it with the real rotation times of the planets. One should be so dogmatic to argue against the existence of a law of rotation that is yet to be formulated, for spherical planets. If the relative density of the planets is altered with that of the earth in each case (because the mass and radius of the earth is used in each case), that is, by using

$$\frac{K^2 \times C_m \times R_p \times S_v^{2.2} \times r^{1/2}}{M_p}$$

of earth, and multiply with the factors specific for each planets, that is, multiplying with the following.

$$\frac{d^{1/1.25} \times e^{1/4} \times (1 + \text{Incl}^0)^{1/2.5}}{(V_s - V_o)^{6.76} \times (180 - \text{Tilt}^0)^{2/1.8}}$$

Then the time obtained for the earth in each position of planet is

At Mercury: 6189971 sec. = 71.643 days
 At Venus: 21881363sec. = 253.2565 days
 Earth: 86252 = 0.99828 days
 At Mars: 122939sec. = 1.4229 days
 At Jupiter: 54730sec = 0.6334 days
 At Saturn: 86926sec = 1.006 days
 At Uranus: 165002sec = 1.909 days
 At Neptune: 83594sec = 0.9675 days
 At Pluto: 1358481sec = 15.723 days

Of course this is variation. But remember that the earth is placed in each planetary position and that the planets are different. But see how the values at certain planetary position show close proportionality with the original planetary rotation times especially for solid planets whose density is closer to that of the earth! Spherical, age old planets are not rotating at random. This relationship is coming because of the appropriate use of (Vs-Vo) data and distance in the approximation.

ANNEXURE

Starting trial and error, the first ever approximation formed in the course:

$$T \approx \frac{K^2 \times C_m \times (R_p \times S_v)^{2/1.31} d^{3/4} \times e^{1/10} \times r^{1/2} \times (1 + \text{Incl}^0)^{1/2}}{M_p \times (V_s - V_o)^{13/2} \times [1 + \sin(90 - \text{Tilt})]^{4/7}} \text{ --(a)}$$

$$K^2 \approx 42774.5$$

Interestingly, it is found that it is approximately equal to $(2\pi c)^{1/2}$

Times observed against the times obtained using the equation – (a)

Planets	Observed time	Calculated time
Mercury	58.6462	59.08972
Venus	243.0187	248.805
Earth	0.99739	0.997261
Mars	1.025957	1.024775
Jupiter	0.41355	0.41308
Saturn	0.44401	0.43912
Uranus	0.71833	0.748

Neptune	0.67125	0.69197
Pluto	6.3867	5.6153
Moon	27.32166	25.248

Unsatisfied by taking inclination in degrees and tilt in sine value, started fresh search of trial and error and reached, concentrating on solid spheres.

$$T \approx \frac{K^2 \times C \times R \times S \times V^{2.08} \times d^{1/1.05} \times e^{1/2.2} \times r^{1/2}}{M \times (V_s - V_o)^{7.12} \times (1 + \cos \text{incl.})^6 \times [1 + \cos \text{tilt}]^{1/1.415}} \text{ ---(b)}$$

K^2 here is approximately $2\pi c$

$$K^2 \approx 1.84 \text{ E}+9$$

Times observed against the times obtained using the equation – (b) are given below.

Planets	Observed time	Calculated time
Mercury	58.6462	58.377
Venus	243.0187	243.564
Earth	0.99739	0.99484
Mars	1.025957	1.0662
Jupiter	0.41355	0.3996
Saturn	0.44401	0.36872
Uranus	0.71833	1.09201
Neptune	0.67125	0.4551
Pluto	6.3867	6.379
Moon	27.32166	27.0749

All the approximations with appreciable harmony are highly interrelated. Approximation – (b) is formed by independent trial and error method, not by ‘mathematricks’. Believe it or not, it took a few more days to understand that K^2 of the approximation – (b) is almost the square of K^2 of approximation – (a) and that both of these are highly related (that when puzzled by getting almost the same value of tilt for Galilean satellites through both the approximations). Analysis showed that the interaction of tilt, eccentricity and inclination in all the 4 approximations given in the work are closely matching, proportional to the constants. Another simplified search was under progress with data of eccentricity incorporated as $(1+e)$. Now it is stopped for a while because the health grew worse. (These are written in 2005. Since 2008, I have been engaged in literary works till 23/12/2011. No more desire or ability to calculate! Literature requires one by thousandth of effort to come out successfully though literature is ‘hoax of genius’-as Newton put it)

There shall be mathematical defects in expressing things. So if anyone finds out, please correct it rather than shouting at me.

A truth can be delayed but cannot be prevented.

The fifth approximation

Is there no law of rotation for spherical bodies?

If there is no law, there should not be. But blindly arguing, without tracing out is just denying innovation. Since we do not have the data of another solar system, one cannot argue for such a law nor can one deny it. So, if any one likes, keep it as an option for the time being because this is an approximation to predict the rotation time of a spherical body at a particular distance from the central mass in any age old system.

$$T \simeq \frac{d^{1/1.25} \times (1+e)^6 \times (1+\tan \text{incl.})^{1/2} \times K \times C_m}{(V_s - V_o)^{6.77} \times (1+\cos \text{tilt})^{2/3}}$$

The approximation given above has only 5 variable and the planets at their respective distances show good proportionality in their rotation times with this. Slightly modifying it to suit for each planet, six variables are used in the generalized approximation given below. Among these, distance and $(V_s - V_o)$ are mainly related to the central mass. Eccentricity, inclination, tilt etc. are specific for a planet not only due to the interaction of the planet and the central mass, but due to the effect of all masses in a galaxy and that of nearby ones on a secondary body. This is the only possible way at present to solve interactions of millions of bodies on a planet, as long as Poincare’s 3-body problem remains at large. Fastest rotation of Jupiter and Saturn are not without a law but it can be traced out only using the miraculous relationship between distance and $(V_s - V_o)$. Variable R_p (radius of planet or secondary body) is used in a minute form as 24th root. R_p alone cannot work. Relative density can be incorporated as correction factor.

Or, mass of the planet should be included, avoiding Rp. Rp alone works here appreciably because in this solar system, mass is related with Rp (except the anomaly of Uranus and Neptune). It may not be so in another system. But there is all the possibility for a law of rotation for spherical planets and satellites.

$$T \simeq \frac{d^{1/1.25} \times (1+e)^6 \times (1+\tan \text{incl.})^{1/2} \times 0.00292 \times C_m}{(V_s - V_o)^{6.77} \times (1 + \cos \text{ tilt})^{2/3.06} \times R_p^{1/24}}$$

Where, T = Time of rotation of planets

d = Distance of the planets from the sun.

e = eccentricity of planets

Incl. = Inclination of orbit to ecliptic

Tilt = Degree of inclination of axis of planets or satellites

Vs = Orbital velocity of an object required at the synchronous satellite position of the sun or any central mass. Taking the rotation time of the sun as **25.38** days, the synchronous satellite position of the sun is at **2.52815599 E+8** meters away from the centre of the sun and hence,

$$V_s = 72440 \text{ m/s}$$

Vo = Orbital velocity of planets.

Rp = Radius of the planets.

Cm = Central mass (mass of the sun for planets and mass of the planets for satellites)

K = a constant of rotation.

Space is well beyond the definition of all dimensions and hence conventional methods may fail to bring out the law even if there is such a law. This is formed by trial and error. The constant will be a fundamental constant if there is a law and when times of rotation come to perfection. The value obtained here is 0.00292 and it is not yet perfect (please remember that $G^{1/4}$ is 0.0028578). I am winding up the work and if any mathematician or philosopher feels there shall be a law and has the courage and devotion, please trace it out. What is the use of it? ('What is the use of a new born child?' –Mr. Michael Faraday). Planets revolved before Newton and organisms breathed oxygen before Priestly. Knowledge is for its own sake.

$$T \simeq \frac{d^{1/1.25} \times (1+e)^6 \times (1+\tan \text{incl.})^{1/2} \times 0.00292 \times C_m}{(V_s - V_o)^{6.77} \times (1 + \cos \text{ tilt})^{2/3.06} \times R_p^{1/24}}$$

Calculations using the above equation

$$\begin{aligned} \text{Mercury} & \frac{(5.791E+10)^{1/1.25} \times 1.2056^6 \times 1.1228554^{1/2} \times 0.00292 \times 1.989E+30}{24570^{6.77} \times 2^{2/3.06} \times 2439700^{1/24}} \\ & = \frac{7.7019702E+36}{1.5343822 E+30} = 5019734 \text{ s} = 58.0987 \text{ days} \end{aligned}$$

Venus
$$\frac{(1.082\text{E}+11)^{1/1.25} \times 1.007^6 \times 1.0593^{1/2} \times 0.00292 \times 1.989\text{E}+30}{37420^{6.77} \times 0.00106134^{2/3.06} \times 6051800^{1/24}}$$

= $\frac{4.1887626\text{E}+36}{1.9888645 \text{E}+29}$ = 21061076 s = 243.7624 days

Earth
$$\frac{(1.496\text{E}+11)^{1/1.25} \times 1.0167^6 \times 1.00^{1/2} \times 0.00292 \times 1.989\text{E}+30}{42650^{6.77} \times 1.9174^{2/3.06} \times 6378140^{1/24}}$$

= $\frac{5.5862433\text{E}+36}{6.4992066 \text{E}+31}$ = 85952 s = 0.99482 days

Mars
$$\frac{(2.2794\text{E}+11)^{1/1.25} \times 1.0934^6 \times 1.0323^{1/2} \times 0.00292 \times 1.989\text{E}+30}{48310^{6.77} \times 1.90678^{2/3.06} \times 3396900^{1/24}}$$

= $\frac{1.229848\text{E}+37}{1.4664328 \text{E}+32}$ = 83866 s = 0.970678 days

Jupiter
$$\frac{(7.7833\text{E}+11)^{1/1.25} \times 1.048^6 \times 1.022833^{1/2} \times 0.00292 \times 1.989\text{E}+30}{59380^{6.77} \times 1.9985^{2/3.06} \times 71492000^{1/24}}$$

= $\frac{2.5352378\text{E}+37}{6.9397447 \text{E}+32}$ = 36532 s = 0.422825 days

Saturn
$$\frac{(1.4294\text{E}+12)^{1/1.25} \times 1.056^6 \times 1.04345^{1/2} \times 0.00292 \times 1.989\text{E}+30}{62780^{6.77} \times 1.90386^{2/3.06} \times 60268000^{1/24}}$$

= $\frac{4.3587302\text{E}+37}{9.7316961 \text{E}+32}$ = 44789 s = 0.51839 days

Uranus
$$\frac{(2.87099\text{E}+12)^{1/1.25} \times 1.0461^6 \times 1.0135^{1/2} \times 0.00292 \times 1.989\text{E}+30}{65640^{6.77} \times 0.86247^{2/3.06} \times 25559000^{1/24}}$$

= $\frac{7.0924138\text{E}+37}{7.5662643 \text{E}+32}$ = 93737 s = 0.1.08492 days

Neptune
$$\frac{(4.5043\text{E}+12)^{1/1.25} \times 1.009^6 \times 1.03097^{1/2} \times 0.00292 \times 1.989\text{E}+30}{67000^{6.77} \times 1.8695^{2/3.06} \times 24764000^{1/24}}$$

= $\frac{8.2582778\text{E}+37}{1.4394634 \text{E}+33}$ = 57370 s = 0.664 days

Pluto
$$\frac{(5.91352\text{E}+12)^{1/1.25} \times 1.251^6 \times 1.30764^{1/2} \times 0.00292 \times 1.989\text{E}+30}{67704^{6.77} \times 0.47008^{2/3.06} \times 1151000^{1/24}}$$

= $\frac{4.2003206\text{E}+38}{5.5148917 \text{E}+32}$ = 761632 s = 8.815 days

$$\text{Moon} \quad \frac{(3.844\text{E}+8)^{1/1.25} \times 1.05^6 \times 1.09024^{1/2} \times 0.00292 \times 5.976\text{E}+24}{2055^{6.77} \times 1.99963768^{2/3.06} \times 1738000^{1/24}}$$

$$= \frac{1.8010136\text{E}+29}{7.6636972 \text{E}+22} = 2350058 \text{ s} = 27.1997 \text{ days}$$

This is not perfect, but if there is a law, it is the beginning of a new science that mankind has not been subjected to. The work, based on cause of gravitation, should be compared to Kepler's work started in effect. I can do it with pin point accuracy but I want mathematical (technical based) advice because I am only a biology teacher. Or a Newton should come forward to explain it.

6. Ultra Structure Model of Elementary Particle

It is impossible to say just what I mean!
 But as if a magic lantern threw the nerves in patterns on a screen
 Would it have been worthwhile.
 If one, settling a pillow or throwing off a shawl,
 And turning toward the window, should say;
 "That is not it at all,
 That is not what I meant, at all."

- T.S. Eliot

(Although no quality or property can be attributed to space, because of the hard dogmatism of physicists, the author is compelled to do it; so let me be free of the sin. It is done using the available data, poorest research facility and resources. Therefore, if anyone has better ideas, please go ahead with that. Good luck!)

Introduction

Velocity of different electromagnetic radiations being the same, why do their frequency and thereby energy differ? What factor or factors determine this variation? Why does there exist a limit to velocity? Why do all the electromagnetic radiations possess the same velocity? Why there are wave length and frequency?

This article is meant to analyze such quests or to arise a few more.

If nucleons are made of quarks, what are the quarks made of? Are they expressions of something smaller, arranged in a particular sequence or order? Do these smaller units evade detection both by mechanical sensors and mind?

If quarks are made of 'something' are they the essence of all material stuff?

What gives matter its material properties and energy its virtue? In other words, how does matter-energy inter conversion, as our present notion, take place? How is matter, a concrete reality being converted into energy, an abstract quality and vice-versa? If quarks are the basic particles, how is energy converted into quarks? What gives them different or even opposite fractional charges? How is an up quark converted into a down one and vice-versa? During β -decay, how is an electron, with exactly equal and opposite charge to its huge antagonist (proton) is formed?

How is antimatter formed? Can a combination of all our present theories comprehend a simple wonder of nature, 'life and death'?

A fundamental change in concepts regarding the sub atomic world and a new vision on the vast eternity, the space, only may satisfy our eagerness to know the emission and absorption of energy from particles and gravitation and magnetism in the macrocosm.

Let us go through certain bypass analysis which would emphasize the need of such a change in concept regarding particles, or rather, for developing the concept of **elementary particles**.

Harmony with Einstein and De Broglie

Even though the following facts are known, let me add a philosophical flavor for the sake of this hypothesis.

Let us consider a particle with mass **M**. Whatsoever be the relativistic effect that one can thrust into it, the amount of 'frozen energy' as a philosopher may put it, embodied in the mass **M** is not more than \mathbf{Mc}^2 , where **c** is the ultimate velocity. The rest mass **M** can be converted into \mathbf{Mc}^2 energy-that is all!

Since such a concept as limiting velocity so far being valid, the relativistic effects collapse at the velocity **c** and the limit of energy production becomes an absolute, perceivable reality. In other words, if one smashes the mass **M** and disintegrates it into energy, its ultimate form of conversion (if our mortal perception does not deceive us), gets only \mathbf{Mc}^2 energy, as proved ominously through our nuclear experiments. That is, the inertial content and energy content, although proved same, endows us only with \mathbf{Mc}^2 energy from the rest mass **M**, despite the proved concept of mass relativity. Therefore, let us see if we can explain mass-energy inter conversion, keeping mass relativity a supplementary concept. Only then can one understand whether mass is really being converted into energy or back. Let us take another course to comprehend mass and energy – **'finite mass produces finite energy, and finite energy produces finite mass'**.

How and why?

Suppose we split mass **M** into maximum number of photons and let the number be **N**. Let us assume that the frequency of each photon be ν and mass **m**. Then, the energy possessed by each photon is $\mathbf{h\nu}$, where **h** is Planck's constant.

$$M/N = m$$

Where N , as stated earlier, is the number of waves or photons (whatsoever one likes to call it) into which the mass M of the particle under consideration is disintegrated. When we accept Einstein's mass energy equivalence,

$$E = Mc^2 = Nh\nu$$

Means, Mc^2 energy possessed by mass M is shattered into N number of photons, each with an energy $h\nu$.

$$\nu = \frac{Mc^2}{Nh}$$

Since $m = M/N$

$$\nu = mc^2/h$$

$\nu = c/\lambda$ where λ is the wave length

$$c/\lambda = mc^2/h$$

$$hc = mc^2\lambda$$

$$h = mc\lambda$$

$$\lambda = h/mc$$

If it is below the velocity of light the radiation shows materialistic properties and the wave length at the velocity v is given by De Broglie

$$\lambda = h/mv$$

At present, let us muse a little on Einstein's equation $\lambda = h/mc$. It is worthy of review.

Since h/c is a constant, what factor determines the wavelength of a given radiation? The mass! Even though it is negligible, the masses of each photon, with different wavelength or frequency also differ. Since their masses differ, their penetrating power and impact on collision also vary. If energy of photon is quantized, why can't its mass be?

Let us think of quantized mass.

Is it possible?

This is the most amazing part of the above equation, and the most essential philosophy for proposing a new model for particles. The term quantized mass is applicable only to the sub atomic world, regarding the ultra structure of quarks, electrons etc. Why are the rest masses of neutrons, protons etc. are as they are?

If photons are to be pinched off as quantized units from masses, **the mass itself should be an integrated, quantized entity**. It is because of the fact that an object is made of smaller units that we are able to break it into smaller pieces. Likewise, **if a**

particle can be fragmented into photons, these units should already be there. It is only a question of integrity that gives shape to an object or particle. When enough force is applied, integrity collapses and they split into smaller units by which it is composed of.

Here is the need for a revised model for any sub atomic particle, with subunits that can be disintegrated into photons and the same that can be integrated into particle.

Even in the middle of chaos, the universe is working with almost perfect laws. Therefore, stability also exists along with disorder or chaos. What gives stability to the whole system? Let us call these stable particles as **elementary particles**. Whether they are hadrons or quarks or something else is a question that is answerable only after lot more experiments.

Lots of more philosophical and numerical data and high level mathematics are needed to propose a suitable model for the above said elementary particle. The model should explain not only the pinching off of photons, but its absorption, propagation, and even greater phenomena like gravitation and magnetism.

Concept of Elementary Particle

Although everything in the universe is subjected to change except 'change' itself, relatively permanent structures are needed to keep our laws workable and our life possible. These relatively permanent structures give stability to the universe, and unstable structures cause disorder. Let us term these stable particles as **elementary particles**.

What qualities should an elementary particle possess?

Elementary particles must be the building units of matter. They should be stable, but must be able to combine with other such particles to form more stable structures. If they have more stability they will remain idly and the universe will not work. A kingdom exists not only by king and noblemen but by farmers and workers as well. As ideal gases cannot form variety of chemical compounds, in the sub atomic world nobility of particle prevents it from forming other structures. Therefore, elementary particles must be charged variously for suitable combination.

They must be spherical; either hollow or solid. More possibility is for hollow spheres. They must not be made of smaller material units but they are made of lattice of photons that cause material nature. These lattices of photons are called **electromagnetic frames** (Refer Fig 1.1, 1.2, 1.3 & 1.4) that are in turn supposed to be made of the smallest stuff called **electromagnons** that are expressed as space, matter or energy according to their aggregation and movement.

This concept of electromagnetic unit for elementary particle comes forward because any radiation (energy) pinched off from any particle is electromagnetic in its behavior. Therefore, the particle should possess electromagnetic units arranged in definite order or sequence. If they are not arranged in any order, a **system of particle** cannot exist. What shall be the order or sequence that is possible for the arrangement of electromagnetic units in a particle?

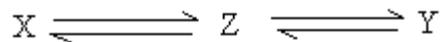
The proposed electromagnons are the ultimate unit of matter, space and energy (as there exists ultimate time and length). They are, as stated earlier, preferred to be called electromagnons because they possess electromagnetic quality. (This ultimate field stuff must be the ones which Mr. Faraday claimed and that 'tiny fields' in space required for Q. E. D theorists).

Electromagnons

An electromagnon is here hypothesized as a mere point in space. The same thing can act as hexagonal fields while it is incorporated as part of elementary particle.

There should be a minimum of 3 types of these electromagnons (What makes them different is mysterious, or at least for the time being unexplainable). Anyhow let us call them **X**, **Y** and **Z** types. **X** is positive strain; **Y** negative strain and **Z** is neutral. A net work of **X** and **Z** in material form causes +ve charge, **Y** and **Z** cause -ve charge, and **X**, **Y** and **Z** cause neutrality.

Both **X** and **Y** are symmetrical variations of **Z**. That is, **Z** type of electromagnon can be changed into **X** or **Y** in the following way,



Space is completely stuffed up with free electromagnons; only when they are arranged in an order that they express their strain, either +ve or -ve. Their orderly movement causes forces like gravitation and magnetism.

Once they bind each other, they start expressing the property of mass and cause disturbance (or order?) in space around, which is felt as charge. The binding between electromagnons causes a fifth type of force to exist. This force preserves the integrity of emitted photons.

Matter, space and energy are 3 different version of this single entity called electromagnons. They are acting as a buffer between matter and space. That is,

- 1) If they exist isolated and relatively stationary against material frames they are expressed as **space**
- 2) If they singly or in group move at the limiting velocity against material frame of reference they are expressed as **energy**
- 3) When an aggregate of electromagnons exist stationary, or moving below limiting velocity with respect to material frame, they have expressions of **mass**.

It is on the basis of this hypothesis that we should analyze the formation of electron-positron pair from gamma rays and vice versa. Our claim of inter conversion of mass-energy shall only be a question of 'velocity'. It shall be the velocity that determines whether these electromagnons should be expressed as energy or mass (2nd and 3rd situation) given above.

When a group of electromagnons are pinched off together from a particle, the resulting emission of energy has its frequency according to the mass (depending on the number of electromagnons in that group) of the cluster of electromagnons.

These electromagnons exist freely in space and the space itself is a stuffed up electromagnons. All matter (including antimatters) originates from these electromagnons and to this ultimate fate all matter disintegrates via energy production.

Nothing begets anything. Since the universe is made of so many things, they would not have been arisen from nothingness, but from something. Do we call this something as nothing and nothingness?

Even if matter is considered as 'frozen energy', from a philosophical stand-point, how these quanta of energy present in photons are converted into mass of a particle? If there is no orderly arrangement, will there be any stability to the particle? The particle should disintegrate very fast into energy if there is no order. Therefore, it shall be a perfect orderly arrangement of electromagnetic units that give stability to all particles.

Here arises the most disturbing question. If mass is 'frozen energy', the ability to do work, how the difference in charges arise?

If these electromagnetic units are considered to be spherical ones or as waves, with perfect neutrality, how can they bind? It is true that the absence of charge may cause neutrality. The same amount of +ve and -ve field in an area also may cause neutrality. If opposite charges are there, they should immediately combine. But virtual particles are formed often. So there should be neutral fields like nitrogen preventing oxygen's over activity. Therefore, we cannot say that electromagnetic units are neutral just because of their indifference to electric and magnetic fields. Why should they be affected by gravitational field?

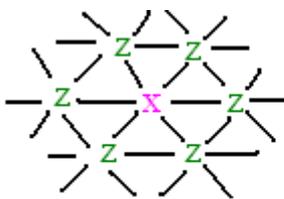
A photon emitted shall be neutral, but still it may have equal number of **X** and **Y** type of electromagnons. Otherwise, at limiting velocity, both these electromagnons are converted into **Z** type, which makes it neutral.

Moreover, if discrete units of charges are not existing in a neutron (even though it is neutral during experiments), how can we explain the formation of an electron with unit negative charge that is exactly equal and opposite of a proton? How can we explain the existence of positron, the antimatter of electron? If it is possible to convert a neutron into a proton and an electron the neutrality of a neutron should be due to the cancellation of charges in it. It should not be like a cherry placed on a cake. Therefore, there should be charges hiding in a neutron and if it is so, why and how?

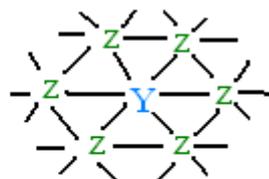
The above questions also necessitate a revision in the model of subatomic particle. Let us now discuss what qualities the proposed electromagnons should exhibit in order to explain various phenomena.

Properties of Electromagnons

- 1) Electromagnons, the tiniest stuff, can pass through one another as long as they are part of space or exist as energy. They remain isolated in space and the whole space is stuffed up with electromagnons. There is no necessity of Higg's particle to add mass.
- 2) They possess opposite properties as well as neutrality. **X** and **Y** are opposite variations of the neutral ones called **Z**
- 3) Relative movement or aggregation of these so called electromagnons determines whether they should act as space, matter or energy. Isolated electromagnons in space show the characteristics of space. Isolated or aggregated electromagnons at the velocity of light is expressed as energy. Aggregated electromagnons below the velocity of light against our material frames of references show the property of matter.
- 4) There should exist minimum **3** types of electromagnons, **X**, **Y** and **Z**. Orderly arrangement of **X** and **Z** cause positive charge, that of **Y** and **Z** causes negative charge, and the **3** types mixed cause neutrality. **X** and **Y** are inter convertible by passing through the intermediate stage of **Z**
- 5) At limiting velocity, both **X** and **Y** types shall be converted into **Zs**.
- 6) Indiscriminate movement of these electromagnons towards a particular direction cause force in space. (This force may be causing depressions in space so that the space may exhibit curvature. The author is unaware of the calculations of Einstein's space curvature). This force is the cause of gravitation. On the other hand, their selective movement causes polarity and it is expressed as magnetic or electric field (described in the chapter 'Magnetism').
- 7) An electromagnon binds with another one forming flat, two-dimensional lattice. For constructing its 3D model much work is required. The binding is in perfect order due to the reason of compatibility. **X-X** and **Y-Y** binding is not possible (At least for the time being unable to explain the reason behind compatibility).
- 8) All the **3** types, while they are in space, shall exist as rolled up structures, with negligible difference. Once they are to form matter, they are stretched out as hexagonal fields so that they bind one another.
- 9) Electromagnons are able to undergo elastic as well as non elastic collision with particles, according to compatibility. Even though they are permeable to one another in free space, they are not permeable to particle.
- 10) **X** or **Y** electromagnons can bind with all six **Zs** around forming lattice, as shown in No-1 and No-2

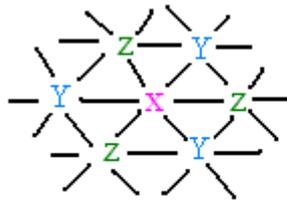


No-1

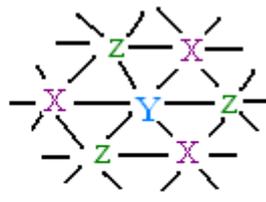


No-2

If an **X** binds with **Y**, it can bind only with **3 Ys**, keeping an angle 120° between each. The space between them is occupied by **Zs**. The case of **Y**, binding with **X** also is the same, as shown below:

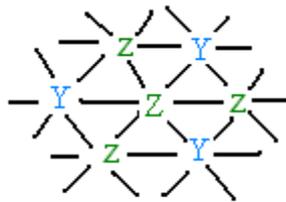


No-3

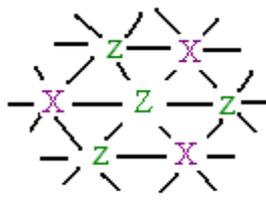


No-4

An **Z** can bind only with **3 Zs**. Others should be of one type - either **3 Xs** or **3 Ys**, (not random mixed), as shown below:

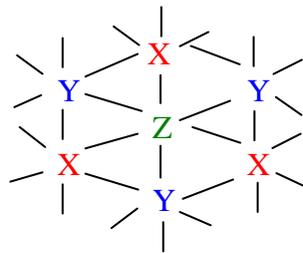


No-5



No-6

An **Z** can also bind with **3 Xs** and **3 Ys** as shown below:



No - 7

Let us give a pet name to the above 7 types as '**elementary photons**'. Their arrangement shall have more stability. Let us see their composition of electromagnons.

- No - 1 - 1X+6Z
- No - 2 - 1Y+6Z
- No - 3 - 1X+3Y+3Z
- No - 4 - 1Y+3X+3Z
- No - 5 - 3Y+4Z
- No - 6 - 3X+4Z

$$\text{No - 7} \quad - \quad 3X+3Y+1Z$$

Now let us see how this arrangement, the lattice formed by electromagnons become electromagnetic frames and how those frames constitute elementary particles.

Formation of electromagnetic frames from electromagnons

Let us see how electromagnetic frames can be formed by the assemblage of elementary photons No - 1 to No - 7

A repetition of unit **No - 1** or **No - 6** results in the formation of a +ve frame. Let us call it **X'** frame. That is, unit **No - 1** and unit **No - 6** are collateral or complimentary.

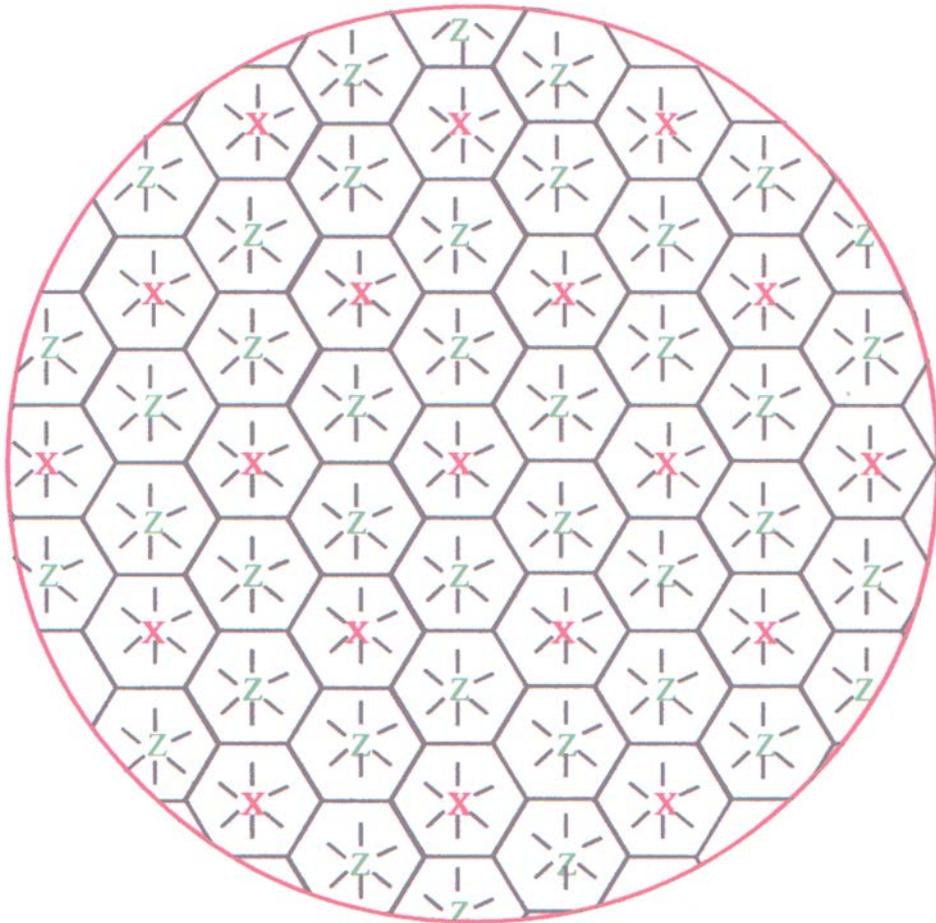


Fig. 1.1. **X'** frame, with positive charge, 1:2 ratio of X & Z

In a similar way, if unit **No - 2** or unit **No - 5** is repeated (they are complimentary), a -ve frame or **Y'** frame is formed.

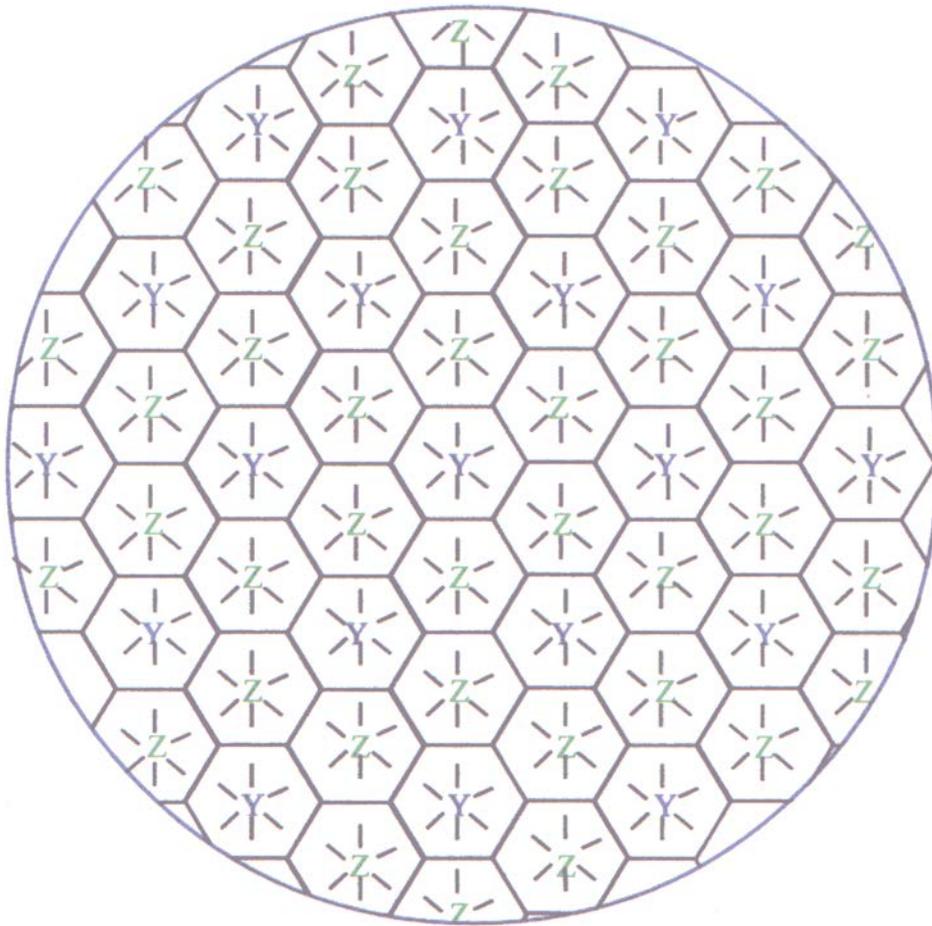


Fig. 1.2. Y' frame, with negative charge, 1:2 ratio of Y & Z

If unit No - 3 , No - 4 or No - 7 are repeated, it results in a neutral frame. Let us call it **Z'** frame. These three units are complimentary.

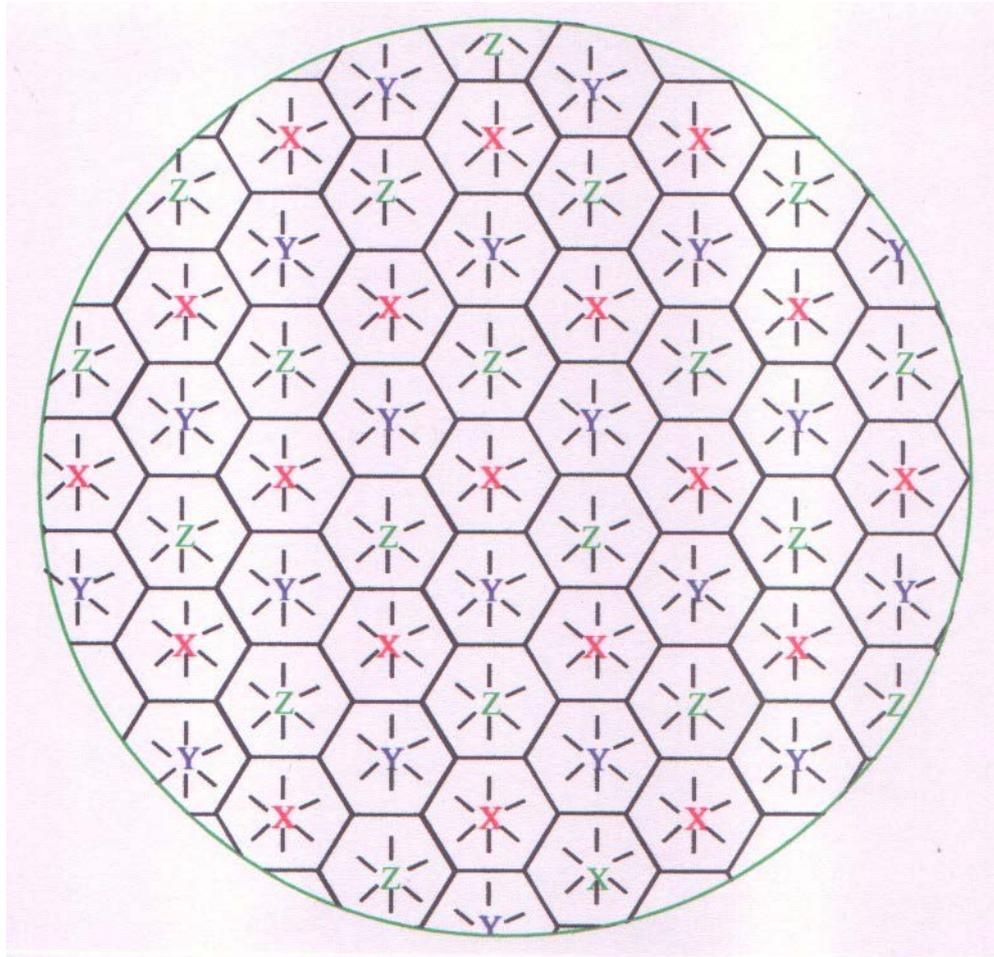


Fig. 1.3. Diagram of **Z'** frame, with no charge, 1:1:1 ratio of X, Z & Y

Emission and Absorption of photons

Electromagnons can be broken off from electromagnetic frames that are part of particles. A broken off electromagnon collapses, loses its flat, two dimensional property and may roll up forming a photon.

This electromagnon that is broken off, moves at the limiting velocity and imparts the property of energy. If we ignore the concept of elementary photons, the possible variety of radiations that can be pinched off from these electromagnetic frames is enormous.

They may break off as –

1X
1Y
1Z
1X+1Y
1X+1Z
1Y+1Z
2X
2Y
2Z
2X+1Y
2X+1Z
2Y+1Z
2Y+1X
2Z+1X
2Z+1Y
3X
3Y
3Z
2X+1Y+1Z
2Y+1X+1Z
2Z+1X+1Y
3X+1Y
3X+1Z
3Y+1X
3Y+1Z
3Z+1X
3Z+1Y
4X
4Y
----- and so on

Up to how many?

A whole electromagnetic frame or even frames together!

When these electromagnons are attached with another particle, the particle rests or vibrates according to the compatibility with the totality of the universe and that is expressed as energy. A particle has only finite electromagnetic units called electromagnons and hence finite mass can produce or express only finite energy, in spite of all mass relativity concepts. Newton is absolutely right in the question of mass. Entropy cannot be dealt with our local observation. Diffusion may be the orientation of particles to suit its exact position in the universe.

If an elementary photon with 7 electromagnons given from **No-1** to **No-7** has more stability, and if the radiations are produced as units of elementary photon or a multiple of it, the question of quantization of energy is solved. Possibly, along with elementary photons, sub fragments with less than 7 electromagnons also will be broken off (as the ones given above).

If λ' be the wave length of such an elementary photon, perhaps that of the perceivable radio waves with maximum wave length in the universe, then mass of the elementary photon $m_0 = h/\lambda'c$ and the mass of a single electromagnon is equal to $m_0/7$ since an elementary photon is supposed to be made of 7 electromagnons. However, there is a possibility for the existence of elementary photon. How many units of electromagnons are needed to give stability to the hypothesized elementary photon is unanswerable at present. Here it is supposed to have seven.

If m_0 be the mass of such an elementary photon, then, radiations pinched off as $1m_0, 2m_0, 3m_0 \dots$ etc causes the mass of a photon to be quantized and there by energy as per

$$= h/nm_0c \text{ where } n \text{ is the number of elementary photons.}$$

When such a photon hits a particle, the factors that determine its absorption or reflection are

- (1) The composition of outermost electromagnetic frame of the particle to which it hits.
- (2) The Spot where it hits and
- (3) The composition of photon that hits.

When a photon hits at a spot that is compatible with the nature of photon, which is in a rolled up nature, stretches out and integrates to the particle to which it dashed. This process that is very fast to human brains with expanded time shall be a slow one with respect to the sub atomic world.

Or else, some unknown and most miraculous interconnecting mechanism that is beyond our brain-power may exist in the case of emission of photon from one particle and absorption by another. Actually this connection is by space and that is how spooky works.

Formation of Elementary Particles

According to this model, there are 3 types of electromagnetic frames formed by definite arrangement of 3 types of electromagnons. In frame X' , that causes +ve charge, only X and Z electromagnons are there in the ratio 1:2 (fig 1.1). At the same time, Y' frame is formed of Y and Z electromagnons in the same 1:2 (fig.1.2) ratio. In Z' frame, all the 3 types of electromagnons X , Y and Z are seen in 1:1:1 ratio (fig.1.3)

Now let us discuss how elementary particles shall be formed from these 3 types of electromagnetic frames.

There are many possible sequences. As stated earlier, an order causes stability and disorder causes instability. These frames must be arranged in definite order as well as in disorder to constitute particle with stability and instability.

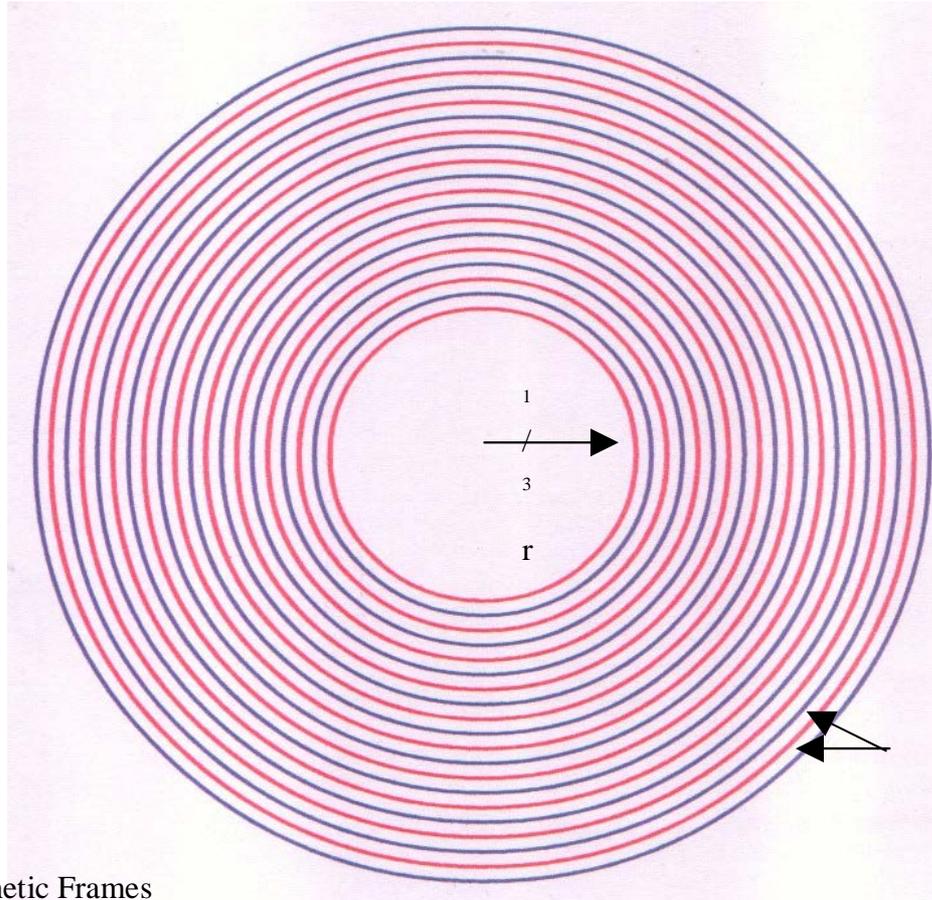
We, the mortals cannot create any law. Scientists are destined to copy down what order that nature has accomplished. For example, our world has more matter than there is antimatter. Why? because nature found it more suitable. When we propose any model, we are destined to do according to what exists and not according to 'why it is not

otherwise. In this context, we may be able to propose how proton exhibits positive charge. But we may not be able to answer why nature created more protons than antiprotons in our world or why there are protons. We are not creating anything new, although we are changing something from one form to another. Therefore, let us see what shall be the cause of positive charge, negative charge and let us see if any true neutrality is possible, rather than discussing why it is so.

An elementary particle is proposed here as a hollow sphere rather than a solid one. The author does not know whether any hard proof is there already against the hollow nature of elementary particles, or whether there is any experimental evidence to show that an elementary particle is a solid sphere. Pardon me if my venture is mere illusionary (however, all along the history of development of science, century-old beliefs have been shattered by new theories and discoveries. What our common sense says 'true and logic' shall be proved 'false and illogical' later.)

In this model, an elementary particle is considered to be a hollow sphere with concentric electromagnetic frames, arranged layer after layer. Insufficient data prevents me from suggesting whether the apposition of such frames leave any space in between them. However, the thickness of each frame should not be more than **One Planck's length**. These frames must be starting from $\frac{1}{3}^{\text{rd}}$ or $\frac{2}{3}^{\text{rd}}$ distance from the geometric centre of an elementary particle. Discussion with some high level physicists or mechanical engineers regarding pressure belt of spherical bodies, is needed to propose it more confidently (at the time of writing the resource and access of the author is so limited. It continues even in the year 2011 after publishing it in 2005!)

Let us, for the time being, assume that these frames are starting from $\frac{1}{3}^{\text{rd}}$ distance from the centre as shown below.



Electromagnetic Frames

Fig 1.4. Not CD, Elementary Particles Showing Electromagnetic Frames

Now let us discuss a few different possibilities.

Let us consider that a single electromagnetic frame of **X'** type causes unit positive charge and a **Y'** frame causes unit negative charge, if they exist free. Let a particle be starting with an **X'** frame. Suppose the next frame is **Y'** and let us assume that the arrangement of so many such frames alternatively produce a particle as shown below. Only a section of the particle and only a few electromagnetic frames are shown.

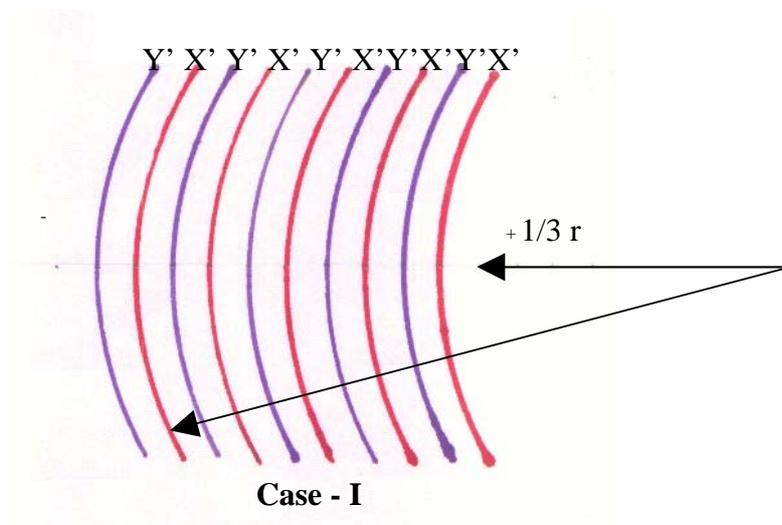


Fig 1.5., a portion of elementary particle

The above particle starts in **X'** and ends with a **Y'** frame. If such a particle does exist, will it be perfectly neutral? True, the number of +ve frames and –ve frames are equal. But internally it may show a slight +ve charge and externally it may show slight –ve charge because of the **positional effect**.

The slight +ve charge inside may give it a slight, outwardly directed repulsive force that helps it to keep spherical shape. At the same time the alternate layers attract one another making it a spherical particle.

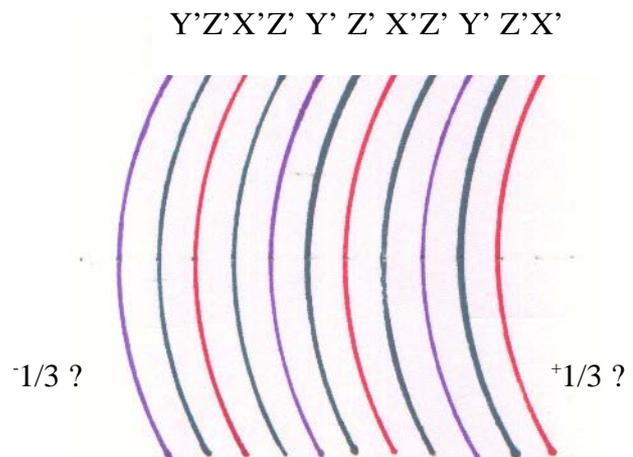
Fractional Charges

Quarks are said to have fractional charges. Let us see by what possibility, fractional charges can exist and how their inter conversion may happen.

The particle given in **case I** is not a perfectly neutral particle, nor any particle with more than one electromagnetic frame can be. In the above case, if we imagine that the ultimate **Y'** frame is covered with a neutral, **Z'** frame, then the charge will become more negligible that ordinary experiment may fail to detect it from outside.

Another version of **case I** may result in **case II** in which the particle may start with **Y'** and end with an **X'** frame. In this case, the inside will have slight negative charge and the outside, a slight positive charge. It is just opposite to **case I**.

Now let us consider a perfect order system of **case III**.



Case - III.

Fig 1.6., frames causing fractional charges

Here, as in case No-I, the number of **X'** frames are equal to the number of **Y'** frames. But there is difference. In this particle, the innermost **X'** frame is covered with an **Z'** frame instead of a **Y'**. Therefore, it will express more fractional charge inside due to positional effect. At the same time, due to the penultimate **Z'** frame, the surface frame **Y'** can express more fractional charge. Is its inward fractional charge $^{+1/3}$ and outward expression $^{-1/3}$? Who knows?

An opposite version of **case III** results in **case IV** in which the particle starts in **Y'** and ends with **X'**, with **Zs** in between. It may show $^{-1/3}$ inside and $^{+1/3}$ outside. It is just opposite to **case III**.

Single frame – Unit charge hypothesis and Beta-decay

Let us see how we can incorporate β -decay using the above model. Let each frame causes unit +ve or unit -ve charge if taken independently. But as long as these frames are part of a particle, they cannot express their full charge because they are cancelled out to a certain extent by oppositely charged frames. Apposition of these frames shall be the cause of strong and weak nuclear force. Let us once more take **case - III**

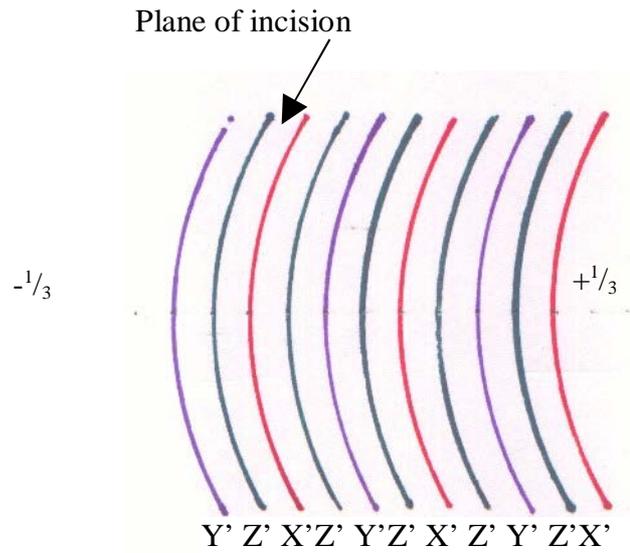


Fig 1.7., frames breaking off from an elementary particle

As stated earlier, suppose this particle has $-\frac{1}{3}$ charge outside because of positional effect. Suppose two outermost frames, a Y' and an Z' , are deleted by an incision at the point shown in the above diagram. Now what happens? If two outer most frames are peeled off, what is the charge of the remaining structure?

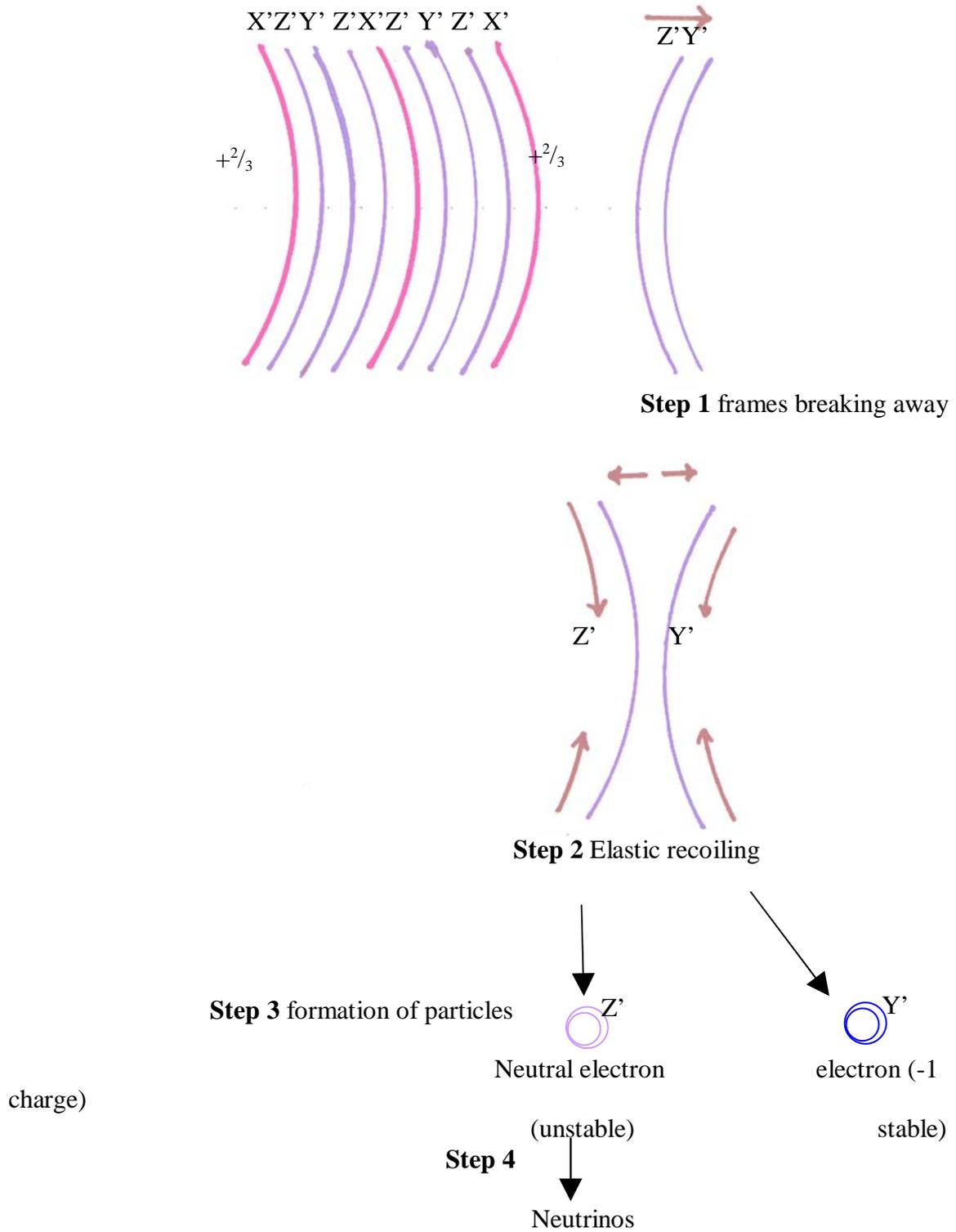


Fig 1. 8. β -decay

In the above particle a unit negative charge (-1 charge) is broken off in the form of Y' frame. If the original **case -III** had $-1/3$ charge, now, $-1/3 - 1 = -4/3$ charge it acquires. This outer most X' also has a positional effect of $+1/3$ only but in this situation there is an

unequal number of \mathbf{X}' frame that may give it an advantage of $+1/3$ and resulting in a total $+2/3$ charge. Is it a possibility for quark conversion?

Let us now see what happens to the broken away frames.

The equation $\lambda = h/mc$ (or h/mv) itself clearly proclaims that the energy present in any radiation is determined by the mass of it. If these two broken off frames, the \mathbf{Y}' and \mathbf{Z}' move together forming a collapsed structure, an electron with high energy is formed. On the other hand, if they separate and if the \mathbf{Y}' alone rolls up and recoils it becomes a perfect electron. The \mathbf{Z}' frame if moves as such, it forms a perfectly neutral electron. If it splits into pieces, it may form neutrinos.

If a gamma ray be with a neutral structure with an \mathbf{X}' and \mathbf{Y}' or with a structure of $\mathbf{X}'\mathbf{Z}'\mathbf{Y}'$, in the former case it can collapse into a positron (collapsed \mathbf{X}') and an electron (collapsed \mathbf{Y}'). The latter case with $\mathbf{X}'\mathbf{Z}'\mathbf{Y}'$ may produce neutrinos in addition to electron and positron pair.

Electromagnetic radiations are neutral. Annihilation of an \mathbf{X}' and \mathbf{Y}' frame may result in a neutral $\mathbf{X}'\mathbf{Y}'$ gamma ray, which can propagate at the velocity of light.

Many more structural arrangements are possible using the 3 types of electromagnetic frames. Those unstable subatomic particles that have short life span may have disorder in their arrangement of electromagnetic frames. As stated earlier, more data are needed to propose suitable models to comprehend the structure of other particles. What causes the fast decay of free neutrons can be explained by the same hypothesis if such data as the number and amount of neutrinos formed during beta-decay is available. There shall be a limit of electromagnetic frames that can be held by the internal force of a particle. Disorder in the arrangement of frames also plays a leading role in the decay. Let us wait for more experimental data. Perhaps the charge of a proton and an electron may be slightly more than unit charge but equal and opposite. Our experiments may be detecting the overall charge as $+1$ and -1 respectively.

MAGNETISM

Magnetism, which is both attractive and repulsive according to the compatibility of poles, must have some relationship with gravitation. Both are forces at distance in conventional thought. What is their similarity and what makes them different?

Magnetism is described on the basis of lines of forces. As any one knows a line is not a single unit. It should be composed of so many small units. What shall be these units? Are these lines of forces moving from one pole to another externally (as depicted from **N** to **S**), and in a reverse manner internally (from **S** to **N**)? Why should these lines of force move or exist in a cyclic fashion? How are these lines of forces formed?

Magnets will have slight change in their structure and spin of particles. Why this difference occurs? Suppose the nucleons orient themselves in a magnet in such a way that the positively charged particles (perhaps the up quarks) and the negatively charged particles (may be down quarks, including that of neutrons) are oriented in a definite way as shown below,

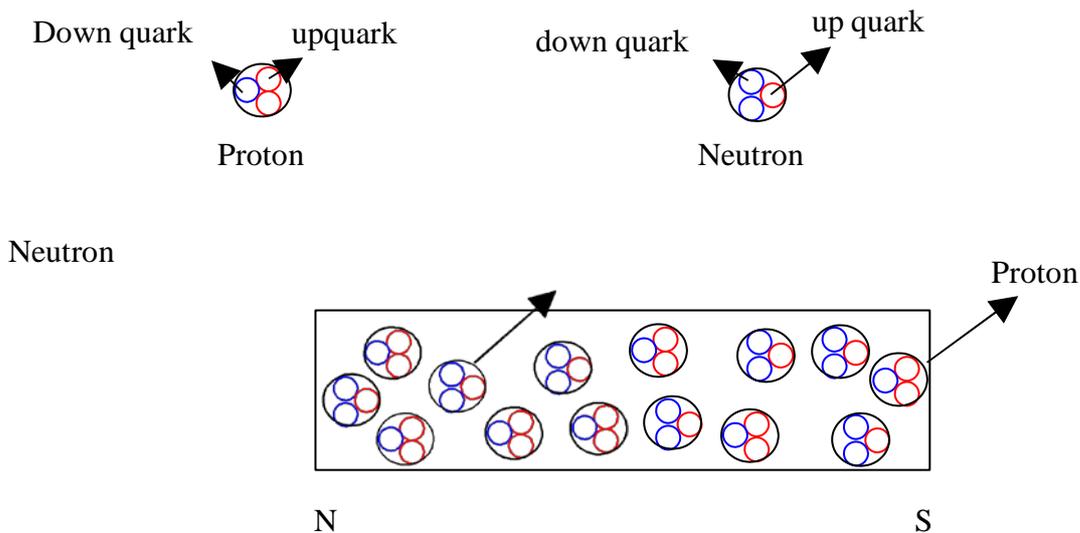


Fig 3.1. Arrangement of charged particles in a magnet

This orientation causes a polarity, a direction. That is, the direction towards which all positively charged particles of a magnet points, gathers through that direction **Y** type of electromagnons (that are $-ve$ strains as stated earlier). This happens so because as explained in chapter 1, $+vely$ charged particles are covered outwardly by **X'** type of electromagnetic frame. While that direction towards which all negatively charged particles are oriented gathers **X** type of electromagnons through that direction because $-ve$ particles have **Y'** type of electromagnetic frame on their surface. Therefore, through both the poles different strains of electromagnons enter the magnet. If, for example North Pole of a magnet gathers **X** type of electromagnons, then South Pole gathers its opposite variety, the **Y** type. If **X** type enters through the North Pole it moves up to South Pole wherever an orientation exists. But its intensity decreases (as it is being absorbed by the frontline particles) when it reaches the South Pole. Same is the case with the South pole if it absorbs **Y** type as shown in figures below.

Y type of electromagnons

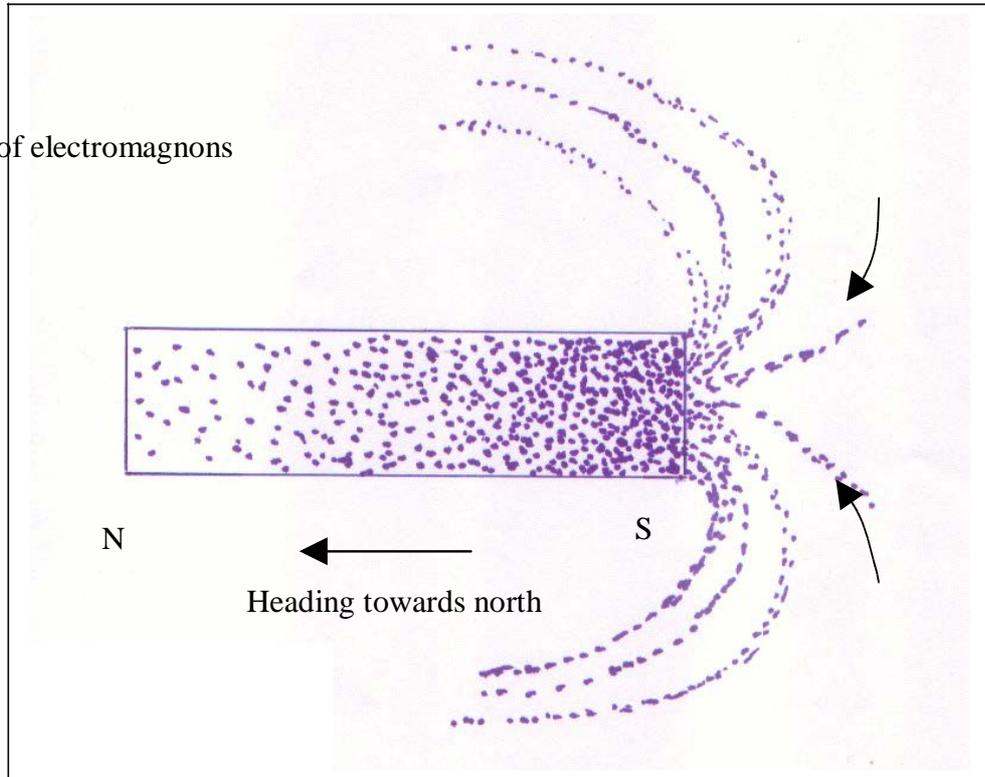


Fig 3.2. Y Type of Electromagnons moving towards north pole

X type of electromagnons

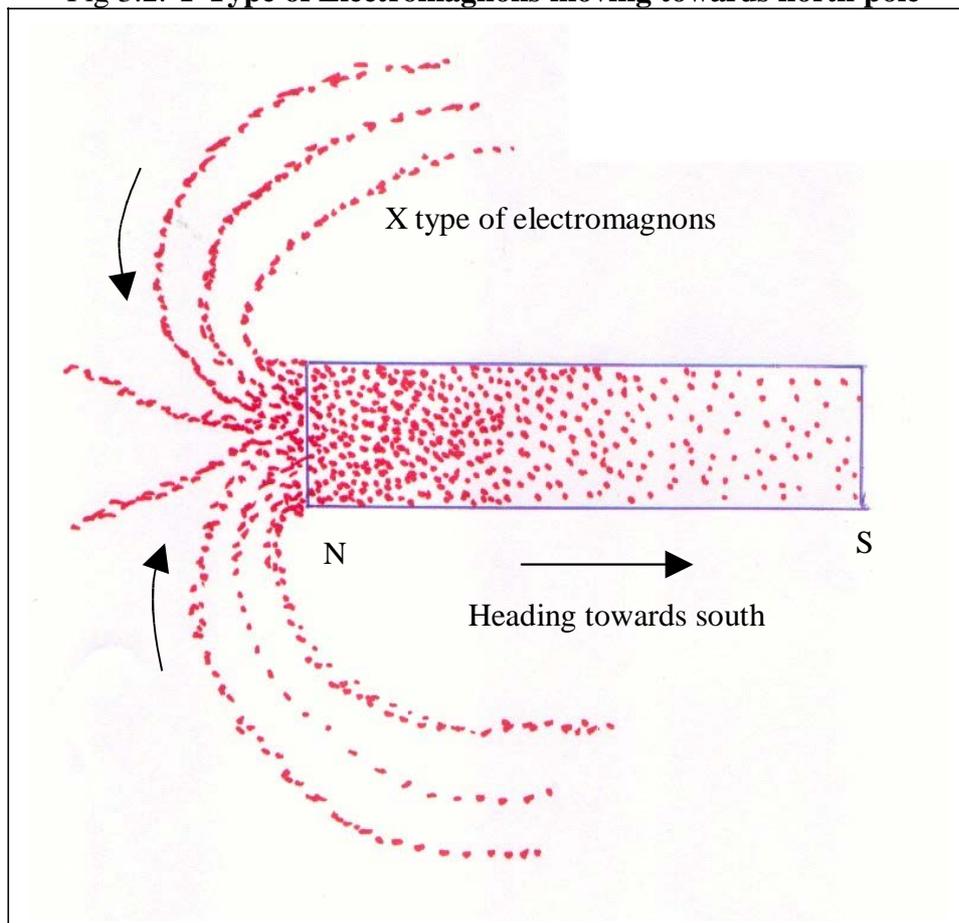
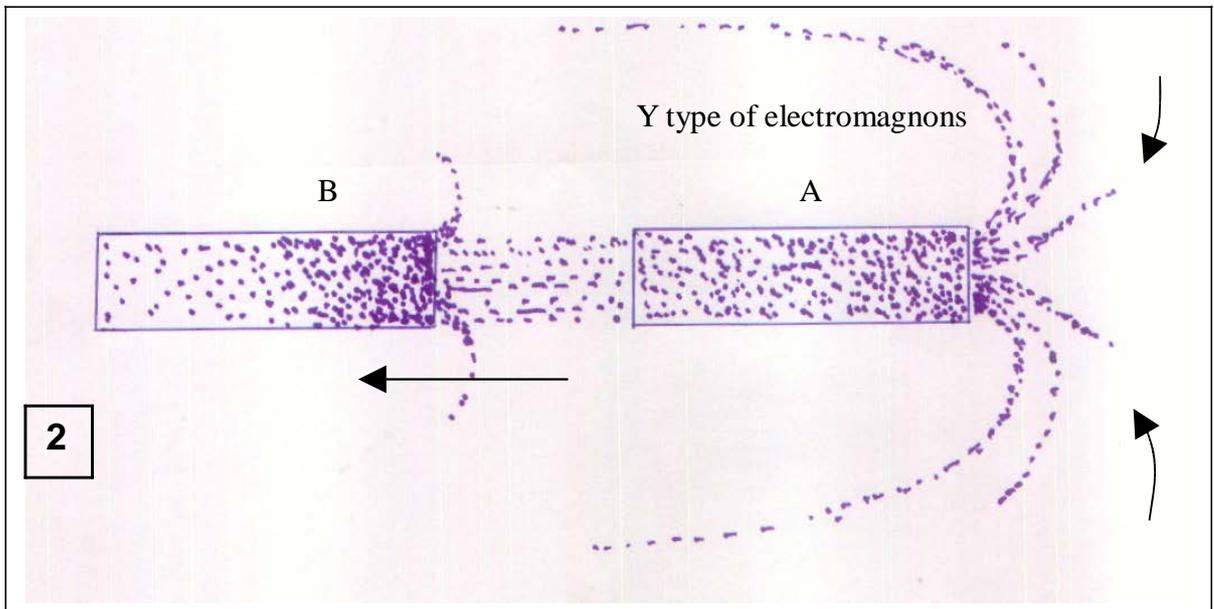
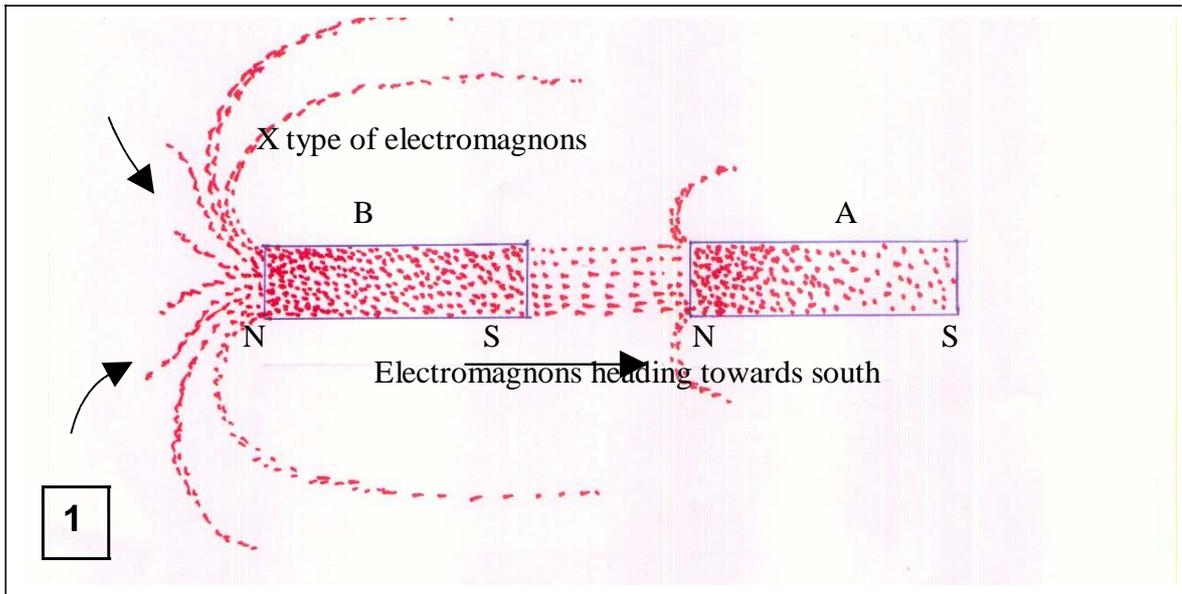


Fig 3.3. X Type of Electromagnons moving towards South Pole

As animals take trodden path in grass-land or jungle, these selected electromagnons nearer to the magnet make lines among the jungle of free electromagnons in space and take the trodden path of their predecessors. It results in the formation of lines of forces. These lines of forces shall be gateways or main-street through which millions of electromagnons of same variety moves and enter the magnet. Even though these isolated electromagnons are unable to express their charge, their en masse movement causes a force to come into existence.



N S N S
Electromagnons heading towards North

Fig 3.4. **Attraction between like poles: 1 & 2 are simultaneous events and same magnets, but shown separately for clarity**

No colour deference! **Y** types of electromagnons that enter through the south pole of the magnet **A** moves through it up to the north pole of the magnet **B**. But the intensity of **Y** type of electromagnons gradually decreases as it reaches the North pole of **B** because all along the way they are absorbed by +ve heads of particles. The same but opposite thing happens to **X** type. We cannot say which type is taken by which pole; but they are taking opposite variety.

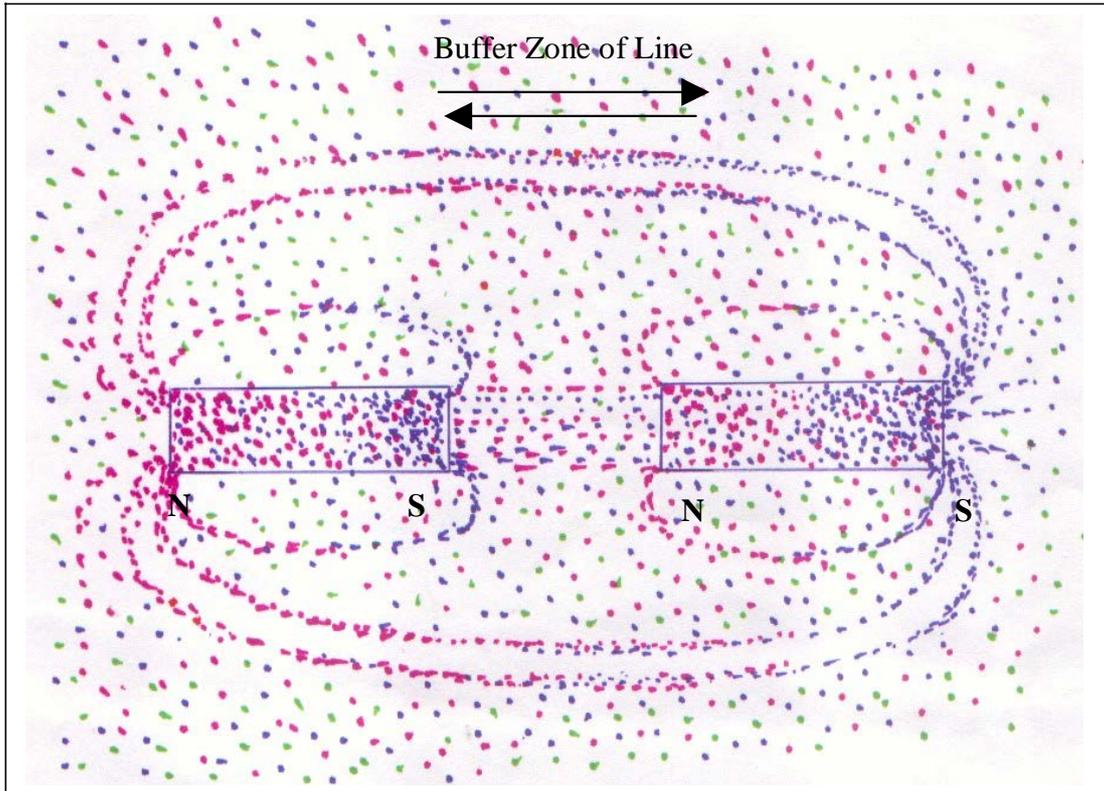


Fig 3.5. **Two magnets developing attraction in space filled with electromagnons**

X type of electromagnons

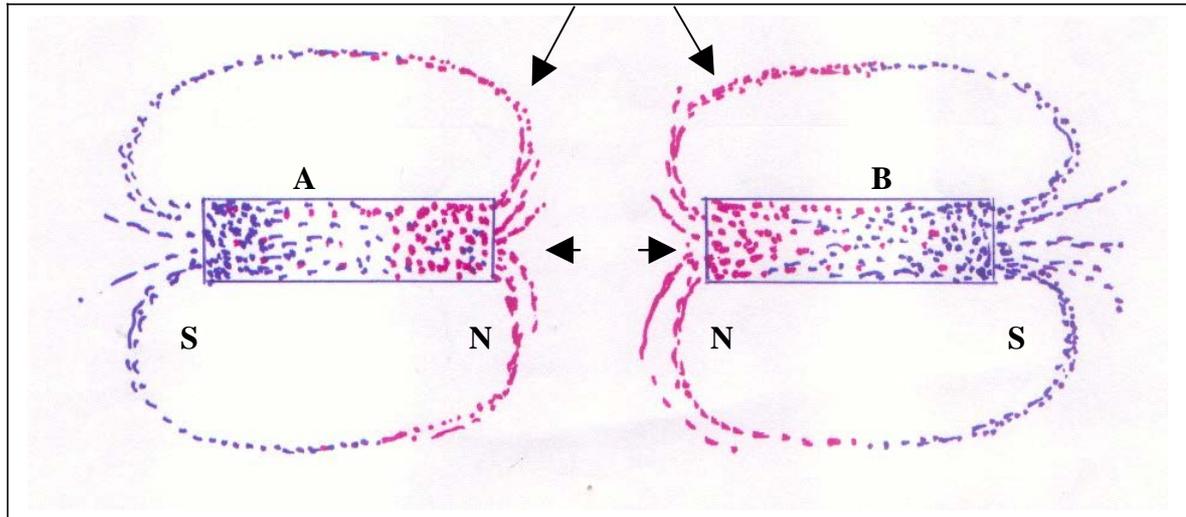


Fig 3.6. North poles compete for X type of electromagnons. Repulsive force develops and the magnets move apart.

This is the difference between gravity field and magnetic field. In gravitation, there is no selective movement of electromagnons. Therefore it exists solely as attractive because of the continuous evacuation of electromagnons from the vicinity of matter. But when two huge material bodies compete for electromagnons a repulsive force also comes into existence. Is it the reason why so many heavenly bodies exist separately, keeping distance? Is there any relationship between mass and distance? Do intermolecular distance, interplanetary distance, interstellar distance, and inter galactic distance exhibit an ascending order related to their respective masses?

In gravitation all the 3 types, **X**, **Y** and **Z** move together. But in magnetism, selection takes place. One strains out do the other two strains in poles. All the strains are moving through poles, because magnet also will have gravitational force. Yet, through poles selection takes place. This, as expressed earlier, is due to the orientation of charged nucleons. Electrons also may be playing a minor role to contribute magnetic field.

Then one may wonder when these electromagnons are added up continuously, the magnetism should lose after a while. There shall be two possible reasons for it.

- 1) The number of electromagnons that constitute an electromagnetic frame shall be enormous so that our earthly time to call something as 'permanent magnet' may be erroneous. At a particular point of time the polarity of a magnet shall even be reversed when such an addition of electromagnons results in new frame formation (it is found that the earth changes its pole after a particular time). That is, an **X'** frame may be covered over by **Y'** and Vice versa. If it does not happen, a magnet should 'spit out' virtual particles frequently, by breaking off the added patches of electromagnons.
- 2) There shall be some continuous structural change happening in the electromagnetic frames of particles in a magnet. To explain it, we have to go a long way ahead in our theoretical physics. However it is described briefly in the next part (second point).

8. Prospect for the Unification of Forces

Relationship among forces

Based on the hypothesis of electromagnons and electromagnetic frame it is possible to unify all four forces. There is only one force which is diversified as a few.

Weak nuclear force is a weak aspect of strong nuclear force. Electromagnetism is a weaker aspect of strong and weak nuclear force. Gravitation is the weakest aspect of all the other three forces. Otherwise the three former forces are the strongest side of gravitation. Let us see how it happens.

Gravitation is directly related to electromagnetism. Propagation of electromagnetic radiation at the limiting velocity is due to the sum total of gravitational fields of surrounding sub realms of a particle. It is due to this direct relationship that light bends in high gravitational field. If there is no relationship between gravitation and electromagnetic energy, how can gravitation affect their propagation and trajectory? If gravitation is considered to be a continuous evacuation of electromagnons in space, the electromagnetic radiations cannot ignore it. Instead it will certainly be influenced by gravitation.

Electromagnetic forces results from the selective addition of electromagnons. Expression of charge or magnetic field is such a selective influx.

The force of binding between two successive electromagnetic frames results in nuclear forces. It keeps the integrity of particles because a particle is supposed to have many a frame. $X'-Y'$ may result in strong nuclear force while $X' - Z'$ or $Y' - Z'$ may result in weak nuclear force. The outermost frames of elementary particles may have such an arrangement that results in weak nuclear force with respect to the particle. For example, if Z' is the penultimate frame and X' is the ultimate or surface frame of an elementary particle, it may have weak nuclear force, along with a fractional charge causing electromagnetic force. These two forces are present in the outermost frame. But if the same particle binds with another particle with a surface of Y' frame, the weak nuclear force becomes strong one because of $X' - Y'$ binding. Perhaps all the frames are involved in exerting strong nuclear force, when two elementary particles bind each other.

It is the composition of a particle according to the sequence of electromagnetic frames that determines its stability. All these elementary particles are not same. Even two up quarks may not be same in their internal composition. The same shall be the case with down quarks or any other particles.

Energy has no existence of its own. Various forms of energy, as expressed by matter or space is due to the vibration or movement of particles against the total universal motion, or by the expressions of electromagnons in space.

There is still one more force. This is the force between two electromagnons, forming lattice. This is the force that keeps the integrity of photons or energy. It should be many fold stronger than gravitation, electromagnetism and weak nuclear force, but weaker than strong nuclear force. This force, so far not described in physics, preserves the integrity of energy radiation to a greater extent even in the gravitational fields. If such

a force does not exist, any high-energy (more frequency) radiation should immediately split into many radiations of low frequency (or greater wave length).

Let us once more start with nuclear force towards gravitation.

As discussed earlier, nuclear forces result by the apposition of electromagnetic frames. Some of these frames, because of their lesser compatibility, exhibit weak nuclear force. These frames break off easily, resulting in β -decay.

For the formation of electromagnetic frames, binding of electromagnons (one with surrounding six) is needed. This, along with strong and weak nuclear forces gives stability to elementary particles.

Electric and magnetic fields are formed by selective arrangement or influx of electromagnons. For example, quarks with negative charge select +ve strains or **X** type of electromagnons. On the other hand up quarks take **Y** type of electromagnons. Gravitation results from indiscriminate intake of electromagnons.

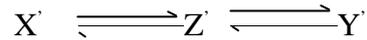
One may then wonder why these electrons or protons do not become neutral or why it does not undergo a reversal of charge by the addition of these electromagnons. This is a perplexing question.

Here once again the author apologises for blaming insufficient data. Many more complicated data are needed to be put into analysis, before answering this question. However, there are certain probable ways that are reasonable.

1)The addition of electromagnons to any particle by way of gravitation or electromagnetic interaction is not a random process. What prompts us use the word 'random' randomly is an expression of our inability to comprehend events into laws. For instance, before Kepler and Newton, the revolution of heavenly bodies was assumed random. It is the knowledge and wisdom of them that interpreted its order. In a similar way, the unknown order that exists in the addition of these electromagnetic units may be causing the formation of patched up lattice (incomplete lattice) around the outermost electromagnetic frames. These patches may be unstable and later break off and come out as virtual particles or as neutrinos. Gravitation which has a definite order and direction therefore is not cancelled out by the production of these particles or neutrinos because they have no particular direction. So, whether all material objects produce such emissions is an important data needed to analyze and conclude the above question.

2)Another possibility is the transformation of electromagnetic frames. As stated in the early part of this article, if **Y** and **X** are symmetrical variations of **Z** type of electromagnons, there is a chance for the electromagnetic frames to be converted from one type to another. This may convert proton to neutron or vice versa, even without β -decay. Another chance is that, when a new frame forms above the existing outermost frame, the new one shall change by way of changing its symmetry. This mutation may cause a total reversal of all the internal frames of an elementary particle. This causes an increase in mass without a change in its charge.

In short, the electromagnetic frames may not be permanent structures. It may be changing from one type to another. Just as electromagnons can change, the frame itself can also change as shown below.



This enables inter conversion of proton and neutron without decay or even without addition of frames.

Infinite property of gravitation and electromagnetism

Gravitation and electromagnetic force are infinite. Although the electromagnetic force is much and much more powerful than gravitation, both are highly related. Bosons that are supposed to carry the force of gravitation are isolated electromagnons, while that of the propagation of electromagnetic radiations is due to gravitation of the universe and that is why electromagnetic radiations are influenced by gravitation, and both are infinite in its expression. The force that binds the units of electromagnetic bosons carry the 5th type of force, that may be the **second strongest** other than strong nuclear force. Thus gravitation and electromagnetic propagation are inversely related. That is why c, G, pi and the radius of the universe could be connected by a single equation.

Only a single force is there. This force is diversified due to the differential expression of electromagnons in the following way.

1. ***Strong and weak nuclear force:*** Formed by the apposition of electromagnetic frames. The type of electromagnetic frames that are in apposition determines whether it should be strong force or weak force.
2. ***Lattice formation of electromagnons:*** Electromagnons that binds in two-dimensional manner exhibit this force. All electromagnetic radiations carry this force. If multidimensional folding occurs to electromagnetic radiations, more force comes into existence. This makes such energy radiation all the more stable. This type of secondary folding may be the reason why **leptons** do not respond to nuclear forces.
3. ***Electromagnetic force:*** Helps atoms to bundle together may be by way of selective exchange of electromagnons. Conventionally, electromagnetic radiations are thought to be **produced** by this force. But it would be by overcoming the 2nd type of force mentioned above. Elementary photons may be able to overcome this force easily.
4. ***Gravitation:*** This is due to the interaction of all the above forces. The reverse also is true. The first 3 forces are the other aspect of gravitation.

CONCLUSION

It shall not be wise enough to conclude anything decisively because of our unlimited ignorance. Yet we are destined to explain things based on the data available to us at a point of time. This causes lots of defects/errors, but through these errors science progresses towards better reality. Experiments alone cannot reveal us all truth although it is highly essential. What we observe may not entirely be true.

In order to comprehend gravitation, the weakest of all forces that governs from distance the most massive bodies (and hence ironically this weakest force is the strongest in an overall outlook. Its power is infinite in earthly concept), a thorough change in sub atomic model is necessary. It is the structure and composition of particles that cause gravitation and other forces. All the forces are felt by movement or by tendency to move. It shall be the movement of space, matter or energy. Despite its tremendous achievement, **the failure of special theory of relativity to connect gravitation is due to its mass- energy unification.** It did not incorporate space. Space-time is separated from mass- energy. Mass-energy is nothing when compared to the exploits of space. It is space that is to be investigated, not only by physical experiments but by arduous meditation.

Here what are proposed in this hypothesis are certain possibilities. Irrespective of its demerits it may help someone to find out more profound truths regarding gravitation. Philosophical and Metaphysical approach shall be necessary to investigate more about space and gravitation. Please don't misunderstand the word 'metaphysical' that is commonly used keeping in mind a man-like God. Even Einstein committed the blunder by using the word He. God is beyond all gender (sorry for repetition).

V. GLOWING OF JUPITER AND THE LAST FLOOD

These 2 events are not much related but still there shall be some connection. According to the New Space Concept, when a spherical planet shows an order in rotation and revolution it has more living nature than that of a rock piece as an elephant is distinguished from virus. Therefore, during the realization, the author felt that Jupiter may glow sooner or later due to the synchronous vibration of its particles rather than nuclear reaction. The prediction was printed in a small self-published rubbish book let. By fate Jupiter came to world news very soon thanks to Shoemaker-Levy incident. I spoke to some of my friends, who considered me gone out of wit, that Jupiter will be observed thoroughly these days and hence by chance they may notice any increase in radiation while observing the oncoming event.

A very small news took my breath away when I read that they [Tohoko University (Japan) Professor Mr. Hiroshi Oya and team?] observed a ten fold increase in electromagnetic radiation from the planet as Shoemaker- Levy was still closing in on the planet (that means hours before hitting Jupiter). This shall be a mere coincidence and must not have any significance to anyone including those who observed it, but for me it was frightening news. The paper cutting was with me until 1999 when I burnt all works after withdrawing from a private press due to nervous breakdown.

In 1990 or 91 when I was writing my civil services main examination (one thing I remember is that Mr. V.P. Singh was the PM of India because the age limit for the exam was raised for the time being) I had to stop it due to foreseeing the earthquake of Kerala. My conscience was asking me whether I want I.A.S. or the theory (I was not sure whether I would have passed). Although I had least scope of comprehending even a bit of it, I

abandoned the exam and got ridiculed as mad. When Kerala started shaking in 2001, I was in Andhra Pradesh, working as a teacher. When Mr. Carl Sagan visited Bombay (Mumbai) in 1990s a journalist of a weekly (Kalakaumudi) from Kerala went for an interview with him. I wrote the weekly that I have the space theory that people, including Mr. Carl Sagan is searching for and that mankind may have to pay heavy penalty for each micro second delay in recognizing it. Who cares an unemployed person when the assistant director of NASA is at hand? What happened? A small hint of the earthly time bomb shrugged its shoulder in Indonesia and the Tsunami affected even Kerala coast (“Civilization is only an interlude between two successive earthquakes”- Mr. Will Durant in ‘The Story of Civilization’). Still people are fond of present science, the heritage of Francis Bacon. Observation is very important, but it should learn from reason (please think of Mr. Paul Dirac). Our science is fundamentally defective and that is what Mr. Schrödinger expressed. I could not foresee any Tsunami, except the collapsing of the entire world and now I am no better than any other human being (If there is a Nobel Prize for patience and tolerance my father is one of the first who deserves it. Because he supported me in my hard search. He expired in 2009). I don’t know whether we should all perish considering it as a natural law and fate or struggle for survival. If it is God’s wish, no one can escape from the disaster. I don’t know anything now. Irrespective of whether my works are valid or not, I have no doubt about the Last Flood approaching. I don’t care if the world believes it or not. Editors think that my hearth is burning due to this theory; they do not understand it was not burning sometimes due to the work.

The particles of the earth will vibrate in harmony at a particular stage of gravitation. Even if one considers that energy is converted to mass, there should be gradual change in the particles. Think of laser-cooling. Is there a model that shows how a particle will change due to long-term gravitation? I don’t know much particle physics and that is why I am asking. I cannot base on any existing science because the error started from Kepler (although it was one of the greatest breakthroughs in human history) due to effect-explaining philosophy. Now the very foundation of not only science but that of the earth is going to shake. That is why I worked so hard spoiling my earthly life, just to convince the world9The pseudoscience movie 2012 was asurprise for me because those where almost similar to my visions regarding the end)

What is your opinion of Darwin’s idea of man evolved from ape like ancestors?

“Darwin was totally wrong if he ever used the term ‘evolved’, apt term is ‘is evolving’. The best proof is the monkey’s fist showed against the theory.”

What is the biggest joke in the universe?

“That the universe is formed by the explosion of an object of the size of Planck Length!”

Another one?

“Soil is formed from rock and rock is formed from soil. Both are formed. Are you not happy? Mass is changed to energy and energy, the ability to do work, to mass, and still it exhibits different properties as charge difference.”

Are there devils?

“Dead sure! I see one when I shave. When I go out I meet others!”

Relativity and quantum theory are worn out and are mere child’s play in front of the New Space Concept; rotation and revolution are sensual perception against the expanded time of mortal brains. Only oscillation is happening. A Galaxy is a small dot against the vast Space.

PLEASE DON’T BE ARROGANT WITH WHAT WE HAVE; SCIENCE IS YET TO BEGIN!

The New Space Concept

Viewing things from another angle

Measure the mass of a resting particle. Accelerate it using force. Again decelerate it using force. Energy is given in both the processes. Again measure the rest mass. If the rest mass has increased, energy is being converted to mass and vice versa and quantum theory is to be incorporated. Then the entire work may be mere hallucination or illusionary. If the rest mass has not increased all this happen due to hidden velocity but human sense cannot detect it and mass is being converted to space, expressing energy (as in any disintegration of mass into energy) and space into mass (that takes place in gravitation). Gravitons and neutrinos are there, but these are not the cause of gravitation. Energy has no existence of its own although mass can express mc^2 energy. It is an integral property of space or mass. Virtual particles form according to Heisenberg's equation not from energy but from space and all the materials in the universe is formed from space and space is not a vacuum. Yet it is not a medium as celestial ether. Energy is only an expression and that is why energy is convertible from one form to another. It is sensual perceptions that declare mass-energy inter-conversion. It is unreal. Gamma rays are not exactly energy but neutral particles. They are expressing De Broglie. My mission is almost over except explaining Foucault's pendulum, inertia, centrifugal force and a few such things that I cannot do in my present situation. One can impart knowledge, not impose it. Those who adamantly argue mass energy inter conversion; please create just one gram mass using energy instead of destroying the world by nuclear weapons that are working on a false philosophy. If Einstein were born in India and learnt The Upanishads, he would not have committed a blunder as mass energy unification that gave impetus to the cruel, greedy biped animals to construct nuclear weapons.

Science is great, but not perfect and that is why Mr. Einstein, one of the greatest geniuses of all time declared the advent of another space theory. I have nothing to say to those who believe that nothing will happen in the universe without the consent and knowledge of NASA or Royal Society, however great they are (and I have great appreciation for their innovations). But I have something to whisper to those who think that 'there is something hidden want' in the entire science, the answer to 'life', irrespective of whether it has earthly or extra terrestrial origin.

“Quantum mechanics is certainly imposing, but an inner voice tells me that it is not yet the real thing. The theory says a lot, but does not really bring us any closer to the secret of the ‘old one’.” “I am quite convinced that someone will eventually come up with a theory whose objects, connected by laws, are not probabilities but considered facts.”

-Mr. Albert Einstein

DATA USED FOR THE WORK, MUSIC OF SPHERES

Planet Body	Orbital velocity required at surface (GM/R) ^{1/2} Sv m/sec	Time of rotation		Distance from sun d m	Mean orbital velocity Vo m	Eccentricity e	Radius of planet Rp m	Mass of Mp kg	1 + inclination Incl.
		Days	Sec.						
Sun	436906	25.38	= 2192832				695000000	1.989 E + 30	
Mercury	3005	58.6462	= 5067032	5. 791 E + 10	47870	0.2056	2439700	3.303 E + 23	8.004
Venus	7325	243.0187	= 20996816	1. 082 E + 11	35020	0.007	6051800	4.869 E+ 24	4.394
Earth	7905	0.99727	= 86164	1. 496 E + 11	29790	0.0167	6378140	5.976 E + 24	1.00
Mars	3550	1.025957	= 88643	2. 2794 E + 11	24130	0.0934	3396900	6.418 E + 23	2.85
Jupiter	42091	0.41354	= 35730	7. 7833 E + 11	13060	0.048	71492000	1.899 E + 27	2.308
Saturn	25083	0.44401	= 38364	1. 4294 E + 12	9660	0.056	60268000	5.685E + 26	3.488
Uranus	15054	0.71833	= 62064	2. 87099 E + 12	6800	0.0461	25559000	8.684 E + 25	1.774
Neptune	16615	0.67125	= 57996	4. 5043 E+ 12	5440	0.009	24764000	1.02488 E +26	2.774
Pluto	834	6.3867	= 551811	5. 91352 E + 12	4736	0.251	1151000	1.2 E + 22	18.1
Moon	1680	27.32166	= 2360591	3. 844 E + 8	1020	0.05	1738000	7.353 E + 22	6.1564

Bodies	Tilt⁰	180-tilt⁰	1 + cos tilt	1+cos incl.	Mean relative density	Synchronous satellite Position (distance) m	Orbital velocity at synchronous satellite position (Vs) m/sec	*(Vs(sun) - Vo) of planets m/sec
SUN					1.41	2.52815599 E + 10	72440	
MERCURY	0.00	180	2.00	1.99254	5.44			24570
VENUS	177.36	2.64	0.00106134	1.998246	5.24			37420
EARTH	23.45	156.55	1.9174	2.00	5.52	42164138	3075	42650
MARS	24.936	155.064	1.90678	1.99948	3.94			48310
JUPITER	3.13	176.87	1.9985	1.99974	1.33	159999649	28136	59380
SATURN	25.33	154.67	1.90386	1.999067	0.69	112251241	18384	62780
URANUS	97.86	82.14	0.86247	1.9999087	1.28 5			65640
NEPTUNE	29.6	150.4	1.8695	1.99952	1.64			67000
PLUTO	122	58	0.47008	1.9558	1.9			67704

Jupiter : Synchronous satellite position = 159999649 m

Vs (Jupiter) = 28136 m/sec.

Galilean satellites of Jupiter	Mass kg. Mp	Radius m Rp	Relative density	Eccentricity e	1 + inclination Incl.	Distance m d	Tilt	Time of Rotation Days/sec T	Orbital velocity required at surface Sv m/sec	Mean orbital Velocity Vo m/sec	(Vs – Vo) m/sec.
Io	8.94 E + 22	1815000	3.55	0.004	1.04	4.216 E + 8	?	1.769138 = 152853 sec	1812	17330	10806
Europa	4.8 E + 22	1569000	3.01	0.009	1.47	6.909 E + 8	?	3.551181 = 306822	1428	13740	14396
Gnymede	1.48 E + 23	2631000	1.94	0.002	1.195	1.07 E + 9	?	7.154553 = 618153 sec	1937	10880	17256
Callisto	1.08 E + 23	2403000	1.86	0.007	1.281	1.883 E + 9	?	16.68902 = 1443931 sec	1731	8210	19926

Miraculous relationship of distance and exponents of (Vs-Vo) data that helped to form a single approximation.

	$d/(Vs-Vo)$	$d/(Vs-Vo)^2$	$d/(Vs-Vo)^3$	$d/(Vs-Vo)^4$	$d/(Vs-Vo)^5$	$d/(Vs-Vo)^6$	$d/(Vs-Vo)^7$	$d/(Vs-Vo)^8$
Mercury	2356939	95.92	0.0039	0.000000158	6.47E-12	2.63E-16	1.07E-20	4.36E-25
Venus	2891502	77.27	0.00206	0.000000055	1.47E-12	3.94E-17	1.05E-21	2.81E-26
Eaeth	3509620	82.24	0.001928	0.000000045	1.06E-12	2.48E-12	5.82E-22	1.36E-26
Mars	4718278	97.66	0.00202	0.000000041	8.66E-13	1.79E-17	3.71E-22	7.68E-27
Jupiter	13107612	220.74	0.00371	0.000000062	1.05E-12	1.78E-17	2.99E-22	5.04E-27
Saturn	22768397	362.67	0.00577	0.000000092	1.47E-12	2.33E-17	3.72E-22	5.92E-27
Uranus	43738421	666.3	0.01015	0.000000154	2.37E-12	3.59E-17	5.47E-22	8.33E-27
Neptune	67228358	1003.4	0.01497	0.000000223	3.34E-12	4.98E-17	7.43E-22	1.11E-26
Pluto	87343731	1290	0.019	0.000000281	4.16E-12	6.14E-17	9.07E-22	1.34E-26

	$d/(Vs-Vo)^9$	$d/(Vs-Vo)^{10}$	$d/(Vs-Vo)^{11}$	$d/(Vs-Vo)^{12}$	$d/(Vs-Vo)^{13}$	$d/(Vs-Vo)^{14}$	$d/(Vs-Vo)^{15}$	$d/(Vs-Vo)^{16}$
Mercury	1.77E-29	7.22E-34	2.94E-38	1.20E-42	4.87E-47	1.98E-51	8.07E-56	3.28E-60
Venus	7.52E-31	2.01E-35	5.37E-40	1.44E-44	3.84E-49	1.03E-53	2.74E-58	7.32E-63
Eaeth	3.20E-31	7.50E-36	1.76E-40	4.13E-45	9.68E-50	2.27E-54	5.32E-59	1.25E-63
Mars	1.59E-31	3.30E-36	6.81E-41	1.41E-45	2.92E-50	6.04E-55	1.25E-59	2.59E-64
Jupiter	8.48E-32	1.43E-36	2.40E-41	4.05E-46	6.82E-51	1.15E-55	1.93E-60	3.25E-65
Saturn	9.43E-32	1.50E-36	2.39E-41	3.81E-46	6.07E-51	9.67E-56	1.54E-60	2.45E-65
Uranus	1.27E-31	1.93E-36	2.94E-41	4.48E-46	6.83E-51	1.04E-55	1.59E-60	2.41E-65
Neptune	1.65E-31	2.47E-36	3.69E-41	5.50E-46	8.21E-51	1.22E-55	1.83E-60	2.73E-65
Pluto	1.98E-31	2.92E-36	4.32E-41	6.37E-46	9.41E-51	1.39E-55	2.05E-60	3.03E-65