

**ITS FROM BITS, BITS
FROM IT- NATURE THE
UNIVERSE AND M-THEORY-The
physical theory as a source of information.
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The existence of our species inside our home – The universe, has been dogged by a number of fundamental issues. Understanding it seems to be the greatest riddle that has been of such ridicule even to the best brains, drawn from the sheer Queerness displayed by its grandness. Questions like what/who is the universe? What is our place or role in the universe? When did it all begin? What will be the eventual fate of the universe? Questions of such a nature have forever dogged humanity. Understanding the universe at the deepest level remains the most ardent and the ultimate quest, for then we will have had a grasp of reality, hence the vivid picture nature has always displayed, behind our foggy consciousness.

Saucers, chariots and blankets with holes

Early it was thought that the planet was like a flat saucer, the horizon was viewed as a point where if reached one fell over, the sun, planets were said to go round the earth this bore Geocentrism. The sun was a fiery god who was dragged across the sky on a chariot and went to sleep in the evening, The blanket he used had some holes, From these light leaked, They were thought to be stars.

In some societies the universe was said to consist of Earth, Fire, wind and Water, a fifth element so called quintessence was added. Quintessence was the unknown mystical force. making up everything. It was through the study of nature that man conquered the environment, and use these elements to his advantage, Sometimes it was not always so, Nature won whilst he lost leading even to

extinction of some members. Nature since then was deemed to possess intelligence. Natural intelligence enabled nature to be self sufficient in all its mechanical processes. Empedocles' (490-430 BCE) wrote of a system of four elements-fire, water, earth air. After critical thought the conclusion –Nothing comes to be or perishes, but these elements suffer continual arrangement.

The skies become smaller

Curiosity led man to study the stars, Creativity enhanced by semblance of what he saw around, the stellar formations got their names after animals, heroes and other phenomena observed, Henceforth constellations got their names, through reductionism the huge vast night sky seemed 'smaller'. Unravelling in the mind of man the twelve constellations were mooted. Stars could be accurately pinpointed, into smaller, Comprehensible Bits. Some like the Pole stars were used as terrestrial navigation points. Some were used as seasonal clocks, their rising or setting meant the onset of climatic trends like rain, this defined human activities like farming. The periodicity of the sun inspired the birth of the clock, It defined day and night, these were events which alternated cyclically, At the equator these lasted equally as long, Time was coined as the duration of each of these events, A similar 12 point graduation of these was sought in tandem with the larger Celestial clock. The Solar clock was born. Having studied the cosmic events and inferred that they had a metaphysical impact on man, maybe these heavenly bodies depicted reality. Maybe man in his limited consciousness- 5 senses was a copy of the reality. The quest had just began, The observations-stars and planets-, which ironically means wanderer. Planets and the sun each played out the same rhythmic motion pattern above with highly simulated precision annually that each cycle

was a mirror copy of the next. Everything was in sync. The very large and small were related despite the vast distances.

The universe

The precision greatly awed man, to perceive the ultimate reality of nature; major lead was employed-Study nature how nature worked. An art of critical thought was conceived philosophy, taking on different forms each specialized into different spheres largely revolving on human life and its relation to the different aspects nature divulged. Practices like culture, medicine and art emerged but all these were paths that led to deeper knowledge. Knowledge was the ultimate psychological result of perception learning and critical reason.

The most grand was the study of nature, natural philosophy came up. It asserted that nature was unity (one) despite all the phenomena it displayed. The phenomena though in its plurality or multiplicity existed inexhaustively each as diverse units making up the grand picture. At the most fundamental level nature was intricately jointed.

The highly precise motion of the celestial bodies was attributed to a fifth unchanging element quintessence. This was the pure energy that was the universe, and the other four worked strictly within its realm.

The idea of the universe was coined; the high efficiency and precision displayed by nature at these grand scales meant it was pure and perfect. Now not only in Cosmology-Study of stars and galaxies but in virtually all facets of philosophy. Did the universe feature as an entity forming the irreducible basis of thought. This too formed the basis of natural philosophy. The philosophy of the universe is thus wholly expressed in nature. Nature too expressed the mechanical structure of the universe at its deepest foundational tenets. The phenomena

is perceptible as information leading to reality, in which all matter and energy would in a basic sense exist, thought not as perfect as the foundational principle-The universe.

Everything that is in nature must also exist in the universe; everything that is in the universe must also exist in nature. A fully fundamental description of either at the most fundamental level suffices as a full explanation of the other. The two quantities exist dually-hand in hand coherently as one at the most fundamental and complex level.

Truth, order, beauty-reality. When a truth is not always equal to reality.

Upon closer scrutiny, the working of matter revealed loads of information. The rational investigation by these natural philosophers then called astronomers. What had been perceived as a truth in human thought perception -The Geocentric model was abolished. Copernicus (1473-1543) developed the heliocentric model from natural inferences. Not only did the earth orbit the sun but also did the planets. Reality dawned on the issue. The heliocentric model was conceived in human minds but it had long existed that way. A truth embedded in fundamental physics survives its test as reality.

Natural philosophy gets a name

in the 17th century Sir Isaac Newton studied nature namely, light -Optics and Gravity. He published text- Mathematical principles of natural philosophy. This meant that nature expressed itself its depth mathematically. Another fundamental approach to natural philosophy was invented-The use of math's, And at its heart lay numbers, these made up the small bits that completed the larger ensemble. A form of informed speculation emanated-Theoretical physics. The mathematical order in the universe could be put in form of axioms later on called physical theories. These were abstract forms of portraying natural reality. A

natural reality hence the universe had to have a mathematical presentation. The theory served as a predictive tool to complement physics. They were eternally entangled the physics axiom (Logical statement) had to be posited with a mathematical adjoint. Like a shadow never to be left behind. One complementing the other. Everything in nature, including the universe must have a mathematical presentation. Newton after Leibnitz formulated calculus to manipulate what he perceived as flux and fluxions. The flux was the IT and the fluxions the BITS, The motion of the fluxions had an effect on the flux, neither existed independently but in tandem each a complement of the other. From the equations came Physical constants that were universal.

A strange revelation-The double life of matter or a double world existing as one?

Light was discovered to have a wave and corpuscular nature. No matter how rigid a physicist working on Corpuscular theory, the wave theory flauntatiously appeared. Similarly one working on wave theory as a form, the Corpuscular theory appeared as a function. .

Chemistry Physics gave birth to chemistry, the separation four elements-earths, fire, wind and water, relationships were sought. The gaseous representation of our planet was hatched. The unknown bulk of the atmosphere was broken into discernible quantities Bits of information, each separated into its evident role, and for example Oxygen was isolated as the gas aiding combustion. The new found wealth of information was put on paper-The periodic table of elements came to be. The table told us more about an element. Chemical formulas were algorithms which enabled us to configure, and manipulate the chemicals to simpler or more complex lattice arrangements.

Biology in turn studied how atoms in these chemicals interacted to compose what was perceived as life-The unique ordered and differentiated patterns that made the molecules which in turn made cells then membranes, tissues organs and how organ systems made up organisms. The working in a perfect ensemble in the diverse differentiated and specialized forms evident in our environment. Biology itself was terrestrial-Dealing only with planet earth, and highly confined itself to carbon based life. In 1952 The Discovery of DNA, led to the fundamental discovery of Binary information as very useful in life, but it could not exist alone it required the cell nucleolus to execute the genotypic and phenotypic code. Phenotypic data was input from the environment, this enabled, traits that are deemed fit, to enable the organism survive in the variable environment. This intelligent process enables survival for the fittest of the species, while at the same time shedding off recessive traits as a means of regulation. The information is coded in the ribosomes using a chemical RNA, this helps in replication-production of copies of the organism. The data is coded into analog Bits represented chemically by the chemicals Adenine, Guanine, Cytosine and and Guanine. These algorithmically arranged chemicals-Bits determine the eventual outcome of the organism, which in a sense to a large factor resembles the data in the DNA.

How nature and our planet codes.

Nature codes information in the form of matter and energy. If an entity is not evident as matter then it exists as energy, the reverse is also true. Energy and mass are related via Einstein's famous energy-Mass equivalence principle. This phenomenon is visible concurrently. The IT may be a photon in particle form; the bits may be the signal –The Colour spectrum obtained after splitting using a prism. These Bits when

combined bear semblance to the photon .As these fundamental entities existed simultaneously, on the simplest level as two channels superposed as one, losslessly .Then nature and the universe is effortlessly able to carry out quantum computing .Our planet largely gets energy from the Sun. This is converted largely into Biomass using the Carbon and Hydrological cycle. These are eternally cyclic processes. Oceanic Water plays host to photoplanktons, which form a highly efficient photosynthetic surface. 99.99 % of the water is stored in the polar ice caps, this melts when the ecosystem is stressed ,adding water thus increasing the oceans surface area for hastening the Fast carbon process hence self regulating, displaying self sustenance. Thus the planet is an intelligent transducer of solar energy .computing it into other forms that are readily utilized by life on earth.

MIRROR SYMMETRY, EXTRA DIMENSIONS AND REALITY.

Imagine looking into a mirror you'd see a 2 Dimensional image of yourself. This is a true image-Length and width. But is it really you? In physics the answer is negative reality, because through touch you would feel yourself hence, texture .This is reality. An extra dimension-texture/depth is the 3rd Dimension.-An extra dimension added to truth, enabling one to get a complete rational picture of reality. This is also evident in numbers drawn on a Cartesian plane.

Still reducing.....closing in on reality

as the large physical universe was 'broken' down into smaller comprehensible bits. Quantum mechanics was discovered to be the Mechanical principle of the universe and all possibilities within. Though queer it worked and did so precisely. With the universe at unity the very small –quarks worked in unison and as much as the very large, on quantum scales.

Dark matter and Dark energy did little to reverse the story. The universe was always quantum .If the universe function was Quantum, and then too would be its form. Relativity is thus a theory of prevalence in the unique quantum scenarios presented in the landscape.

Of lions, tails and Heads—Seeing the grand picture....

Albert Einstein in his gallant quest for a theory of the universe, once remarked using the metaphor that he had seen what seemed to be a very Big lion, he had seen its tail, sometimes its head would pop into the picture but the sighting of either could confirm the complete sighting of the lion. Einstein concentrated on relativity, largely ignoring Quantum mechanics as the weird highly uncertain world of the very small.

To have seen the lion in completeness, you must have seen its head, body and tail. Tail-less lions are a freak in our environment too are headless ones.

The ultimate quest.....

At the heart of physics lay the study of the universe, using highly level mathematics the rubric of the universe unraveled but in the most unusual concept String Theory. The vast energy scales which lay in the platonic realm were now within reach. The physical universe must have mathematical existence. Maths was made up of bit called digits or numbers. These will eventually provide the purest of ideas, which the universe is made up.

Theoretical physics proved to be a fundamental tool for simulating natural phenomena, way far out of our grasp perfectly.

The theory called ,M-theory Stick paradox and physics beyond the Standard model

Imagine having one stick, By breaking the stick into many other small pieces ,one got many

other bits If continued eventually one ended with one identical stick though many orders of magnitude shorter ,requiring a lot of energy to break. In matter when this point is reached, an atom consists of 3 Elementary particles-an electron, Proton and Neutron. When further split. Quarks are obtained. At basic levels they sit in groups of three. If you try to separate any of them the force of attraction grows stronger mediated by a gauge Boson the Gluon. This is termed Quark confinement in Quantum Chromo dynamics.

ORDER AND SYMMETRY IN THE UNIVERSE

Three generations of matter (fermions)

	I	II	III	
mass	2.4 MeV/c ²	1.27 GeV/c ²	171.2 GeV/c ²	0
charge	2/3	2/3	2/3	0
spin	1/2	1/2	1/2	1
name	u up	c charm	t top	γ photon
	d down	s strange	b bottom	g gluon
	ν_e electron neutrino	ν_μ muon neutrino	ν_τ tau neutrino	Z⁰ Z boson
	e electron	μ muon	τ tau	W[±] W boson

Quarks (left side), Leptons (left side), Gauge bosons (right side)

The standard model of Particle physics

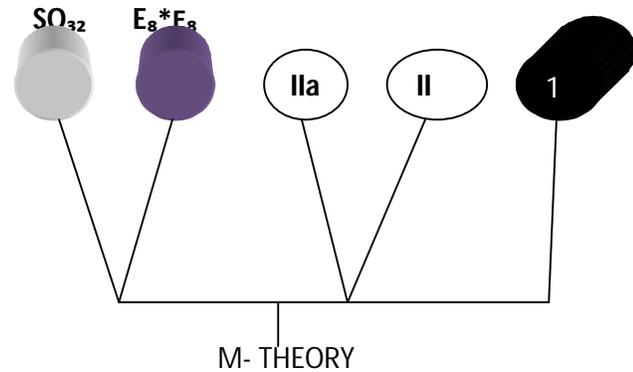
This has inspired string theory as a concept of fully describing everything, borne out of the fact that the tiny bits making the big universe were semblances of it-The universe. The universe and everything were musical. Light itself is musical colour.

The discovery of M-theory.

At first there were five superstring theories, but later proved to be one underlying Grand theory coined M-theory. These energized string were so identical, they made up a fabric, Space, time which in turn made the universe. The energy and Quantum information in the Superstrings was transferred internally at minimal entropy to

the entire fabric. The fabric too oscillated with vigor much more like a Membrane. The membrane was 11 Dimensional. This is the ultimate Hyper Quantum computing surface displaying fundamental Reality, Our universe is just a mirror truth written in just 3 Dimensions.

THE STRUCTURE OF M-THEORY



UNIQUENESS AND APPEAL.

M-THEORY is both logical and intuitive, Questions like Five theories as one ?Why do we have five Carpals (fingers) and five Tarsals(toes) this repeated on both limbs, In medicine physiologically we basically have five systems namely-Nervous ,Reproductive, Respiratory digestive and Circulatory. Why does our planet have Five Geopolitical continents? Why do the first Five planets of our solar system have to be largely solid not gaseous. Why did the 5th Planet –Jupiter, have to be the largest?

These five string theories are related via dualities into three, then the three into one called M- theory. Does this too simulate the superposition we view as one –The 3 Dimensional world, after the brain computes the 11 dimensions of Reality down to the three Dimensions?

HOW TO MAKE M-THEORY WORK

The fear of the number 0 in physics.

The most dreaded event in physics is the approach towards Zero. The multiplication of

any labyrinthic mathematical structure by Zero no matter how gallant instantly kills the theory.

Why Zero is just like a walk in the park to M-theory physics.

Being basically a concept of string, for the highest energy to be released, tension has to be infinitely high, Infinity exists but is ambiguous. The energy is directly proportional to the frequency, so the fundamental frequency has to be infinitely high. Literally a guitar string tension can be adjusted –Mechanically, via tuning pegs or thermally-cooling the string to obtain higher frequencies-theory has the superstring at Supertension, To emit the highest frequencies hence energy. The Superstring sits comfortably naturally at Absolute zero-0 K. Hence by logic the M-brane, the brane surface in M-theory cosmology exists at a lower temperature state akin to a systole of 0 K. At such temperature the entropy is very low and the universe is a pure superconductor. The thermal entropy is emitted within the universe, recycled and returns the M-brane to its initial super cooled state (similar to Diastole). The universe computes within itself at higher dimensions. This beats to null the classical notion that A perpetual motion machine is impossible, due to thermodynamic entropy-which is said to increase with time rendering a mechanical system more inefficient. This is the reverse in nature, Entropy (disorder) in nature decreases the deeper one delves into reality. The Operations on the 11 dimension M-brane are picked up as Quantum fluctuations on the Cosmic background radiation map below barely going above 2.7 Kelvin

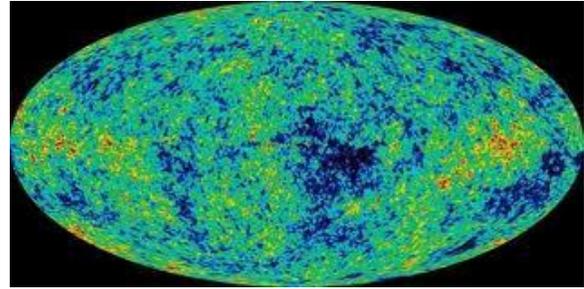


Image courtesy NASA.

If the 11 Dimensional universe is in fact a Superconductor, The above map would not be a remnant of the hypothesised 'Big bang' event but a Live event happening in quantum mechanics. If this too is reality then an event occurring in our galactic core some 33,000 lyrs away, with the universe superconducting, we would see it as it happens-Live. The big bang itself is a stepping stone based on temporal reductionism

When the cat outgrew its skin, The 'strange' methuselah star.

A star HD 140283, some 190.2 lyrs away has been proved to be older than the Big-Bang model of the genesis of the universe by as much as $\pm 800,000,000$ years, temporal reductionism itself has its limits due to the cosmic horizon. A hypothetical deduction on the nascence of the physical universe would just be beautiful on paper not in nature. The thought of not having the universe is wild, its like thinking that the first month birthday is its first existence. In reality that's a big no The child actually existed for 9-months in its mothers womb. its birth was just an existence in our environment. Its akin to seeing the sun rise and thinking you are the first to observe the event. The Topology of our planet allows others to have experienced sunrise before you did, even a sunset.

Dimensions in M-theory.

Dimensions are fluid points in spacetime that change with our point of view, Ranging from 0 dimensions-Particles, 1 Dimensional-strings to

11 –The critical limit.

How the universe computes mathematically

The universe uses the Quantum states $\langle 1/\pi$ and $\pi \rangle$. Generating states on a hilbert space resembling the states themselves.

M-THEORY ON A CIRCLE

PI (π) is a ratio(Relationship between two numbers) defining the circle. It can be sheared along any point yielding two symmetrical semicircles each having 11 points.In fact in M-theory the circle is treated as a string.

WHY ARE STRINGS INVISIBLE

The tension in the strings is so high.This makes the strings have an infinitely low mass per cross section area,hence are invisible.

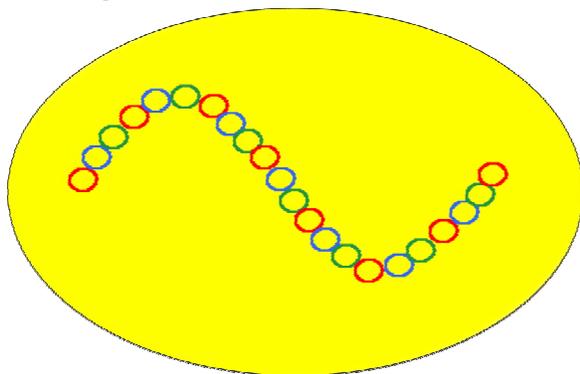
UNDERSTANDING THE GEOMETRY

In geometry the shortest distance between any two points is a straight line line. **What is a line** ?- in art it is a setof dots. **What are dots** ?— miniature circles.

THE WAVELENGTH- λ

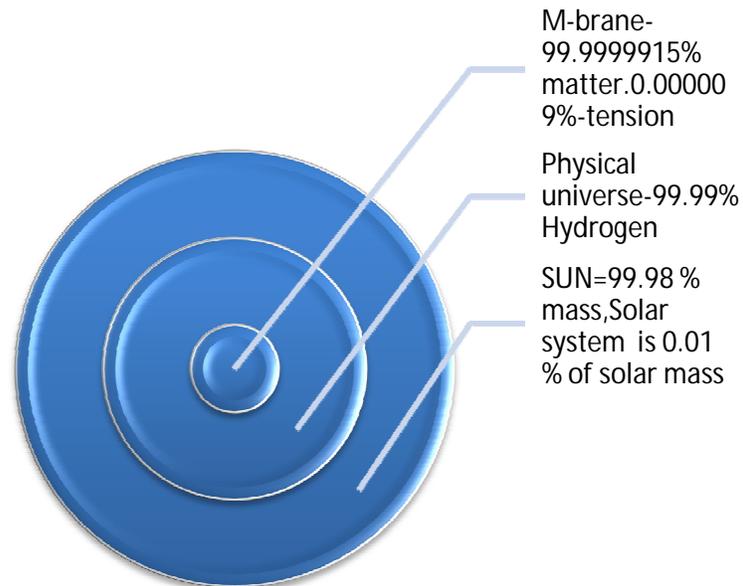
All of physics,in essence ,Quantum theory cannot exist in theory or practice without displaying this allegory.

what primal information lay in the wavelength?



the shortest distance between any two points is a straight line.but in the wavelength,observing symmetry they are three.They are further enclosed in eleven other points.

EXAMPLES OF HOW THE UNIVERSE COMPUTES AND ITS ANALOG OUTPUT IS IN THE FORM OF MATTER AND MASS.



THE SOLAR SYSTEM AND M-THEORY.

All the matter in the solar system makes up a meager 0.002 % by value in relation to the sun. Then sun makes up and thus conserves 99.998 %. Did the Solar system simply unwind from the sun ?

SUPERMASSIVE BLACKHOLES AND INFORMATION.

Galactic cores have black holes that are very heavy. The entire mass of stars, like 'genetic' information that determines the morphology of the structure, is stored herein. Information is stored as mass and energy in point spaces. Blackholes too compute within the range of their entropy, The Bekenstein-Hawking entropy is a physical value, at point singularity. This is where Geometry meets thermodynamics. A queer relation also occurs between the sun and our galactic core, The sun orbits the Supermassive blackhole once in a full circle with period of 220 Million years. Once again bringing out PI. What did pi have to do with the universe ?