

THE WORLD BEYOND FERMIONS

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(Received on 30th September 2013)

ABSTRACT

What are the strings or atoms of space made of ? Based on Vedic wisdom \Rta , high energy state and Satya, low energy state (the D-branes) are manifested from Salila (energy in inertia) by the action of Supreme power in 10th dimension. \Rta in high energy state can move and interact with Satya. As a result Dhāta (string or atom of space) is formed which is the basic unit of matter. PanchaTanmātras (five point particles) of force and matter, the micro-causatives contribute to the journey of \Rta to Satya. These five tanmātras behave as seed-like structures that led to the formation of cosmos on macro-level. These are the truly fundamental building blocks of the universe.

INTRODUCTION

String Theory and its alternatives wriggle deeper in the works of the material world than any previous theory. String Theory proposes that matter, force, space and time are composed of tiny vibrating strings. Quantum Theory describes that matter and force come in indivisible units. Quantum Theory of gravity describes space in terms of linked atoms of volume. It unites standard Quantum Theory with Einstein's Theory of relativity.

What are strings or atoms of space made of? Physicists can't answer that yet. These are the truly fundamental building blocks of the universe discussed in Veda. All the Vedic knowledge according to Vedic seers was scientific, considering that knowledge is systematic and capable of further expansions in the light of constant

Key words: String, Space atom, Dhāta, Tanmātras, Point particles, D-branes.

enlargement. Several ancient civilizations possessed secrets of science, some of which modern science recovered, extended and made more rich and precise but others are even now being recovered. An attempt has been made to see parallels between Vedic scientific tradition and modern scientific tradition. Some effort is made to make therein to get some light, some glimpses, some break through and to unify.

Veda and modern science are unanimous in stating that Salila or energy, respective nouns used by the two, denote the substance that happens to be the fundamental cause behind the building up of the material universe. The two are also in full agreement that this cause suffers from inertia incapable of acting or doing anything on its own.

POWER IN 10th DIMENSION (Puruṣa):

When ardour (fierce heat) brings the material cause producing all from the abode of resolution, what were there other causes by the side of material cause, what were the covering causes by the side of this ardour and what was the chief cause to cover all the activities¹.

There are first heat and action in the vast space of ocean. This heat springs out from the action and the action originated by divinity which they accept as Supreme power².

According to Veda the abode of resolution is Salila and chief cause is the Supreme power, Puruṣa. Puruṣa is Omnipotent, Omnipresent and Omniscient. He is covering Bhumī (universe) all around and beyond this, He is in tenfinger form (10th dimension)³.

Thus according to Veda Puruṣa is the Supreme power in 10th dimension. Lorenz invariance requires the critical space-time dimension to be 10 in Super string theory⁴. It is the efficient cause of the universe. *Puruṣa even though instrumental in creating the cosmic system, does not interfere in its running.* So, the system created is perfect in all respects and its perfection takes care of it under the laws of creation.

PRIMORDIAL ENERGY (Salila):

Earlier there was darkness. Everything was enveloped in darkness. All this was undifferentiated Salila covered by emptiness. All is hidden, formless which is continuously changing. Out of this one was born by the mahima of tapaḥ⁵.

Tapaḥ means to heat. Salila of veda and energy of modern science are the two synonyms of the same eternally present material cause of creation which is inert by itself. Conservation is the characteristic of Salila. Salila is excited by the mahima of Tapaḥ. The root word of mahima is mah means to excite. Here the initial work of Salila by heat is called mahima that is excitation of Salila which is based on an intelligent process⁶. The term mahima or mahat also reveals that the product of transformation of Salila was huge. Modern physics stated such a transformation as

the work performed.

Salila in a state of rest could not do anything on its own. The excitation or stimulus resulted in the generation of a sort of pulsation or wave like action in Salila. This stimulus came to be caused through rise in temperature. According to modern science the rise in temperature effected generation of agitation or motion. At this stage the first step of quantum physics appeared. In the vast expanse of Salila at rest, the stimulus caused a change in the part so effected. *A quantum of Salila became operational and the stimulus started expressing itself in the multiplicity of the quantum unit both on the side of the temperature as well as wave motion.*

D-BRANES (Ṛta and Satya):

Ṛta and Satya were born of Tapah from Salila. Then ratri (night) was born. Then movements of the ocean⁷. From the movements of ocean samvatsara (time) was born. He is the ordainer of the ahoratri. He is the ruler of every moment⁸.

Rasmi was extended horizontally up and down. There was something above (Ṛta) and there was something below (Satya). Retas (seed), the intrinsic power was below. The begetter, goal of creation was above⁹

Based on vedic knowledge Ṛta and Satya are the two manifestations from excited Salila. Ṛta is derived from the root word Ṛ means gati (motion). In modern science Ṛta mean to say energy at rest changed to kinetic. Ṛta and Satya are the two branes. Ṛta is high energy state where as Satya is low energy state. The noun Satya is derived by adding ya to sat. Satya is a vedic term for intrinsic energy. Ṛta is the proper state of manifestation for which it has been aroused. It can move and interact with Satya. Based on brane based approach proposed by Randall and Sundrum¹⁰ it can be interpreted that Ṛta and Satya are the two D-branes that can interact along 10th dimension.

It is clear that creation is impelled by the intrinsic power from below (low energy state). The goal of creation from above (high energy state) rolls down to manifest. *Prior to the formation of Ṛta and Satya, all parts of the universe are causally connected.* This explains homogeneity and isotopic problems. Similar view is expressed in Inflation theory which states that for a brief period inflation was at high energy state (false vacuum), cause inflation and then rolls down to the low energy state.

FIVE POINT PARTICLES (Panchatanmātras):

He, who certainly knows categorically as that what was the primeval cause of the universe prior to this state, which is known by the learned men only, accepted as knower of the science of cosmic order¹¹. Whence does spring Indra, whence does spring Soma, whence does spring Agni, whence come into existence Tvaṣṭa and whence does come to its origin, Dhāta¹².

According to vedic wisdom Indra, Soma, Agni, Tvaṣṭa and Dhāta are five tanmātras (point particles), the primeval cause of the universe. These are the micro-causatives which contribute to the journey from Ṛta to Satya in five stages. Tanmātra is a compound of two words, tat+mātra means the smallest unit of measure. Sāṅkhya¹³ and Agnimahāpurānam¹⁴ also tells the same that the five tanmātras are emerged from Ahankāra which is synonym for Ṛta in veda. These five tanmātras are perceptible to beings of superior order, but unapprehended by the grosser senses of mankind. These are productions and also productive. Here it is clear that the activity occurs at tanmātra level. The present physicists also state that energy is quantized and it has been found to act at quantum level.

It may assuredly be concluded that the material creator of the universe gets initiated at tanmātra or quantum level. *The five tanmātras are the micro-causatives which contribute to the creation of matter.* The character of each of their respective contribution is dissimilar to the other and yet complimentary towards the end purpose. At each stage tanmātra appears in a different garb. Vedas specify the process of manifestation in five separate heads of causatives, each making a distinct contribution not common with the rest of the four. The effect caused by each one of them is complimentary in nature to transform energy into matter after the final interaction goes.

In vedas each of the smallest unit of measure is named as tanmātra. The mātra of energy is similar to the point particle¹⁴ in modern science and corresponds to a single creation operator.

Indra springs from Indra. Soma takes origin from Soma. Agni comes to rise from Agni. Tvaṣṭa from tvaṣṭa and Dhāta from Dhātār¹⁵.

As stated above the causatives of the five tanmātras were held within the excited Salila itself *The excited Salila was nothing but a hyperplane of the two D-branes, Ṛta and Styā in combined state.* Similar view was expressed in brane concept that N parallel D-branes merge into a single hyperplane, additional massless vector boson states emerge, which yield a gauge theory based on U(N)¹⁶. Thus the excited Salila covers the entire range of the creation. It details the process of creation by enumerating causatives of creation. These have two levels of working, the quantum level and the relativity level. *The mātra of energy or point particle is fermion. Indra, Soma, Agni and Tvaṣṭa mātras are bosonic. The fermionic and bosonic interactions finally led to the creation of Dhāta.* The term that represents Dhāta in modern science is string, the basic unit of matter. Gervais and Sakita¹⁷ showed that an extension of the usual bosonic action possessed a symmetry that converted into fermions. It came into light when it was proposed that string model possessed 10-dimensional space-time super symmetry.

Einstein brought into focus with his famous formula $E=mc^2$, thereby clarifying that finality of energy as the sole existence and matter merely its transformation.

Here, it is obvious that vedic scientific tradition and modern scientific tradition are very similar. Einstein expression of the scientific position by way of a mathematical equation itself is proof enough of the authenticity of the Vedic vision.

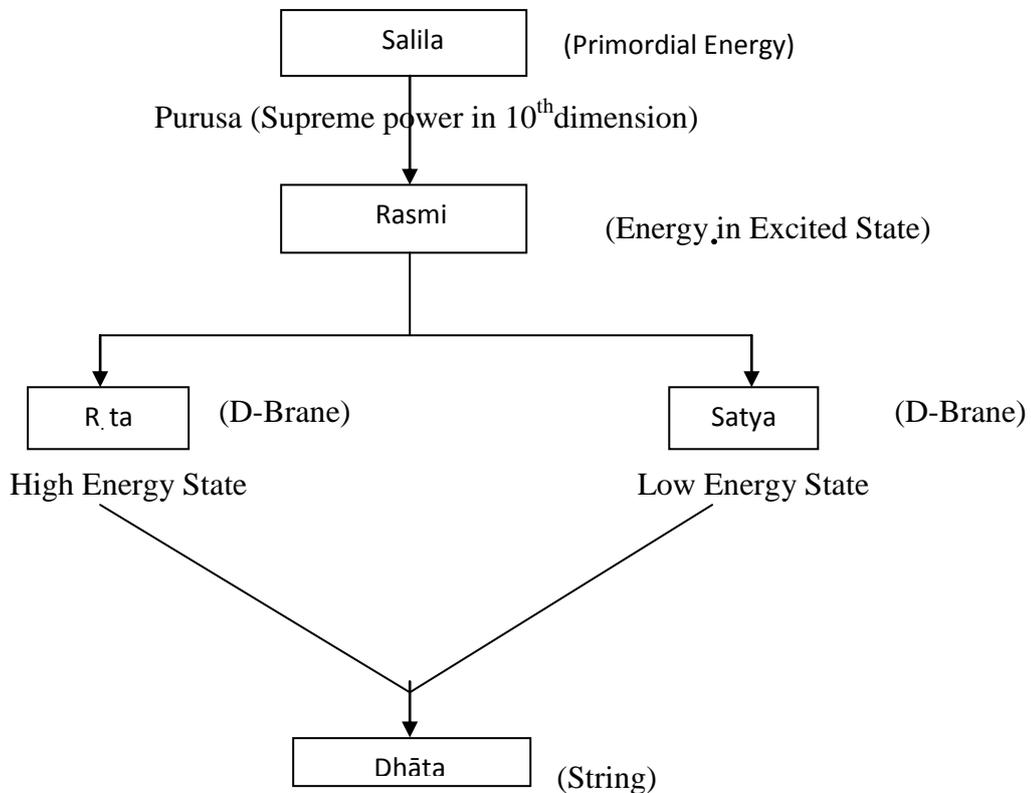
As per vedic model R̥ta in its appearance based on a group of transformations, a point particle (mātra of energy) formed by unit force of repulsion (Indra), assumed a point charge (Soma), which is in motion (Agni) and which is finally transformed into a string (Dhāta) by interaction with intrinsic power (Satya) due to unit force of attraction (Tvaṣṭa). These five tanmātras behave as seed like structures that led to the formation of cosmos on macro-level. Thus, the five tanmātras are the truly fundamental building blocks of the material universe.

ACKNOWLEDGEMENT:

The author is indebted to Professor Sri K.V.Krishna Murthy, Chairman, Institute of Scientific Research On Vedas (I-SERVE), Hyderabad, for valuable guidance and great support

CONCLUSION:

VEDIC MODEL



At present very little is known about membrane interactions. Excitations of D-branes may be given in terms of strings. But there are large gaps in understanding of

how membranes interact with each other. Here an attempt has been made to seek a probable solution from vedic scientific knowledge therein to get some break through to unify, one of the greatest scientific challenges of our time.

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