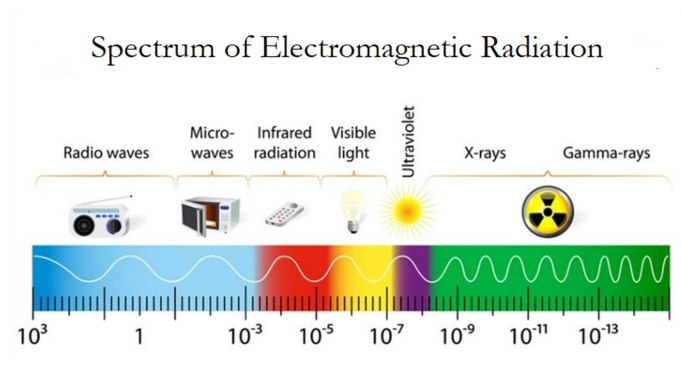


VEDA AND BIG BANG THEORY

*Dr.M.L.Raja, M.B.,B.S.,D.O., (M.A. History), (DIAE),

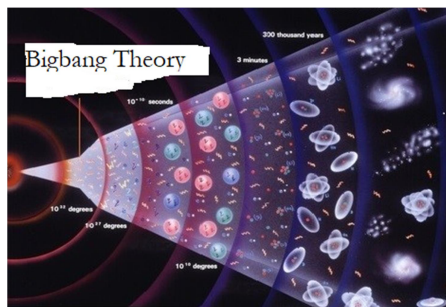
Introduction

This all happened when I was the Head of Department i/c (HOD i/c) of Ophthalmology (Eye), in IRT Perundurai Medical College, Tamilnadu State, in 2012. On an interesting day, I was explaining my brilliant students of pre final year M.B.,B.S., about the properties of light rays. Since the sole function of our eyes is to perceive the light rays reflected from objects, converting these light energy into electrical signals at the photoreceptors present in the retinal layer of eyes and these electric signals reach the brain by transmission through nerves and thus we see the objects and field in front of us. Hence, I have to teach them the basic properties of light rays. I explained them what we perceive as visible light rays are of 397 to 723 nanometres of wavelength in the spectrum of electromagnetic radiation. This visible light rays are only a minute portion in the wide spectrum of electromagnetic radiation. Only 397 to 723 nanometres alone can be perceived by human beings and the remaining major portion are invisible to us. Then I proceed to explain about the electromagnetic radiation.



Big Bang Theory

The creation of our Universe is often explained by Big Bang Theory. As per this theory, a tiny minute spot with a temperature at zero Kelvin (-273.15° of Celsius), expands suddenly with a big bang due to the rise of its temperature to 5.5 billion degrees of Celsius within a very minute fraction of time in Nano seconds. It is about 366 times more than the temperature that is present within the central core of Sun.



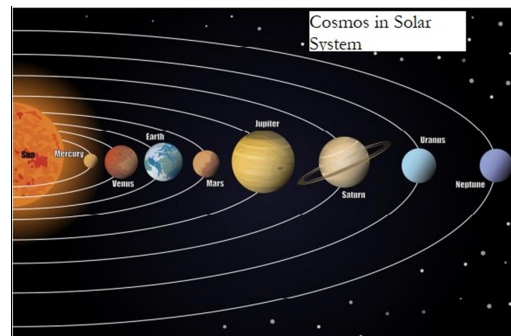
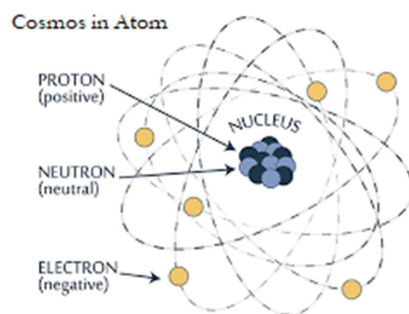
*Director, AVINASH (Academy on Vibrant National Arts and Scientific Heritage), e mail id mlrsreekrishna@gmail.com, Contact Numbers 9443370129, 6382166863

At this stage Photons, Electrons, Neutrino and other anti-particles are formed and the weak nuclear force becomes a separate entity from the four fundamental forces, i.e. weak and strong nuclear forces, electromagnetic force and gravitational force. Then, on slight reduction of temperature within Nano seconds, protons and neutrons are formed and the strong nuclear force becomes a distinct entity. Then temperature comes down further and Helium atom, Deuterium and Tritium isotopes are formed and the electromagnetic force becomes another entity. Finally molecules, compounds and celestial objects formed due to the cooling effect and the gravitational force appeared. Thus, the electromagnetic force is one of the four fundamental forces that becomes a distinct entity within seconds of big bang expansion of the tiny spot into our Universe. This electromagnetic force is responsible for the generation of electromagnetic radiation of which visible light rays are a minute part. Our Earth receives electromagnetic radiation from the Sun. This was first revealed in 1897 itself, by Dr. Jagadish Chandra Bose, the great scientist of our Nation. However, the scientists came to understand this, only after 1942. Thus Sir. Neville Francis Mott, who got Nobel in 1977 mentioned that Dr. J.C.Bose lived ahead of 60 years in Science.

Four Questions

When I was explaining the subject and proceeding further, an enthusiastic and bright student of mine raised her hand. I asked her to proceed. Then she requested me a few explanations in Big Bang Theory. Her questions were,

1. If the Universe is formed with a big bang and raise of a temperature of a tiny spot, then what surrounds that tiny spot?
2. As per Sir Isaac Newton and Albert Einstein, all things remain as such, unless acted upon by some external force. Then what is the external force that caused the raise of temperature and expansion of the tiny spot into Universe?
3. The Universe is in order and is of cosmos, not in chaos and does not behave in a haphazard way. There is regularity, orderly occurrence of events with direction and purpose. Then who or which one gives this regularity, perfect order with purpose and direction?



4. The Big Bang Theory is accounting for the material cause of the Universe, i.e. sub atomic particles, atoms, molecules and celestial bodies, but not for the non-material cause for life, mind, thoughts, feelings and intellectual consciousness. Then who or which one is the source for these non-material aspects?

I am a Physician and not a Physicist to explain these ingenious and brilliant questions in the field of Advanced Physics. Hence I told her that I would verify and explain her latter. I have tried to get answers from resource personalities whom I know personally and also searching through internet. Even after a week, there was no progress.

Sankhya Philosophy

At the same time, I was reading the life history, lectures and writings of Swami Vivekananda. In that Eight volumes of the book, at many places Swami Vivekananda explained and quoted the Sankhya Philosophy of Kapila Maharishi. Hence, I have started reading the Sankhya Philosophy of Kapila Maharishi. At the 61st verse of 1st Chapter, it is mentioned as follows.

सत्त्व रजस् तमसां सांय अवस्था प्रकृतिः

where 1. सत्त्व is abstract noun of सत् which means Being, Existence, Reality – The Static Energy, 2. रजस् - रज्ज means Motion (Kinesis), the Kinetic Energy, 3. तमस् - तम् means Inclination, Transformation, Condensation – The Potential Energy i.e. The Matter, 4. सांय Abstract Noun of सम which means same, equal, 5. अवस्था – The state of being, In what manner one exists, 6. प्रकृतिः - उपादान कारण - The Material cause of the Universe, The Total Energy,

Thus, the verse clearly mentions that सत्त्व the Static Energy, रजस् the Kinetic Energy and तमस् the Potential Energy (Matter) सम are equal and same.

Thus, the Static Energy, Kinetic Energy and the Potential Energy are one and the same and the Total Energy will always be the same in quantity. This is Modern Science's "the conservation of energy and energy is neither created nor destroyed and can only be transformed from one form to another form and the total remains same." On reading this verse of Sankhya Philosophy, I recollected in my mind the Big Bang Theory and compare this verse with that Theory. Now I realised that the Static Energy of a tiny spot became Kinetic Energy, on a sudden rise of temperature with big bang. This Kinetic Energy on cooling down transformed and condensed into matter i.e. the Potential Energy. When I realised this identical expression of Sankhya Philosophy and Big Bang Theory, there flashed through my mind, the Mantras of Purusha Sookta of Rg and Yajur Veda, where cosmology is dealt.

Veda Mantras

Rg Veda in Purusha Sookta (10th Mandala, 90th Sookta) in 3rd and 4th Mantra (Yajur Veda in 31:3 & 4), reveals as follows.

एतावानस्य महिमाऽतो ज्यायामश्च पुरुषः ।

पादोऽस्य विश्वा भूतानि त्रिपादस्य अमृतं दिवि ॥ (Rg Veda 10:90:3 & Yajur Veda 31:3)

त्रिपादूर्ध्व उदैत् पुरुषः पादोऽस्येहाभवत् पुनहः ।

ततो विश्वङ् व्यक्रामत् साशनानाशने अभि ॥ (Rg Veda 10:90:4 & Yajur Veda 31:4)

The meaning of these Mantras is "The magnitude of this Universe, of past, present and future, is great. However, the Greatness of Purusha: (Supreme Almighty or Supreme Energy or Force) is much greater than this (and is infinite). The entire Universe that exists come from a small portion of the total (one step, i.e. a small part) and the remaining portion (three steps i.e. immense) exists as such." (Rg Veda 10:90:3 & Yajur Veda 31:3). "The magnitude of Purusha: is infinite and is more than and incomparable to the part that come into our Universe and the remaining part, even both combined. The material (i.e. non-eating) and the non-material

(biological, eating) are created due to the ability of Purusha: and Purusha: is pervading these (all from all sides". (Rg Veda 10:90:4 & Yajur Veda 31:4).

Thus, these two Mantras give the answers to the four intelligent questions of my brilliant student clearly and precisely.

1. If the Universe is formed with a big bang and raise of a temperature of a tiny spot, then what surrounds that tiny spot is the first question. It is nothing but the same Static Energy (from which a minute portion expand with a big bang as our Universe), is the one that surrounds the tiny spot. The entire Universe that exists come from a small portion of the total (one step, i.e. a small part) and the remaining portion (three steps i.e. immense) exists as such." (Rg Veda 10:90:3 & Yajur Veda 31:3).
2. As per Sir Isaac Newton and Albert Einstein, all things remain as such, unless acted upon by some external force. Then what is the external force that caused the raise of temperature and expansion of the tiny spot into Universe is the second question. Purusha: (Supreme Almighty or Supreme Energy or Force) acts as a catalyst (that stimulates a reaction without participating in the reaction process) that caused the raise of temperature and expansion of the tiny spot into Universe. The material (i.e. non-eating) and the non-material (biological, eating) are created due to the ability of Purusha: (Rg Veda 10:90:4 & Yajur Veda 31:4).
3. The Universe is in order and is of cosmos, not in chaos and does not behave in a haphazard way. There is regularity, orderly occurrence of events with direction and purpose. Then who or which one gives this regularity, perfect order with purpose and direction is the third question. Since Purusha: is pervading the Universe in all sides, Purusha: is keeping the Universe in order and regularity and give the direction and purpose. Purusha: is pervading the Universe that come into existence and also the remaining part, from all sides". (Rg Veda 10:90:4 & Yajur Veda 31:4).
4. The Big Bang Theory is accounting for the material cause of the Universe, i.e. sub atomic particles, atoms, molecules and celestial bodies, but not for the non-material cause for life, mind, thoughts, feelings and intellectual consciousness. Then who or which one is the source for these non-material aspects is the fourth question. The material (non-eating, matter) and the non-material (eating, biological) are created due to the ability of Purusha: and hence Purusha: is the non-material cause for life, mind, thoughts, feelings and intellectual consciousness. The material (i.e. non-eating) and the non-material (biological, eating) are created due to the ability of Purusha:. (Rg Veda 10:90:4 & Yajur Veda 31:4).

Thus, I have successfully conveyed the scientific message of our ancient Rishies, as the answers to the four laudable questions of my knowledge seeking student.

Conclusion

Veda are often mentioned as Anadi and Sanatana, which means Veda are eternal and has no beginning and end. Further, it is a fact that Veda were revealed to the world at the very ancient period of time, by the great Rishies of our Nation. Hence, these Rishies are often called as Mantra Drushta, i.e. who has seen the Vedic Mantra and not as Mantra Karta i.e. the creator of Veda Mantra. This is because Veda Mantra are in subtle form and these Rishies realised and experienced them through their penance and for the benefit of mankind, they revealed them to the world. Though Gravitational Force is present since the creation of our Universe, but we can say that from such and such period of time, human beings came to understand this Gravitational

force. It is in the same way, though Veda are eternal, we can say the period at which these Veda were revealed to the world, as the Vedic Period.

Rg Veda mentions the River Sarasvati as the mighty river with floods and thus called as the Mother of floods, flowing from mountains to ocean in 13 Mantras directly as a River and Sarasvati is mentioned in multiple meanings including as a mighty river with full of water in 94 Mantras. Thus, Sarasvati River was flowing with full swing, with water touching both banks during Vedic Period of time. Mahabharata text of Veda Vyasa in Salya Parva mentions that the river Sarasvati was started drying up in one or two places. It may be the very early beginning of the process of drying up of Sarasvati River. The period of Mahabharata is at a few decades before the beginning of Kali yuga, as per the internal evidence in the text of Mahabharata of Veda Vyasa and also thorough many external evidence. Kali yuga began in 3101 B.C.E. as per the evidence shown by 436 Inscriptions distributed throughout our Nation. Thus, Vedic period, at the latest, is certainly before 5500 years before present. (3500 B.C.E.). This is the period at which Veda Mantra were revealed by Rishies to the world. Thus, even at the remotest antiquity itself, our Rishies clearly explained the cosmology and the process of creation of our Universe in a better and complete manner. Hence, these Rishies can be called as Rishi Scientists.

Thus all these narrations clearly proves the greatness of our Nation and our ancestor's admirable and adorable high knowledge and wisdom.