E-ISSN: 3048-6041 | Volume-1, Issue-10 | October 2024

Exploring Physics Concept in Sanskrit Literature

Bhaskar Mishra [1], Dr Vijay Bahadur [2]

[1] Research Scholar, C.M.P Degree College, Prayagraj

[2] Assistant Professor, C.M.P Degree College, Prayagraj

Abstract:

The Sanskrit Literature is the ocean of the entire knowledge of the world which explain to the diversified of Scientific ideology. In this sequencecy we get multiple theories of physics in Samskrit Literature. Like as Motion, Gravitation, Electricity, Light & Sound. etc. Advancement in science & technology have been the major reason for the development of human Civilization. Sanskrit Literature has been contributing to the field of Science and technology since ancient times. Even today, what we term as 'traditional knowledge' is actually based on scientific reasoning. In the Indian Knowledge System for keeping human life completely secure Rishies not prevalence of that science.

Introduction:

The complete nature & importance of Sanskrit Literature can be understood from this verse-

यः कश्चिद् कस्यचिद् धर्मो मनुना परिकीर्तितः।

स सर्वोऽभिहितो वेदे सर्वज्ञानमयो हि सः।।[1]

So that we can say articulate Samskrit Literature is the thesaurus of entire knowledge. In Samskrit the word of 'विज्ञान' is used for 'Science'-

'मोक्षे धीर्ज्ञानमन्यत्र विज्ञानं शिल्पशास्त्रयो'[2]

'ज्ञानविज्ञानतृप्तात्मा कूटस्थो विजितेन्द्रियः।

[1] मनुस्मृति 2.7

[2] शब्दकल्पद्रुम-भाग-4, पृष्ठ संख्या-382 से 383

युक्त इत्युच्यते योगी समलोष्टाश्मकाञ्चन: ।।'[3]

For the Origin of knowledge is saying-

'वैराग्यात् जायते ज्ञानम् ज्ञानाद्योग: प्रवर्तते ।'[4]

According to Modern Science the definition of science-

Science is a systematic discipline that builds and organises knowledge in the form of testable hypotheses and predictions about the world.[5]

And the Etymology of Science-

The word science has been used in Middle English since the 14th century in the sense of "the state of knowing". The word was borrowed from the Anglo-Norman language as the suffix -cience, which was borrowed from the Latin word scientia, meaning "knowledge, awareness, understanding". It is a noun derivative of the Latin sciens meaning "knowing", and undisputedly derived from the Latin sciō, the present participle scīre, meaning "to know".[6]

Thus, the explanation & Etymology of Science. In this order the main subject of science presented in the form of physics in Sanskrit grammar is as follows-

भौतिक=भू+क्त+ठक्-Relating to living beings[7]

Etymology of physics: *he word physics comes from the Greek word ἡ φύσις, meaning "nature".[8] Physics can also be defined as "that department of knowledge*

[3] श्रीमद्भगवद्गीता 6/8

[4] वायुपुराण-उत्तरभागे-11/36

[5] Heilbron, J.L.; et al. (2003). "Preface". *The Oxford Companion to the History of Modern Science*. New York: Oxford University Press. pp. vii–x.

[6] Science". Merriam-Webster Online Dictionary. Merriam-Webster, Inc. Archived from the original on 1 September 2019. Retrieved 16 October 2011. (Online)

[7] संस्कृत हिन्दी कोश-वामन शिवराम आप्टे, पृष्ठ संख्या-765

[8] T the start of The Feynman Lectures on Physics, Richard Feynman offers the atomic hypothesis as the single most important scientific concept, that all things are made up of atoms – little particles that move around in perpetual motion, attracting each other when they are a little distance apart, but repelling upon being squeezed into one another …"

which relates to the order of nature, or, in other words, to the regular succession of events"[9].

So that we can say Physics is branch of science which introduces to us Natural phenomenon & The External procedures of Nature. Like as Motion, Gravitation, Electricity, Light & Sound.

Motion:

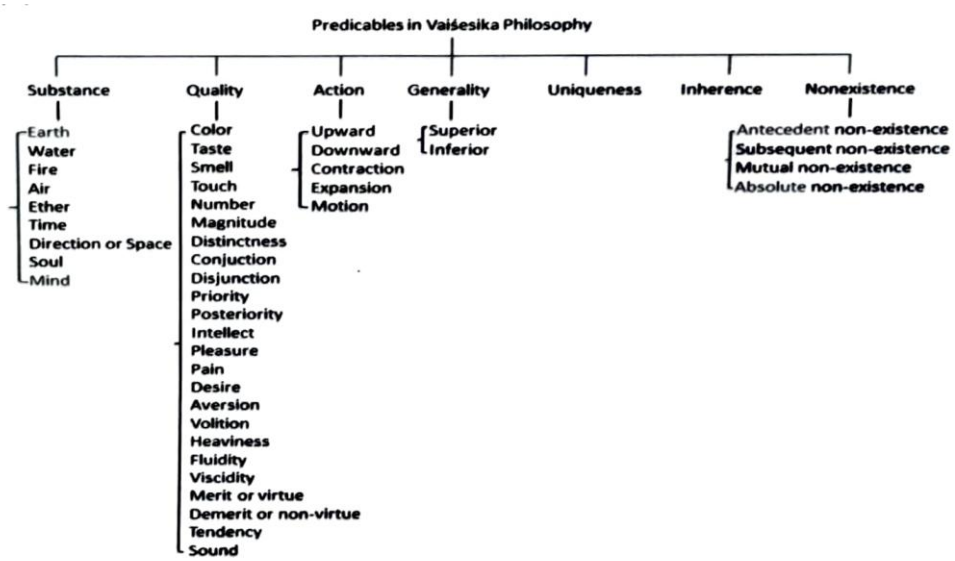
In Sanskrit Literature Everything that can be stated belong to the highest class of knowledge called 'पदार्थ' or 'Predicable' given by Maharshi Kanad. Nyaya-Vasheshika is a Sanskrit text which gives a precise explanation of Padarth-

"द्रव्यगुणकर्मसामान्यविशेषसमवायाभावाः सप्त पदार्थाः"[10]

It is the concept of 'तत्त्वज्ञान' from knowledge of essence or 'ascertainment of Reality'-

धर्म्मविशेषप्रसूताद् द्रव्यगुणकर्म्मसामान्यविशेषसमवायानां साधर्म्यवैधर्म्याभ्यां तत्त्वज्ञानानिनिःश्रेयसम्[11]

So that we can classified into six categories of Predicable in Vaishesik Philosophy-



[9] Maxwell J.C. 1878. Matter and motion. Van Nostrand, p9. ISBN 0-486-66895-9

[10] तर्कसंग्रह-डा० आद्याप्रसाद मिश्र, पृष्ठ संख्या-18

[11] वैशेषिकदर्शनम्-1.1.4, Vasesika Sutras of Kanada , Major B.D Basu, Sudhindranath Vasu Publications Bahadurganj Allahabad, 1911, Page-8

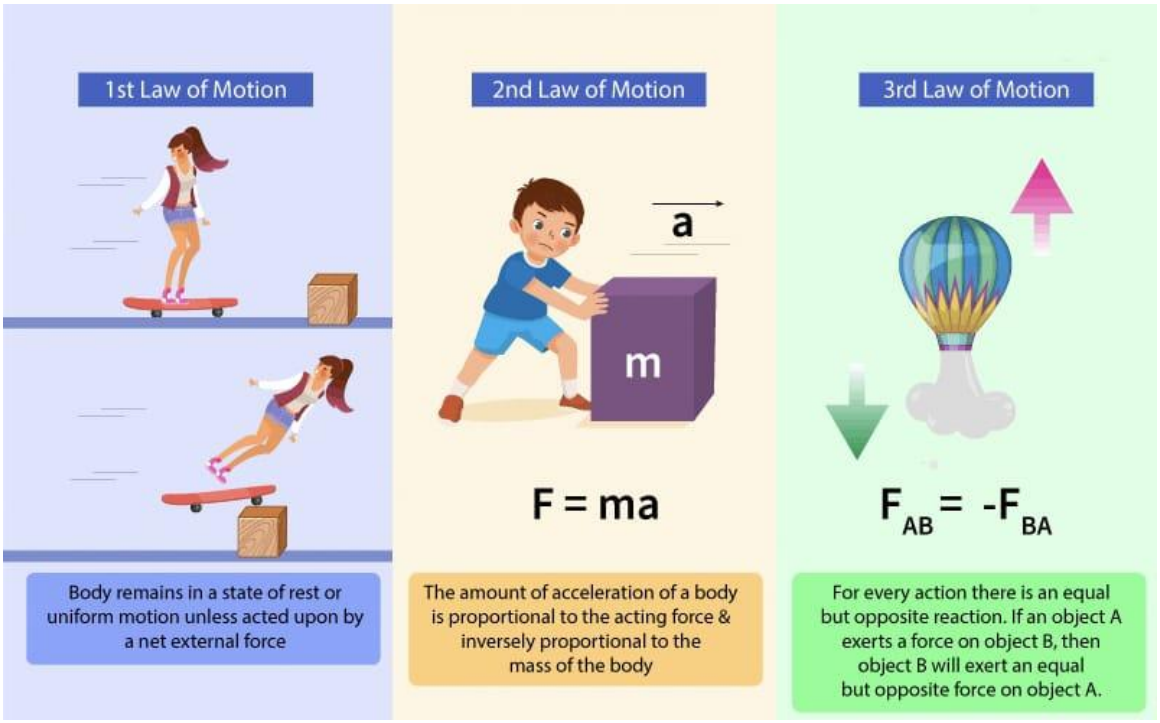
So that According to Maharshi Kanad Motion (कर्म- कर्म एव गति:) are five types-

उत्क्षेपणापक्षेपणकुञ्चनप्रसारणगमनानि पञ्चकर्माणि[12]

We can say there five types of Motion-Upward Motion, Downward Motion, Motion Due to release of tensile stress, Shearing Stress & General Motion.In Modern Science Sir Isaac Newton formulate the law of Motion in his book "Philosophical Naturalis Principia Mathematica" on July 5, 1687.

According to Newton's Law-

Newton law related to the Rishi Kanada's Vanhishikha Sutra-

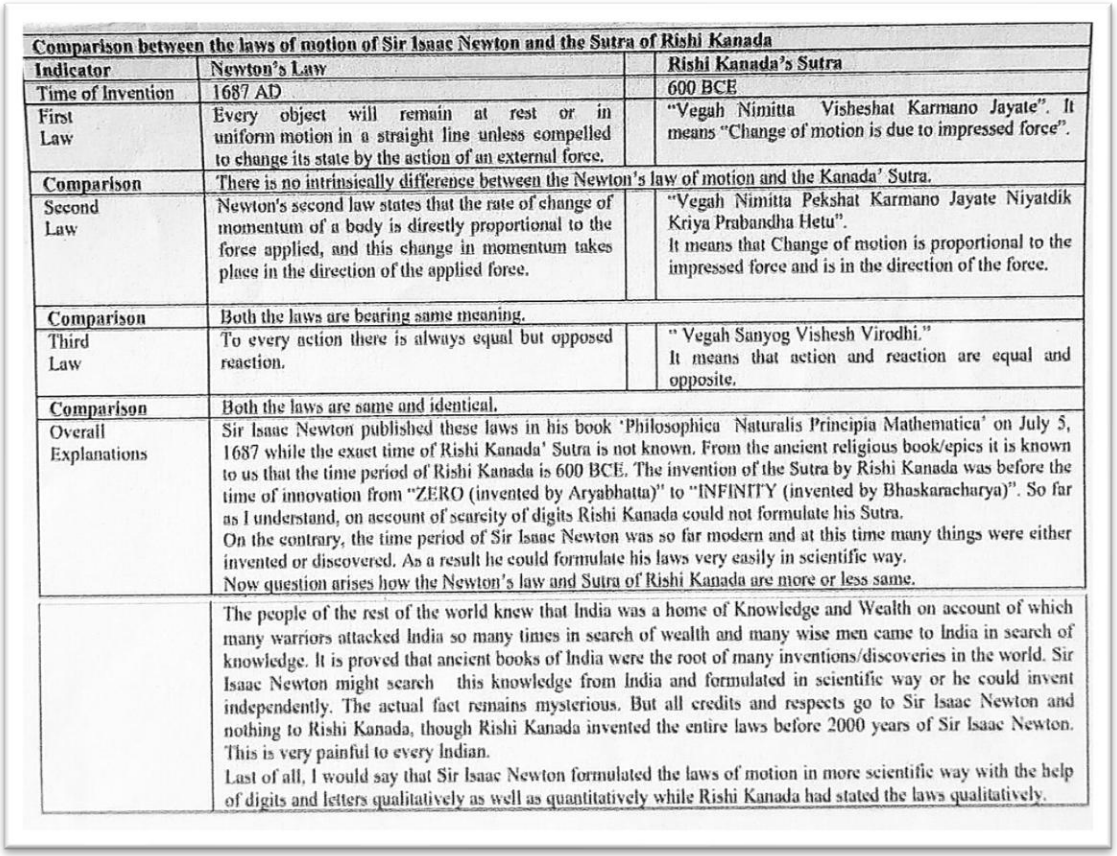


1)- "आत्मसंयोगप्रयत्नाभ्यां कर्म्म"[13]

2)- "अभिघातान्मुषलसंयोगाद्हस्ते कर्म्म"[14]

3)- "इषावयुगपत् संयोगविशेषा: कर्मान्यत्वे हेतु:"[15]

[12]वैशेषिकदर्शन(1.1.7), तर्कसंग्रह, व्याख्याकार-डा० आद्याप्रसाद मिश्र, पृष्ठ संख्या-१९
[13] वैशेषिक सूत्र(5.1.1) Vasesika Sutras of Kanada , Major B.D Basu, Page-164
[14] वैशेषिक सूत्र(5.1.5)Vasesika Sutras of Kanada , Major B.D Basu, Page-166
[15]वैशेषिक सूत्र(5.1.16) Vasesika Sutras of Kanada , Major B.D Basu , Page-172



Comparison between the laws of motion of Sir Isaac Newton and the Sutra of Rishi Kanada		
Indicator	**Newton's Law**	**Rishi Kanada's Sutra**
Time of Invention	1687 AD	600 BCE
First Law	Every object will remain at rest or in uniform motion in a straight line unless compelled to change its state by the action of an external force.	"Vegah Nimitta Visheshat Karmano Jayate". It means "Change of motion is due to impressed force".
Comparison	There is no intrinsically difference between the Newton's law of motion and the Kanada' Sutra.	
Second Law	Newton's second law states that the rate of change of momentum of a body is directly proportional to the force applied, and this change in momentum takes place in the direction of the applied force.	"Vegah Nimitta Pekshat Karmano Jayate Niyatdik Kriya Prabandha Hetu". It means that Change of motion is proportional to the impressed force and is in the direction of the force.
Comparison	Both the laws are bearing same meaning.	
Third Law	To every action there is always equal but opposed reaction.	" Vegah Sanyog Vishesh Virodhi." It means that action and reaction are equal and opposite.
Comparison	Both the laws are same and identical.	
Overall Explanations	Sir Isaac Newton published these laws in his book 'Philosophica Naturalis Principia Mathematica' on July 5, 1687 while the exact time of Rishi Kanada' Sutra is not known. From the ancient religious book/epics it is known to us that the time period of Rishi Kanada is 600 BCE. The invention of the Sutra by Rishi Kanada was before the time of innovation from "ZERO (invented by Aryabhatta)" to "INFINITY (invented by Bhaskaracharya)". So far as I understand, on account of scarcity of digits Rishi Kanada could not formulate his Sutra. On the contrary, the time period of Sir Isaac Newton was so far modern and at this time many things were either invented or discovered. As a result he could formulate his laws very easily in scientific way. Now question arises how the Newton's law and Sutra of Rishi Kanada are more or less same.	
	The people of the rest of the world knew that India was a home of Knowledge and Wealth on account of which many warriors attacked India so many times in search of wealth and many wise men came to India in search of knowledge. It is proved that ancient books of India were the root of many inventions/discoveries in the world. Sir Isaac Newton might search this knowledge from India and formulated in scientific way or he could invent independently. The actual fact remains mysterious. But all credits and respects go to Sir Isaac Newton and nothing to Rishi Kanada, though Rishi Kanada invented the entire laws before 2000 years of Sir Isaac Newton. This is very painful to every Indian. Last of all, I would say that Sir Isaac Newton formulated the laws of motion in more scientific way with the help of digits and letters qualitatively as well as quantitatively while Rishi Kanada had stated the laws qualitatively.	

If we campaigning Kanada & Newton law then-

Gravitation:

In Modern Science we are known that gravitation is which force object stay on the earth & gravitational force is discovered by Sir Isaac Newton, but 1200 Year before Newton an Indian mathematician Bhaskar Acharya has been Explained to Gravitation-

"आकृष्टिशक्तिश्च मही तया यत्, खस्थं गुरुं स्वाभिमुखं स्वशक्त्या।

आकृष्यते तत् पततीव भाति समे समन्तात् क्व पतत्वियं खे"[16]।।

In बृहत्जाबालि उपनिषद् Demonstrate to gravitational force-

"अग्नेरमृतनिष्पत्तिरमृतेनाग्निरेधते।अत एव हवि: क्लृप्तमग्निषोमात्मकं जगत्।।

ऊर्ध्वशक्तिमय: सोम अधोशक्तिमयोऽनल: ।ताभ्यां सम्पुटितस्तस्माच्छश्वद्विश्वमिदं जगत्।।

[16] सिद्धान्तशिरोमणि भुवनकोश 16

अग्नेरूर्ध्वं भवत्येषा यावत्सौम्यं परामृतं ।यावदग्न्यात्मकं सौम्यमृतं विसृजत्यधः।।

अतः एव हि कामाग्निरधस्ताच्छक्तिरूर्ध्वगा ।यावदादहनश्चोर्ध्वमधस्तात्पावनं भवेत्।।

आधारशक्त्यावधृतः कालाग्नियमूर्ध्वगः ।तथैव निम्नगः सोमः शिवशक्तिपदास्पदः"[17]।।

Other-

"लोष्टः क्षिप्तोबाहुवेगं गत्वा नैव तिर्यक् गच्छति, नोर्ध्वमारोहति। पृथिवी विकारः पृथिवीमेवगच्छति, आनतर्यतः"[18]।।

"संयोगाभावेगुरुत्वात्पतनम्[19]आद्यपतनसमाविकारणत्वं गुरुत्वं। पृथिवीजलवृत्तिः"[20]।

"न शक्यते धारयितुं लवणारम्भ इवोल्वणम्"[21]

Similarly, the principle of gravity is also found in various texts of Sanskrit Literature, which fully explain today's incomplete theory.

Electricity:

Electricity is the Natural Phenomenon energy. Electricity from thunder & Lighting has also fascinated us since primitive age. Its clue has been getting in ऋग्वेद-

"सुपेशसं माव सृजन्त्यस्तं गवां सहस्रै रुशमासो अग्ने।

तीव्रा इन्द्रममन्दु सुतासोऽक्तौर्व्युष्टौ परितक्म्यायाः"।।[22]

The great sage Agastya mentioned the process of making Battery in his compositions Agastya Samhita (around 8000 BCE)-

संस्थाप्य मृण्मये पात्रे ताम्रपत्रं सुसंस्कृतम्।

छादयेच्छिखिग्रीवेन चार्दाभिः काष्ठपांसुभिः।।

दन्तालोष्ठो निधातव्यः पारदाच्छादितस्ततः।

[17] बृहत्जाबालि उपनिषद् 2.4-2.8, अष्टाविंशत्युपनिषदः- स्वामी सच्चिदानंद हरि, पृष्ठ संख्या-296

[18] महाभाष्य(स्थानेन्तरतमः 1.149 पर)

[19] वैशेषिकदर्शन(5.1.7)Vasesika Sutras of Kanada , Major B.D Basu, Page-167

[20] तर्कसंग्रह-डा० आद्या प्रसाद मिश्र,पृ०संख्या-35

[21] वाल्मीकि रामायण 3/22/2

[22] ऋग्वेद 6.30.13

संयोगाज्जायते तेजो मित्रावरुणसंज्ञितम्।।[23]

Different kinds of electricity

•TADITA (तड़ित)- Generated by rubbing silk cloth.

•SAUDAMINI (सौदामिनी)- Generated by rubbing to gems.

•VIDYUT (विद्युत)- Generated from Thunder.

•SATAKUMBHI (शतकुम्भी)- Generated by hundred cells of pillar (Kumbha's)

•HRDANI (हृदनी)-Stored Electricity with Portable properties.

•ASANI (अपनी)- Generated from magnetic Rods.

In Mahabharata has been explicit to about of electricity-

वड्वे इव संयुक्ते श्येनपाते दिवौकसाम्।

कस्तयोर्गर्भमाधत्ते गर्भं सुषुवतुश्च कम्।।

मा स्म ते ते गृहे राजच्छात्रवाणामपि ध्रुवम्।

वातसारथिरागन्ता गर्भं सुषवतुश्च तम्।।[24]

There is a lot of proof to conclude that the scholar & Sage were well aware about the generation, classification & use of Electricity in Ancient time.

Light:

Light is a different format of Vedic Science. Like as Jyotish, Prakash (Illumination), Jnana (Knowledge), Surya (Sun), Tejas (Radiance) in associated with various philosophical, Spiritual & Scientific Ideas. In Rigveda-

उषस्सुपर्णा रोचते विश्ववारा, अभिजायते जगत: प्रतिष्ठामेति।

सुवर्णरश्मि रस्मा कम् भास्करो दिविजागृवति। विश्वोदेवा अयं जातु: जगतो बभुवू।

[23] अगस्त संहिता, पृ०सं०-136

[24] महाभारत वनपर्व 133.26.7

तच्छ्रेयो रश्मिभिर्यजते सप्त सख्ये। विश्वेदेवा: सवितुर्यजमा नो यज्ञमा दवात।।[25]

It means the drawn have brought the light to us and the brilliant sun has risen, Dispelling the darkness of the night.

May he guide us on the path of truth and may his light shine upon our hearts and mind, Illuminating the way to wisdom and understanding. May he receive the blessings of sun and may he bestow upon us his knowledge and enlightenment.[26]

About of Sunrays & Light Atharvaveda is saying-

"ये त्रिसप्ता: परियन्ति विश्वरूपाणि विभ्रत:"[27]

In Valmiki Ramayana-

तां ददर्श महातेजा मेनकां कुशिकात्मज:।

[25] ऋग्वेद-10.85

[26] The history of physics in india(online)

[27] अथर्ववेद 1.1.1

रूपेणाप्रतिमां तत्र विद्युदं जलदे यथा।।[28]

In Makhdoom-

विद्युतवन्तं ललितवनिता सेन्द्रचापं सचित्रा

संगीतायप्रहरमुरजा स्निग्धगम्भीरघोषम्।।[29]

Hence it is proved that many examples are available in Samskrit Literature regarding electricity.

Sound:

Sound plays a major role in various aspects of life. The field of acoustic deals with generation, transmission and reception of Sound. Sanskrit Literature distinctly utterance concerning to Sound.

In Tikamgarh-

"श्रोत्रग्राहो गुण: शब्द:।आकाशमात्रवृत्ति:।स द्विविध:-ध्वन्यात्मको वर्णात्मकश्च।तत्र ध्वन्यात्मको भेर्यादौ।वर्णात्मक: संस्कृतभाषादिरूप:"।[30]

It is quite difficult to precisely define & describe the origin of language and human Speech. However, it is known that Vedic chants and music in india has existed from every ancient times. Kapadia says about how sound is felt by human-

"स्फोटरूपविभागेन ध्वनेर्ग्रहणमिष्यते।

कैश्चिद् ध्वनिरसंवेद्य: स्वतन्त्रोऽन्यै: प्रकल्पित:"[31]

The scriptures also referred to two types of nada namely Anahit & Ahat. So that we can say स्फोट is unconcealed in 36 elements in Kashmir shay darshan-By परा, पश्यन्ती, बैटरी & मध्यमा sound Evolution possible.

Importance of Acoustic:

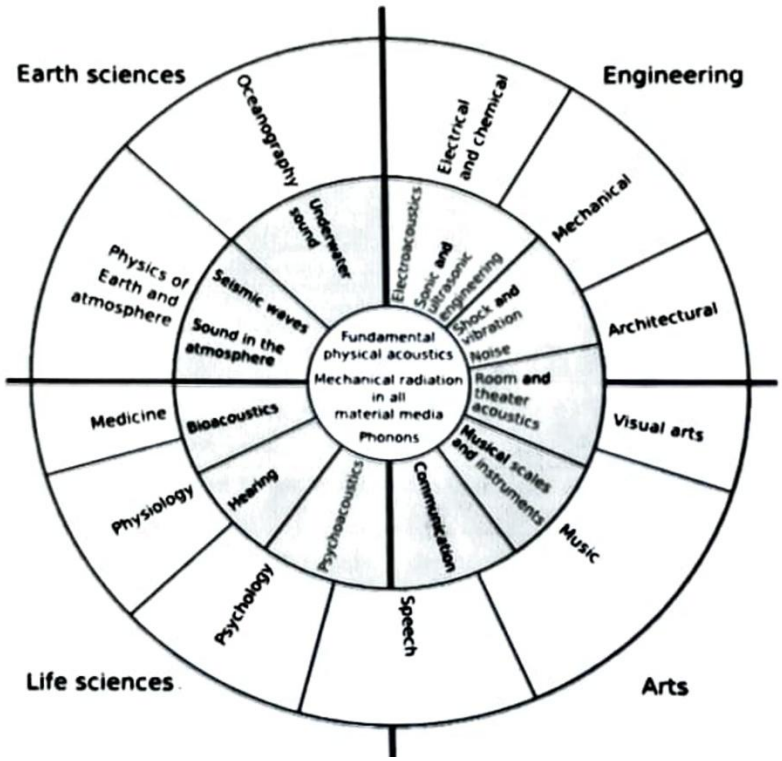
[28] वाल्मीकि रामायण 1.63.5

[29] उत्तमेघदूतम्, श्लोक संख्या-1

[30] तर्कसंग्रह-डा० आद्याप्रसाद मिश्र, पृ० संख्या-36

[31] वाक्यपदीय ब्रह्मकाण्ड श्लोक संख्या-80,विवरणकार-डा० शिवशङ्कर अवस्थी, पृष्ठ संख्या-287

In Modern time the importance of acoustic is very well known. The Field of acoustic deals with generation, propagation and reception of Sound. In Agam shastra बीजाक्षरविज्ञान is define too acoustic. The importance of acoustic in arts, life science, earth science and engineering play vital role. It is interesting to note that acoustic has high importance in Vedas & Vedic literature, which are the classical source literature for Sanatan Dharma also popularly known as Hinduism. The Vedas & Vedic literature which deals with all aspects of life including science & Arts.



Conclusion:

On the basis of demonstration mentioned above this The Part of Physics Specially Theory & Formulas of Motion, Fundamental of gravity, Method of Electricity, Description of Light, Explanation & Concernment of Sound consummately extractive in Sanskrit Literature. In the modern age, when science beings at its zenith level along with the development, also establishing the destruction, in such a situation it becomes necessary to make core experimental properties of veda practical in the form of modern science.

सन्दर्भ ग्रन्थ सूची:

1. मनुस्मृति, सम्पादक-आचार्य श्री पं० शंकर दयाल त्रिपाठी, श्रीदुर्गा पुस्तक भण्डार, इलाहाबाद, संस्करण-सन् 2015, पृष्ठ संख्या-28
2. शब्दकल्पद्रुम-भाग-4,राजाराधाकान्तदेव प्रकाशन, नागवंश प्रकाशन, नयी दिल्ली, पृष्ठ संख्या-382 से 383
3. श्रीमद्भगवद्गीता(तत्त्वविवेचनी टीका), टीकाकार-श्रीजयदयाल गोयनका, गीताप्रेस गोरखपुर प्रकाशन, संस्करण-संवत् 2042, श्लोक संख्या-6/8
4. वायु पुराण, अनुवादक-रामप्रताप त्रिपाठी, हिन्दी साहित्य सम्मेलन प्रयाग, संस्करण-सन् 1987ई०, श्लोक संख्या,उत्तरभागे-11/36
5. The Oxford Companion to the History of Modern Science. Heilbron, J.L.; et al. (2003). "Preface". New York: Oxford University Press. ISBN 978-0-19-511229-0. Pp. vii–x.
6. Online (Science". Merriam-Webster Online Dictionary. Merriam-Webster, Inc. Archived from the original on 1 September 2019. Retrieved 16 October 2011.)
7. संस्कृत हिन्दी कोश-वामन शिवराम आप्टे, मोतीलाल बनारसी दास दिल्ली, संस्करण-सन् 2001ई०, पृष्ठ संख्या-765
8. Online(wikipedia.org.in)-T the start of The Feynman Lectures on Physics, Richard Feynman offers the atomic hypothesis as the single most important scientific concept, that all things are made up of atoms – little particles that move around in perpetual motion, attracting each other when they are a little distance apart, but repelling upon being squeezed into one another ..."
9. Matter and motion. Maxwell J.C. 1878.Van Nostrand. ISBN 0-486-66895-9, page-9
10. तर्क संग्रह, व्याख्याकार डा० आद्याप्रसाद मिश्र, अक्षयवट प्रकाशन इलाहाबाद, वर्ष-2015,पृष्ठ संख्या-18
11. वैशेषिकदर्शनम्(1.1.4),Vasesika Sutras of Kanada , Major B.D Basu, Sudhindranath Vasu Publications Bahadurganj Allahabad, 1911, Page-8
12. तर्कसंग्रह, व्याख्याकार डा० आद्याप्रसाद मिश्र, अक्षयवट प्रकाशन इलाहाबाद, वर्ष-2015,पृष्ठ संख्या-19
13. वैशेषिक सूत्र(5.1.1) Vasesika Sutras of Kanada , Major B.D Basu, Sudhindranath Vasu Publications Bahadurganj Allahabad, 1911, Page-164

14. वैशेषिक सूत्र(5.1.5)Vasesika Sutras of Kanada , Major B.D Basu, Sudhindranath Vasu Publications Bahadurganj Allahabad, 1911, Page-166

15. वैशेषिक सूत्र-(5.1.16)Vasesika Sutras of Kanada , Major B.D Basu, Sudhindranath Vasu Publications Bahadurganj Allahabad, 1911, Page-166

16. सिद्धान्तशिरोमणि(गोलाध्याय), भास्कराचार्य ,टीका-श्रीकेदारदत्त जोशी, मोतीलाल बनारसी दास नई दिल्ली, संस्करण-सन् 2004 ई०, भुवनकोश श्लोक-6

17. बृहत्जाबालि उपनिषद् 2.4-2.8, अष्टाविंशत्युपनिषद:- स्वामी सच्चिदानंद हरि, भगवान् भवन ऋषिकेश, संस्करण-संवत्2041,पृष्ठ संख्या-296

18. महाभाष्य, व्याख्याकार पंडित युधिष्ठिर मीमांसक रामलाल कपूर ट्रस्ट प्रकाशन हरियाणा, संस्करण-सन् 2021ई०,(स्थानेन्तरतम: 1.149 पर)

19. वैशेषिकदर्शन(5.1.7)Vasesika Sutras of Kanada , Major B.D Basu, Sudhindranath Vasu Publications Bahadurganj Allahabad, 1911, Page-167

20. तर्कसंग्रह, व्याख्याकार डा० आद्याप्रसाद मिश्र, अक्षयवट प्रकाशन इलाहाबाद, वर्ष-2015,पृष्ठ संख्या-35

21. श्रीमद्वाल्मीकिरामायण (3/22/2), प्रथम खण्ड, गीताप्रेस गोरखपुर प्रकाशन, छप्पनवां पुनर्मुद्रण संस्करण, संवत्-2077, पृष्ठ संख्या-603

22. ऋग्वेद-संहिता(मूलमात्रम्)-चौखम्बा संस्कृत प्रतिष्ठान, जवाहर नगर, दिल्ली, पुनर्मुद्रित संस्करण-2022, मन्त्र संख्या-6.30.13

23. अगस्त संहिता, सम्पादक -भवनाथझा महावीर मन्दिर प्रकाशन, पटना, संस्करण-सन् 2009 ई0, पृ०सं०-136

24. महाभारत, गीताप्रेस गोरखपुर संस्करण, वनपर्व 133.26.7

25. ऋग्वेद-संहिता (मूलमात्रम्)-चौखम्बा संस्कृत प्रतिष्ठान, जवाहर नगर, दिल्ली, पुनर्मुद्रित संस्करण-2022, मन्त्र संख्या-10.85

26. The history of physics in india(online)

27. अथर्ववेद-संहिता (मूलमात्रम्)-चौखम्बा संस्कृत प्रतिष्ठान, जवाहर नगर, दिल्ली, पुनर्मुद्रित संस्करण-2022, मन्त्र संख्या-1.1.1

28. श्रीमद्वाल्मीकिरामायण (1.63.5), प्रथम खण्ड, गीताप्रेस गोरखपुर प्रकाशन, छप्पनवां पुनर्मुद्रण संस्करण, संवत्-2077, पृष्ठ संख्या-189

29. उत्तमेघदूतम् (श्लोक संख्या-1), व्याख्याकार-डा० राजेश्वर प्रसाद मिश्र, अक्षयवट प्रकाशन 2012, पृष्ठ संख्या-43

30. तर्कसंग्रह, व्याख्याकार डा० आद्याप्रसाद मिश्र, अक्षयवट प्रकाशन इलाहाबाद, वर्ष-2015,पृष्ठ संख्या-36

31. वाक्यपदीय (ब्रह्मकाण्ड श्लोक संख्या-80),विवरणकार-डा० शिवशङ्कर अवस्थी, चौखम्बा विद्याभवन वाराणसी, पुनर्मुद्रित संस्करण-सन् 2016ई0, पृष्ठ संख्या-287

32. त्रिपुरसुंदरी साधना- पण्डित देवदत्त शास्त्री, शुभम प्रकाशन इलाहाबाद, संस्करण-सन् 2011, ISBN:81-901887-3-9,पृ०सं०-3