Jain Philosophy and lifestyle in Scientific Context

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Abstract
The prime objective of all religions, philosophies, as also of science, is to understand the way nature (*prakriti*) works and the laws governing various processes in the universe. Our study of several religions has shown that, in spite of different emphasis because of contemporary culture and local issues, their basic concepts are the same, that is, to explain various phenomena occurring in the universe. The Jain Lifestyle has been developed over the ages based on these laws so that everyone can live in harmony with nature and have an opportunity for self-development. Considering Jainism, for example, we find that Jain philosophy and science, both assert that the universe is governed by certain laws, and do not invoke an almighty GOD to create or run the universe. The laws of physics are the same as the laws propagated by Jain philosophy, although their nomenclature in science and Jainism is different. The most fundamental law of physics and chemistry is the law of conservation which is the same as contained in Tripadi (*Uppanneyi Va, Vigameyi Va, and Dhuveyi Va*), that things may appear as originating and getting destroyed but it is only change of form or mode while the 'essence' always remains eternal. Likewise, the law of Causality, that every action has an effect, and there is no effect without a cause, is the same as Karmavād, applicable to matter and living beings alike. Similarly, Entanglement, as defined in physics, is the same as implied in the law of interdependence (defined in the iconic shloka *Parasparopagraho Jivānām*) in Jainism. Complementarity or dual nature of matter is elaborated in the Jain concept of *anantadharmitā* and limits of knowledge is defined by Syādvād in Jainism. Quantum mechanical behaviour and Planck's length and time are well defined by pradesha and kālānu in Jain philosophy.

These concepts pave the way to unite all the religions and science into one universal dharma based on 'minimum interference with natural processes', which will serve the humanity well for all times.

1. Introduction

The Jain philosophy is known for its law-based, scientific approach to explain various processes occurring in nature. The Jain saint scholars, even during the prehistoric times, but certainly about 2 millennia ago, developed a passion for quantitative exposition of various topics related to cosmology, astronomy, biology and physics etc. based on which they built the huge edifice of Jain philosophy in minute detail and simultaneously developed practices and lifestyle based on these concepts, which they called 'dharma'[1].

1.1. Defining Dharma[1]

Simply stated, Jain dharma is based on the principle of minimum "interference with nature". This principle of "minimum interference with nature" is very fundamental and can be substantiated by the observed sequential development of species on earth, preserved in the fossil records in sediments, shown in Fig. 1.

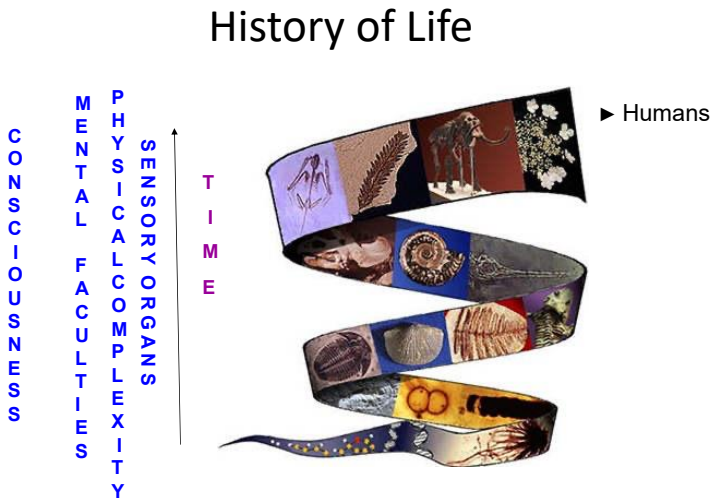

Fig.1 Gradual and sequential evolution of consciousness, sensory organs, physical comlexity and mental faculties (Y axis) in living beings with time, over the earth's history, based on fossil records in sediments. Figure source Wikipedia (Bhandari, 2015).

Life first apeared in form a monocellular organisms like fungi with very low level of consciousness, about 3.8 billion years ago, and over the geologic ages, developed into highly conscious humans We conclude from this diagram that the gradual evolution of consciousness (*chetana*) with time is the path the nature has taken on Earth.

Dharma is used here in the sense of duty or a desirable activity in contrast to adharma, which is undesirable.

As far as material universe is concerned, every natural process is harmonious, works in the most efficient way, recycles everything without wastage and provides right components at the right time for the life (*chetana*) to evolve (Bhandari, et al, 2022a; Lovelock,1988).

In the light of these observations, we can say that anything which evolves consciousness to a higher level, and increases harmony is '*dharma*' and anything which inhibits the development of consciousness is '*adharma*'. In other words, we are all products of nature, and therefore what nature does is *dharma* and if we act against this path adopted by nature, that is *adharma*.

1.2 Jain Life style

From this principle of 'minimum interference with nature' emerges the lifestyle and underlying principles of Jain practices. Non-interference means do not destroy, do not kill, do not misuse, do not modify, and do not obstruct the path of nature, i.e. let the nature do what it chooses to do.

Two main features of Jain lifestyle are *ahimsa* (non-violence) and *aparigrah* (minimalisation); *ahimsā*, for not interfering with living beings, and *aparigrah* for not interfering with material world, since living beings and material things, are the two constituents of nature. Simply put, Jain lifestyle implies that everyone should live as if they do not exist, walk softly on this earth without leaving any footprints and concentrate only on development of self (*Ātmā*).

Self-development, in all the three realms, physical, psychological and spiritual is the ultimate goal of Jainism. For physical purity and development of the body, Jainism prescribes austerities and penances; for psychological development, Anekāntavād, *ātmānusāshan* (self-discipline)

and meditation. *Anekāntavād*, i.e. accepting all the viewpoints for harmonious environment and anusāshan for conserving physical and mental energy. Thus, the practical aspects of dharma, for physical, psychological and spiritual progres are ahimsa, anushashan and austerities, summarised in the iconic shloka: "*Dhammo mangal mukkitham, Ahimsā, Sanjamo, Tavo*". Purify the body by austerities, mind by *anusāshan* and soul by *ahimsā*.

The austerities (tapa) advocated by Jain philosophy have significant physiological effects, as has been demonstrated by recent studies (Lakhani et al, 2024; Shah A, 2025). Studies of physiological effects of two patently Jain practices, *upvās* (fasting, ranging from a day to months) and *chowihār* (refraining from taking meals during night, now popularly known as intermittent fasting) have been awarded Noble prizes in medicine and physiology for the years 2016 and 2017 respectively (see Bhandari, N., 2024a, for detailed description).

1.3 Laws and Doctrines in Jain philosophy and science: a comparison

Having scientifcally described Dharma according to Jainism, we would like to point out that many of the basic laws, doctrines and several facts described in Jain scriptures have been authenticated by scientific studies in recent centuries.These are compared in Tables 1, 2 and 3 (based on Bhandari, N. 2025).

Table 1. Some natural laws common to Science and Jain philosophy

Science (material world)	Jainism (living and non-living)
Causality: cause and effect relation	Karmavad:
Law of Conservation	Eternal nature of Dravyas *Uppanneyi Va, Vigameyi Va, and Dhuveyi Va*
Complementarity	Anekāntavād, anantadharmitā
Determinism, classical mechanics	*Krambaddha paryāy* (sequential transformation)
Entanglement	*Parasparopagraho jivānām*

Table 2. Some common doctrines between Science and Jainism

Science	Jainism
Indiscribability in quantum domain	Indescribability (*saptabhangi*)
Limits of knowledge	Syādvād
Inertial frame of reference (STR)	Nayavād (mental frame of reference)
Energy quanta, Planck length, Planck time	*paramanu, Pradesha, kālānu*
Bose statistics	*Apritghāti* nature of paramānu

Apart from these laws and doctrines, there are many deep insights and observations described in Jain āgams, which match the modern findings.

Quantum mechanical concepts of space, time, indescribability etc. have been mentioned before in Table 2, and some others are listed below:

- Life in plants: experimentally shown by J.C.Bose in 1926
- Shells around celestial bodies (*valay*).
- Climatic cycles 21000 years and 41000 years, which are same as the time span of 5th and 6th *ārā*
- Krishnarāya: Black holes
- Tamaskayā_: Dark Globules (Bok Globules)
- Titus Bode Law of planetary orbits is defined as doubling distances between Dvipas (c.f. Tiloy pannati; Bhandari, 2021a)
- Mathematics: many types of series, large numbers, infinities

śīrṣaprahelikā of the order of 10^{194} (or 10^{235}), time cycles or Kalpa going to 2×10^{68} years, concept of *asankhyeya* (uncountable) numbers, more than 10 varieties and hierarchy of infinities, concept of infinitely infinite (*anantā-anant*), the huge but indeterminable number of subtle, invisible, nigod jivas in the loka, the concept of innumerables (agyeya) the number of Dvipas (planets?) going up to 1052 etc., and

- small numbers: Time units of avalikā; samay etc, which involves uncertainty and can not be defined precisely.
- Jain scholars developed the advance concepts of number theory, partition theory, occupancy problem, probability theory, combinatorial problems, various types of series, and formulae for calculating complex problems, mostly dealing with cosmology, astronomy, Karma, and jiva etc. They mastered the procedures for extraction of square roots and operations with fractions, and the rules of indices for integral and fractional powers. It is clear from the study of Agams that these mathematical theories, tools for their applications and formulae were not developed for the sake of developing mathematics per say but for the purpose of understanding Jain philosophical concepts of karma, cosmology etc. (Muni Mahendra Kumar; xxxx) in subtle details and their metaphysical requirements (Shah, R.S., 2017; Jain et al., 2017; Jain, A., 2018).

This list is not comprehensive, and some discussion can be found in previous publications (Muni Mahendra Kumar (2010); Bhandari, 2018; Bhandari, 2022b; Bhandari, 2025a) and therefore need not be repeated here.

2. Unique theories in Jainism:

Jain philosophy propounds several unique theories,not found in any other philosophy, some of which are listed below

1. Jain theory of Jnān (knowledge) which includes Mati Jnān, Shrut Jnān, Avadhi Jnān (clairvoyance), Manah parayay Jnān (telepathy) and keval Jnān (omniscience). Jain philosophy has also devloped Bhed vigyān (Theory of Distinction).
2. Ātmavād and Jain theory of consciousness, based on the existence of an immortal, Omniscient, individual soul, and its evolution to perfect purity through 14 stages (*Gůnsthāns*). This theory considers consciousness as the manifestations of the soul (Kachhara and Sanchetee, 2024; Jain, A.K., 2025).
3. Jain theory of matter, based on 3 (or more) types (termed 2T, 4T and 8T) of matter, which is akin to Dark energy, Dark matter and Luminous matter respectively. It includes the theory of *Varganās* (association and dissociation), through which psychic as well as physical phenomena take place.
4. Jain theory of *Anantadharmitā* and *Anekāntavād*. Jiva and pudgal have the property of *anantadharmitā*, imlying that they have infinite modes of existence. We have recently shown that the huge diversity of physical objects and living species in the universe has arisen because of this property of *anantadharmitā*, without which the universe would have remained monotonous (Bhandari, N., 2025b).
5. Jain theory Shristivad: The eternal nature of species in which life and death are driven by karma and result in rebirth in any of the 4 realms (*gati*): human, animal, Deva (heaven), Nāraki (hell), till one attains moksha (salvation). (Samani C. P., 2017; Jain, AK, 2025)
6. Jain theory of Nayavād (contextual perception), which depends on the mental frame of reference of the observer. It is only partially correct in a particular context, and never complete.

It may be noted that list is not comprehensive and only gives some examples. The Jain concepts are given in short *shlokās*, in *Prakrit*, and to fully appreciate them, they need to be reinterpreted and elaborated in the frame work of modern scientific concepts and language. In spite of these many similarities between Jain cocnepts and modern science, there apparently

exist many descripencies. Some of them, specially those concerned with geography, cosmology, reincarnation, etc. have been debated and have been summarised in various issues of Proceedings of Jain Academy of Scholars (JASP #2, #4, Jain A.K., 2025, Bhandari et al. 2021a,b). We discuss two of them below, related to contents of the universe and definition of life, to highlight the attempts made to reconcile these descripancies.

2.1 Differences between scientific and Jain concepts

2.1 a.Contents of the universe: Dravyas

A dravya is defined as a substance which cannot be produced by any other substance, and is independent, not affected by or effecting any other dravya in any way. Jainism propounds existence of 6 such dravyas (*pudgal, jiva, Akāsh, Kāl, dharmā*[1] *and adharmā*[1]) constituting the universe as compared to only 3 entities Viz. matter, space and time scientifically recognised as basic, as shown in Table 3. *Pudgal* and *Jiva* are active dravyas and the others are passive, only facilitators in natural processes, and except *kāl*, other five have 3-dimensional existence (*kāyā*)*; Akāsh, dharmā* and *adharmā* are singular and extend throughout the universe (Kachhara and Jain, 2017;Kachhara, 2014) .

Table 3. Basic non-living (ajiva) constituents of the universe

Jain science	Modern science
ākāsh	space
Pudgal	Matter
Kāl	Time
Dharma[1]	Motion
Adharma[1]	Inertia

In the materialistic theory, scientists suppose that consciousness can spontaneously arise from matter as neural complexity grows, and, therefore, there is no need to consider jiva as an independent entity (Hameroff and Penrose,1996, 2014). Scientifically 'time' is only an apparent 'parameter' needed to measure change, only a construct of mind (Prasanna, 2017) and it does not exist as an independent entity. The law of conservation of momentum, a basic principle used in all scientific phenomena and the property of inertia (Newton's first law of motion), do require the two entities, *dharmāstikaya* (sometimes taken to be æther) and *adharmāstikaya*, but they are not considered as basic dravyas in science, as in Jainism.Regarding *ākāsh*, which is generally considered to be equivalent to space, it should be mentioned that they are not identical and their properties differ significantly; the same is true for behaviour of pudgal which is generally taken to be equivalent to matter in physics. We illustrate the issues by discussing the case of *ākāsh* here; the others have been discussed in detail elsewhere (Bhandari, 2025a) and does not need repetition here.

In Jain philosophy, all dravyas have simple definitions. *Ākāsh* is the one which provides space to all other dravyas, Paramānus are the primary, ultimate, particles or quanta of energy, which combine to form many types of particles, from which different types of useful aggregates (*varaganas*) are formed, enabling all physical and psychological processes in the universe to take place.

Summarising the above discussion, we can say that the independent existence of these four substances: *ākāsh, Pudgal, Dharmāstikāya and Adharmāstikāya* is logically necessary.

[1] Dharma, in this context of dravya, means an entity responsible for motion (dynamics), and Adharma means an entity responsible for stationary position.

Time is an enigmatic dravya, in both Jain and modern sciences. There are some differences of opinion about considering time as a dravya in Jain philosophy. Some scholars believe that it has an independent existence as a dravya, in the form of *Kālānu* (chronon) whereas others deny its independent existence but accept that it exists within all other dravyas and affects them. *Kāl* is the cause of birth, decay and death of the living beings, Kaal is responsible for continuous transformation of pudgallic bodies, their origination and destruction, whereas in *ākāsh,* it determines the sequence or simultaneity of events. In *Dharmāstikāya it* is responsible for the phenomena of motion and in *Adharmāstikāya,* it is responsible for the state of rest.

As far as quantisation is concerned, both Jainism and science seem to agree. Quoting the 6th century verse from Viśeṣāvaśyakabhāṣya, Jinabhadragaṇī Kṣamāśramaṇa mentions that "time is subtle, but space is subtler". 'Subtle' has a very special meaning in Jain metaphysics, and brings out, in the light of our current knowledge of physics, the quantum mechanical aspect of space and time. One 'Planck length' is approximately equal to 10^{-35} metres and therefore a unit of space can be considered as equal to 10^{-105} cubic meters. Perhaps this region of the *ākāsh*, can be take to be equivalent to one *pradesha*, as defined in Jainism. Similarly, Planck time is considered to be 10^{-43} seconds, which may be equivalent to a *kālānu*.

As far as the nature of space and time is concerned, science has an altogether different perspective: both of them are related to each other. Any one of them cannot be discussed in absolute terms or in isolation. In Theory of Relativity, it has been termed as space-time continuum. In comparison, Jain philosophy, considers them to be separate, independent substances, incapable of influencing each other, although there exists the concept of linear-temporal-space (*uddhāra-addhā-khetta*) which may be equivalent to space-time continuum (Sadhvi Viraprabhaji, 2022).

Secondly, *ākāsh*, according to Jain philosophy only gives place to other substances to exist, whereas according to the General Theory of Relativity, space can be distorted by matter present therein, and motion of a material object also depends on the distortion of space. Thus, the quantity of matter, speed and structure of the *ākāsh*, all three depend on each other. This is contrary to Jain concept that *ākāsh, Dharmāstikāya and Adharmāstikāya* are passive dravyas. Newton had conceptualized 'absolute' time and 'absolute' space, a concept similar to Jain philosophy but Einstein, according to his Theory of Relativity, explained that time and space depend on the' inertial frame of reference'; Time and space change due to motion; this is defined as time-dilation and Fitzgerald contraction respectively.

Thus, we see that, there are serious differences in the properties of *ākāsh,* and space, The question then arises whether these concepts in science and Jainism can be reconciled? The scientific concept has been proven through experiments and therefore must be correct.

Jainism, in comparison, propounds that things are basically not as they appear to us; every concept is therfore understood in two perspectives: Absolute view point (*Nischaya naya*) and practical view point (*Vyavahar naya*). In general these view points are not he same.We may say that what science has discovered is from practical view point (*vyavahar naya*) and what Jainism is talking about is the absolute nature (*nischaya naya*).Specific and quantitative reasoning is required to see whether such arguments can be developed to resolve the discrepancies.

Such problems exist in many other Jain concepts. Having discussed the difficulties existing in concepts related to physical entities (*ajiva*), we now illustrate the problems existing in understanding behaviour of living entities.

2.1 b Definition of Life

Jain science considers liquids (water, *apkaya*), and gases (air, *vayukaya*) and fire (energy, *Teukaya*), solids (minerals, crystals. earth, *prithvikaya*) (Jain, J.R. and Nandighoshsuriji, 2025, to be living, whereas science takes them to be purely material entities, devoid of life, dead matter. Science agrees that there are subtle, invisible, microscopic forms of living species in water, for example, but what Jainism claims is that water itself is alive (J.R. Jain and Nandighosh Suriji, 2025).

What is 'living' depends on the definition of life and these definitions are different in Jain biology and modern medical science. Science recognises only two forms: living and non-living, whereas Jainism has a more refined classification, ranging between *achitta, sachitta, sajiva* and *ajiva*. We define these terms here so that we can understand the difference between scientific and Jain approach. *Achitta* is something in which all components exist in a random state and *sachitta*, is the orgnaised form of matter. Since level of organisation can vary depending on external conditions like temperature, pressure, environmental composition, etc., we have proposed 10 arbitrary levels of organisation (Jain et al., 2017b; Bhandari, 2022c) by which their degree of organisation can be distinguished. We demonstrate this by taking the example of water molecules.

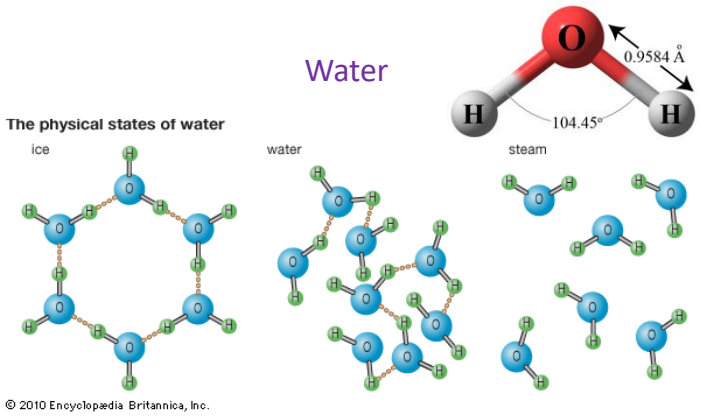

Fig. 2. A water molecule consists of two negatively charged hydrogen atoms (blue) at an angle of 104.5°, attached to a positively charged oxygen atom (red) through a chemical divalent bond.

In steam, water molecule may float individually (right) but in liquid form (water) they do not remain independent and many of them join by a delta bond to form structures. At low temperature, as in ice (left), they form crystals. The entropy of structured water and ice crystals is negative compared to their surroundings. (Figure reproduced from Jain et al, 2017b, Google). The first level is achitta, i.e. steam phase, in which all molecules of H_2O move randomly, singly, in different directions. As the temperature reduces and water forms, molecules come closer and start forming a chain, because of the remnant, unsatisfied bonding energy between oxygen and hydrogen atoms (Szostak, J., 2014). Gradually these chains acquire linear configuration and in the next stage, they form long and multiple chains, and at a certain stage, they start replicating. On further cooling, water molecules start forming ice crystals. Coming in contact with other compounds of hydrogen, nitrogen etc. and with a source of energy, organic chemical can be formed. When chemicals useful in biological systems are formed and they acquire a certain structure, a '*yoni*' can be formed. A yoni is a receptacle with suitable structure ready for a soul to descend from the cosmos. These different stages can be classified as sachitta

grades 1 to 9. When the *yoni* acquires a soul, it becomes *sajiv*, a living entity and when the soul leaves it, it becomes *ajiva*. This is the whole sequence, which may enable us to understand the definition of 'living' in Jain biology and medical science. Jainism considers organised forms of inorganic/organic molecules as sachitta and alive, whereas medical science considers only the structures with a soul as living. *Sachitta* can become *achitta* by change of external conditions like temperature, as happens in case of boiling water, and vice versa. Thus *sachitta* to *achitta* is a reversible process.This sequence has been described by graudal decrease of a thermodynamic term, called entropy[2] (Bhandari, 2022).

In this way, liquids, air, soil and energy, in certain forms, such as flow of electrons producing electricity and plasma, are considered to be 'alive' in Jain philosophy.

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[2] Entropy, in a thermodynamic system, means the capacity of converting thermal energy into mechanical energy. As the components of every physical system proceeds towards attaining equilibrium with time, the entropy increases whereas in biological systems, as order increases, entropy decreases.

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