



"अपणा सच्चमेसेज्जा"
Search the truth thyself

Bhagawan Mahaveer International Center for Scientific Research and Social Innovative Studies



JAIN VISHVA BHARATI INSTITUTE (DEEMED UNIVERSITY)

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Genesis of BMIRC

Jainism is one of the oldest religious and philosophical traditions of the world. Its basic outlook is deeply rooted in an analysis of the contingencies of the fate of humanity that eventually broadens into an all-encompassing view of life and the world. Many of the personal, social, environmental and international problems can be resolved by taking resources from Jainism. But the effects of the Jain principles and practices must be first scientifically documented, established and reinterpreted in the modern languages that are globally understood.

The idea of establishing four chairs to promote Jain studies and researches was first given by Acharya Mahaprajna in 2009 with an aim to create scholars with specialization in Jain studies. To commemorate the birth centenary of Acharya Shri Tulsi, Acharya Shri Mahaprajna proposed a grand project "Wisdom World". He wanted to bring ethics in all professional and social fields. He firmly believed that without ethics the sustainable development and peace is not possible. Thus, it can be said that BMIRC Center is the outcome of the dreams of the great seer Acharya Mahaprajna.

A workshop of the scholars was held during the National Symposium "Jain Philosophy, Science and Culture" organized on 22-24 October, 2012 in Jasol, Rajasthan, in the

auspicious presence of Acharya Shri Mahashraman. The workshop which was convened by Dr N.L. Kacchara, initiated by Dr Narendra Bhandari and addressed by Prof. Muni Mahendra Kumar. In the workshop, the participants identified many areas of research and unanimously expressed the view that there is a dire need to start scientific research in Jainology so that its benefits can be made available to the mankind. The views presented in the workshop and those later received from other scholars by correspondence, provided a good background for the formation of a research center. Based on all the views received, a proposal on scientific research and social innovative studies in Jainology was prepared.

The purpose of proposal was to chalk out a plan for initiating organized research on scientific lines in various spheres of Jainology, reinterpret them in current colloquial language, bring out their benefits in a quantitative way, apply them in daily life and compare them with modern scientific concepts and tools. The plan was implemented on 2 October, 2014 the Vice Chancellor, Samani Charitra Prajna officially announced to set up Bhagawan Mahaveer International Center for Scientific Research and Social Innovative studies in the benign presence of HH Acharya Mahashraman in Delhi.

Blessings of Acharya Mahashraman

founder and 1st Spiritual Discipliner of JVBI. The starting three words of JVBI (i.e. Jain Vishva Bharati) represent the world-wide view of Jainism. The Institute is established keeping the present global requirement in view and is proving instrumental for the betterment of the world scenario”.

Further, HH added that many original texts of Jain Agama were translated and edited by Acharya Tulsi and Acharya Mahaprajna. The Jain canons are the treasures of knowledge. Bhagavai, Pannavana, Jivajivabhogama are good from the view-point of knowledge of fundamental realities (*tattvajnana*).

On the occasion of the official commencement of BMIRC Acharya Mahashraman, the Present Spiritual Discipliner of JVBI, said, “JVBI was established by Acharya Tulsi. He was the

Uttaradhyayana is good from the perspective of spirituality. From the perspective of inspiring stories the Agama Jnatadharmakatha is good. Jain Agamas focus on varieties of subjects. Scholars can add new dimensions to the knowledge contained in the



Agamas. For that they should have interest in studies as well as research on the original texts. I wish scholars will devote their energy and time to the BMIR Center. The idea to focus on the four major branches of Jain studies for research and social innovative studies is also very significant. The most important work of JVBI is the development of Jainology and to work on the great treasure of knowledge, which is hidden in the Jain scriptures and philosophical texts. This work has increased the fame of JVBI and will increase more. These endowments have annexed the additional feathers in the cap of JVBI.



It gives me great pleasure to know that “Bhagawan Mahaveer International Research Center” (BMIRC) is being launched in the benign presence of Acharya Mahashraman in Delhi. It is equally gratifying to know that the Center will lay special emphasis on scientific

and applied aspects of Jain tenets and teachings in practicing and in pursuing present pattern of modern living and social behavior. At the grand occasion of 25th

Foundation Day and Silver Jubilee Year BMIRC is bringing out its first periodical Newsletter which will illustrate and illuminate pragmatic principles and proven practices of Jainism propounded by all the Tirthankars and Jain Acharyas from ancient era to present times. I wish the center and the publication of its Newsletter grand success.”

Message from the Desk of the Chancellor

Official Declaration of BMIRC

Acharya Mahashraman at Bhikshu Auditorium of Adhyatm Sadhana Kendra, Delhi on Oct. 2, 2014. At this occasion she said that the announcement of the new research center named **Bhagawan Mahaveer International Center for Scientific Research and Social Innovative Studies** on the auspicious occasion of birth centenary of Acharya Tulsi, the great visionary saint of 20th century and 9th religious leader of the Jain Terapanth Order, is giving great pleasure to me.

Moreover she said that today young generation has many logical questions regarding why prayer, why forgiveness, why fasting, etc. I hope that this center will focus on practical or applied Jainology and work tirelessly for the scientific and innovative researches so that the new parameters will come up which could convince the coming generations. I firmly believe that

The official announcement of BMIRC was made by **Samani Charitra Prajna**, the Vice Chancellor of JVBI, in the pious presence of His Holiness



Bhagawan Mahavir International Centre

for

Scientific Research and Social Innovative Studies
under the auspices of



*Jain Vishva Bharati Institute
(Deemed University), Ladnun, Rajasthan*

Workshop on "Science and Mathematics in Jainism"

October 02-03, 2014, Delhi

Declaration

Jainism has its foundations firmly anchored in science of living and material components of the universe. Realizing that the wisdom contained in Jain Agams have to be understood in terms of modern concepts and practised for physical, mental and spiritual development of mankind, Bhagawan Mahavir International Centre for Scientific Research and Social Innovative Studies has been established under the auspices of Jain Vishva Bharati Institute, Ladnun.

Believing that Jain ethics can provide solution to myriads of problems facing the humanity, a workshop was organized, during which a group of Jain scholars and experts in various fields gathered at Delhi for deliberating various issues. It was resolved that:

A Monograph on Jainism and Science, describing the status of various Jain concepts in scientific terms will be compiled and published.

A Laboratory will be created to carry out experimental work to verify Jain concepts and physiological and psychological effects of Jain practices.

Facilities for discussion amongst scholars and with Jain Acharyas will be provided by the Centre.

Workshops and Conferences will be periodically organized by the Centre for planning, exchange of ideas and execution of projects.

Steps will be taken to promote cardinal principles of Jain philosophy like Ahimsa, Aparigraha and Anekantavada.

Samani Charitra Prajna
Vice Chancellor

Delhi, October 02, 2014

the constant blessings of Acharya Mahashraman will bring the work to new heights. With the generous support and guidance of the eminent scholars and scientists like Prof. Muni Mahendra Kumar, Prof. Mahavir Raj Gelra, Prof. Narayan Lal Kachhara, Prof. Narendra Bhadarai etc. who are the senior members of the Advisory Board, the Center would be the place of special attraction for the scholars and researchers of the world. It will succeed in establishing a new paradigm in the field of research and social innovative studies.

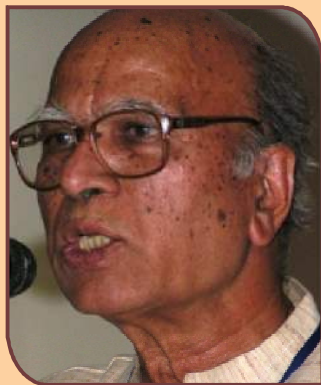
On this occasion, in her welcome address, **Prof. Samani Chaitanya Prajna**, the Head of the department of Jainology, said that from last 24 years JVBI has been working tirelessly for the furtherance of higher education and research in the field of Jainism. It has spread its wings in India and abroad and got success to connect hundreds of students and researches in India and almost 2000 students of various countries by working in collaboration with Florida International University,

Miami, USA. To be able to keep pace with science, technology and globalization Jainism needs to be presented in modern perspectives and scientific language. The BMIRC is aimed to be a hub center for all those organizations, institutions, scholars and research fellows who are engaged and interested in Jainology. In order to facilitate inclusive and scientific research the center will focus on the following four major branches of Jain studies:

1. Science and Mathematics, with Jain Studies
2. Ethics, Environment and Social Sciences
3. Metaphysics, Epistemology and Logic
4. History, Culture and Literature

N.L. Kachhara, the Senior Advisor of BMIRC, speaking on the vision and mission of the center said that this is a historical day in the world of Jain Academia. A new chapter has been opened in the world. Today study of Jain philosophy is going on at various places, however, what is needed is research because without research studies are incomplete.

Quoting Acharya Mahaprajna Prof. Kachhara said, "There are infinite modes of substance. We know only few. So there is much scope for new researches". Jain canons (Agama(s)) and other explanatory literature have many subjects which can be presented in modern way so that humanity can be benefitted from the knowledge contained in them. Today many centers for Jain studies are working and many more are developing.



The question is how to increase this flow? It needs many scholars. Actually, very few scholars are genuinely working on this subject. This is the first time that these many scholars have assembled and committed to initiate scientific research in the field of Jain studies.

Sadhvi Vishrutvibha, Mukhya Niyojika, said, Acharya Mahaprajna, the philosopher-saint of 21th century, thought about the intensive study of four Anuyogas at JVBI. Concept of working on four major branches of Jain studies are completely in tune with the study of the four Anuyogas. The Anuyogas contain various subjects like cosmology, geometry, education, philosophy, political science, ethics, environment, etc. It is

the need of the day that Jainism should be presented in modern perspective. With the blessings of Acharya Mahashraman this work is getting a new momentum and direction in the form of BMIRC. Hope it will proceed fast and reach to the world at large.

On the occasion **Prof. Anil Dhar**, the Registrar, presented the draft of the first monograph of the center entitled "Compendium on Science and Mathematics in Jainism."



Project on Mathematics

On the occasion of the declaration of BMIRC, Dr Anupam Jain presented a major research work on "Development of the Mathematical Thoughts in Jain Literature" to Acharya Mahashraman. This is the first research project of the center completed with the generous support of Mr. Bacchawat, Kolakata. He said, in 2009, a National Seminar on "Jain Mathematics : Theoretical and Historical Aspects" was organized by the department of Jainology at JVBI. The present research is the outcome of that seminar. People with spiritual orientation, such as, monks and nuns may raise questions about the relevance of mathematical studies.

It is for all those to understand that mathematics is helpful in elucidating the structure of cosmos (*loka*), *karma* theory, right time of initiation and even specific time of reading the scriptures. In this book, our purpose is to present all the



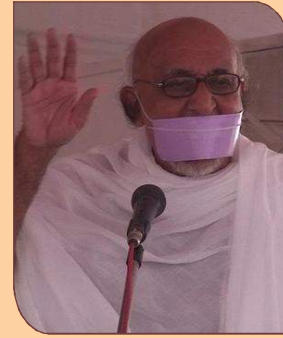
mathematical theories and information available in Jain canons and other literature developed over the centuries in Jain tradition for further research.

Prof. Premsuman Jain, the Guest of Honour, said that the concept of establishing four faculties under BMIRC is not only necessary but indispensable for the development of Jain studies and research. Seeing the association of scholars with the center raises the hope that this center will work successfully. Dr. Anupam Jain presented his work on "Development of Mathematical Thoughts in Jain Literature" is actually the work of history and literature. This shows that BMIRC has also started working on historical study of Jain tenets. It is true that science should walk along with spirituality then only we will know where we have to go and where we have to stop.



Prof. Muni Mahendra Kumar, the Keynote Speaker and Senior Professor of the department, said that this day is auspicious and important in the world of Jainism. JVBI has started this new activity which is much needed for the present world. To work for this

center knowledge of various fields is necessary. Person knowing physical science and having interest in oriental studies would be fascinating to the center. If the scholars, having only oriental knowledge, are involved then the study will be incomplete. The center will be in Ladnun but people staying far should be attached to it and can work at their places, as per their convenience. Modern technology must be used for research, but Jain Agamas should remain the focal point of the study and research. The BMIR center has three main



functions:

1. To create a good network of the scholars of the world
2. To provide inspiration to new scholars and prepare them
3. To disseminate the message of Jainism to the world.

In his concluding remarks, he said, "I wish that with the blessings of Gurudev this project will succeed and bring good results".

The program of the commencement of center started with the prayer of Bhagawan Mahaveer and ended with the vote of thanks by the Registrar.

1st Workshop of BMIRC on "Compendium of Science and Mathematics in Jainism"



With the establishment of "Bhagawan Mahaveer International Research Center" a two-day workshop on "**Compendium on Science and Mathematics in Jainism**" was organized by the Department of Jainology and Comparative Religion & Philosophy, JVBI, Ladnun on October 2-3, 2014. In the workshop almost 50 scholars from India and abroad participated and 27 combined status papers on various scientific and mathematical topics were presented.



The first technical session was chaired by Prof. Muni Mahendra Kumar. In the session, he also presented his paper on connection between Neuroscience

and theory of Karma. Prof. Pratap Sanchetee expressed his views on "Mind, Brain and Consciousness." Prof. S.S. Pokharna shared his thoughts on Syadvad and Anekantavada in the light of modern scientific researches.

The second technical session was chaired by Rudi Jansma. In this session, the paper on "Doctrine of Karma, Free Will and Transmigration: A Logical Approach" was presented by Dr. Subhash Jain. The work on "Ecological Considerations in Jainism and Modern Views" was discussed by Rudi Jansma himself. Muni Abhijit Kumar shared his views on "The Jain Concept of Gods: A Scientific Analysis". The paper on "Karma, Body System, Genes and Human Performance" was dealt by Dr. N. L. Kachhara and Dr. Sohanraj Tater. Dr. Anupam Jain and Dr. R.S. Shah presented their thoughts on "Contribution of Jain Scholars in the Development of Mathematics".



On October 03, 2014 the third technical session was chaired by Dr. N.L. Kachhara. Dr. S.S. Pokharna shared his views on "Exploration of General Systems Theory, Quantum Physics, General Theory of Relativity, Neurophysiology and Jainism". The paper on "Mathematical Expressions in Anuyogadvara" was dealt by Sadhvi Dr. Rajul Prabha. Sadhvi Dr. Chaitanya Prabha presented her thoughts on "Jain Epistemology and Cognitive Science". Samani Vinay Prajna explained the concept of Numerable, Innumerable and Infinite

according to the canon *Bhagavati*. The paper entitled “Jain and Other Systems of Yoga: Scientific Perspectives”, was presented by Dr. Sohanraj Tater and Dr. L.C. Jain. In this session, Dr. N.L. Kachhara spoke on “Matter in Jain Philosophy and Modern Science” and the paper on “Scientific Exploration of the Existence of the Soul” was dealt by R. L. Munshi. The paper “Jain Epistemology and Modern Theories of Cognition and Knowledge” was presented by Prof. Viney Jain. Prof. Samani Chaitanya Prajna discussed on “Laws of Nature: A Jain Perspective”, Dr. Kokila Shah on “Theory of Syadvad and Quantum Mechanics” and Dr. Varsha Shah on “Evolution of Life from Jain Perspective”. The session was ended with the active participation of the scholars.

In the closing session, Prof. B.C. Lodha, the former Vice Chancellor of JVBI, was invited as the Guest of



Honour and Samani Charita Prajna, the VC of JVBI, as the Chair of the session. In the beginning of the session, Dr S.S. Pokharna presented his views about the future planning of the work of the center and gave his feedback about the workshop. He suggested to decentralize the work of the center with the help of the scholars working in different parts of India and abroad. In his suggestion, there can be many branches of the center in various cities like Ahmedabad, Pune, Caluctta, Jamshedpur, etc. In his view decentralization will help in connecting all the concerned organizations and scholars to the center. He also said that research work of the center should be updated on the website. Exclusive work should come out of center. Presenting his suggestions, Prof. Thomas Dafferen said that the Jains have contributed a lot to develop the concept of *ahimsa* (nonviolence) which has now become the current need of the time.

To carry out scientific study of *ahimsa* there is dire need of a bigger team. For that many organizations, scientists, scholars and doctors can be associated with this center.

Dr. N.L. Kachhara informed about the progress of the monograph. He gave suggestive guidelines for the Status Papers received for the monograph. Prof. Samani Chaitanya Prajna presented progress report of the center. She said the work on the first Chair “Science and Mathematics in Jainism” has already been started with the invitation of the status papers and opening of the center. The work on the second Chair “Jain Ethics, Environment and Social Sciences” would start soon. She invited short and long term projects on scientific and mathematical studies in Jainism. She has also invited scholars to develop new social innovative study programs/courses on Jainism to create a better society and world. Prof. B.C. Lodha said that Science cannot develop without Mathematics and Mathematics cannot develop without Science. They must go together. Samani Charitra Prajna, in her concluding remarks said, “We all have to work together in order to make Jainism more pragmatic and logical”. She announced Prof. Samani Chaitanya Prajna as the first Executive Director of Bhagawan Mahaveer International Research Centre. At last Dr. Anil Dhar gave vote of thanks to all



participants. Dr. Anand Prakash Tripathi, the Director of Distance Education, effectively convened the program. In this way the whole two-day workshop was a great success. Samani Charitra Prajna, in her concluding remarks said, “We all have to work together in order to make Jainism more pragmatic and logical”. She announced Prof. Samani

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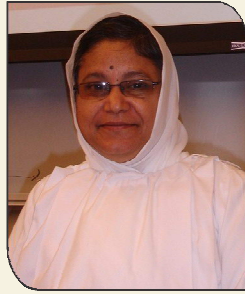


Participants presented in the Workshop at Bhikshu Auditoriums, ASK, New Delhi

Vision and Action Plan of BMIRC

Prof. Samani Chaitanya Prajna has recently joined BMIRC in the capacity of Executive Director. She is contemplating to give a momentum to Jain studies and research going on at Jain Vishva Bharati Institute (JVBI) through BMIRC. In reply to her vision and future plans for the center, she said, "It was the great dream of Acharya Tulsi and Acharya Mahaprajna to establish an International research center at JVBI. Acharya Mahashraman is putting energy to materialize the dreams of his great Gurus. Samani Charitra Prajna, the Vice Chancellor is working effortlessly with the blessings of HH the Acharya Tulsi, Acharya Mahaprajna and Acharya Mahashraman and the generous support of the eminent scholars. BMIRC is aimed to be a research center of international standard and parameters dedicated in reverence of Lord Mahaveer. The center has the potential to emerge as an excellent forum of holistic learning and research in various disciplines of human life and scientific presentation of Jain philosophy in a conducive and encouraging environment. Dealing with the intellectual and cultural history and the reception of Jain path of spirituality, nonviolence, self restraint and non-absolutism in modern times, the center would provide new avenues of research of global concerns.

Studies and researches in identified disciplines would be conducted in comparative, constructive and critical manner covering global practices of learning. Nationally and internationally acclaimed senior academicians, research fellows, eminent scholars, thinkers, reformers and activists from universities,



research institutes, civil societies and other organizations would be invited to conduct research, to deliver lectures and publish their work under the auspices of the proposed center.

The galaxy of scientists, experts and academicians, associated with BMIRC would evolve strategy to make this center as a pioneering forum for all such similar centers all around the globe. This can be done with the support of IT and providing leadership. To fulfill the noble vision of the center we invite suggestions, co-operations, joint ventures, collaborations and active participation of the scholars, institutions and organizations, who are interested in Jain studies and research.

About the work plan of the center she said that to fulfill the grand vision BMIRC would start working in the following phases:

Beginning Phase: In this phase, status papers of the experts in all the major branches of Jain studies would be invited, and workshops would be organized to come up with the monographs of the status papers.

Developmental Phase: Minor research projects would be carried upon and endowment lectures would be organized concerning the thrust areas of research.

Extension Phase: Major research projects would be carried upon and national and international Conferences/Seminars/Symposiums would be organized.

Review Phase: This phase is meant to review the achievements of the center. It will help to make planning for the next phase.

Expansion Phase: In this phase, international relations and collaborations of synergetic nature would be explored.

These phases could be regarded as the road map for the first five years of establishment.

BMIRC in ICQMQC



Dr. Surendra Singh Pokharna, former scientist of Indian Space Research Organization, represented BMIRC in an International Conference on "Quantum Mechanics and Quantum Consciousness" held on January 06, 2015 at Amal Jyothi College of Engineering Kanjirappally, Kerala, India. He presented two papers in the

conference on the topics "**Exploration of General Systems Theory (GST) with Quantum Physics, Theory of Relativity and Knowledge, and Evolution**", and "**Quantum Field Theory like Model of Consciousness in Jainism**".

In his paper on "Exploration...", he said that conservation laws of physics developed to study isolated. Closed physical systems cannot describe biological and human systems, since these systems are open, dynamic, strictly irreversible and are goal directed

systems where effect determines the cause. They are better studied using General Systems Theory, where entropy, order and information are more important than say energy. It is also argued that methodology of science itself needs to be examined critically, as one studies only a limited set of parameters in the laboratory, but a number of parameters gets added up when results of the study are taken out of laboratory and generalized to large scale. It is also argued that Godel's incompleteness theorems indicates stringent limitations on the capability of the modern science to know the truth. Hence one has to talk of the concept of consciousness, and which takes a specific meaning, in the light of General Systems Theory. A number of models involving quantum physics as applied to brain sciences are then summarized, which may act as parts of this grand General Systems approach for better understanding of the concept of consciousness. It appears that even telepathy and clairvoyance may exist but may not obey the space-time invariance conditions of the modern science.

New Avenues of Thought Emerging in the Field of Jain Studies

Quantum Field Theory Like Model of Consciousness and Matter in Jainism

Dr. Surendra Singh Pokharna

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Abstract: Jainism [[1]and Appendix 1], is one of the major three religious systems of India. It is well known for its rational and a scientific methodology. Here their theory of *karmas* is described as interrelation between soul and matter. They talk about a pure soul which has infinite intuition, infinite knowledge, infinite bliss and infinite power. However, a worldly soul is always infected with matter known as *karmas* which obstructs these four properties. [2].The material *karmas* are of eight major types and 158 minor types. The model is similar to quantum field theory used to study superfluid and superconductivity where one has a highly ordered ground state at low temperature and elementary excitations at higher temperature. They also define fourteen stages of spiritual evolution through which one can pass with decreasing amount of these *karmas* and can acquire a pure soul[3]. Three examples are given which show that during higher stages of consciousness, one can have remarkable memory and they have even tried to estimate sizes of smallest particles of matter which is comparable to the current sizes of atoms and nuclei, indicating new frontiers of knowledge [4].

I. Introduction: In Jainism, the world is assumed to be consisting of six elements. They are: *Dharmastikaya* (Medium of motion), *Adharmastikaya* (Medium of rest), *Akashastikaya* (Space), *Pudgalastikaya* (Matter), *Jeevastikaya* (Living beings having a soul) and *Kala* (Time). Jainism has defined the soul as the basic constituents of all living beings. According to the conception of Jainism, a perfect soul has infinite knowledge, infinite intuition, infinite bliss and infinite power. Although perfect soul has other characteristics but the knowledge has been regarded as the chief characteristic of soul. All species may be physically different but are existing in the world from the past which does not have any beginning. It is due to their attachment with material particles known as *karma* that they continuously take birth in the world again and again. Also it is these *karmas* who obstruct these intrinsic qualities of the pure soul. Hence it is stated that the direction of evolution should be towards a goal of liberalizing the soul from all material attachment that is all *karmas*. A process of selection by oneself is involved in spiritual evolution as certain rules and principles have to be followed separately for ordinary humans and for enlightened souls like *acharyas* and *sadhu*, *sadhvis*, etc. It appears that practices like chanting of mantras, doing meditation (*samayik*), fasts (*upwas*, *aaymbil*, *varshi tap*, *masakhman*, *updhan*, *siddhi tap*, *nanayanu yatras*), and other several practices lead to very stable life, increase in self-confidence, recognition of inner strength of soul, and ultimately evolution of one's

soul. This model is quite similar to the quantum field theory like models used to study say superfluidity and superconductivity [4]. In case of QFT, we have a highly ordered vacuum state with elementary excitations on this, whose number increases as temperature increases. In Jainism, there is a pure soul with infinite knowledge and other three infinities with *karmas* who obstruct these qualities of the pure soul.

It is found that during the higher stages of consciousness, a person shows remarkable memory like that of Swami Vivekanand [5]. There is a phenomenon called *Shatavadhan* [4] which has been found in one Jain monk these days and so he can remember one hundred questions (Appendix 2) asked by say 100 different persons in a continuous sequence and can answer them all together in same sequence or reverse sequence and random sequence in the end. Similarly a table for measurement of length is mentioned in Appendix 3, which starts from the smallest particles of matter (for all practical purposes). One finds that the size estimated by them is quite comparable to the size estimated in the modern science[4]. These examples all show existence of higher stages of consciousness which are accompanied by large increase in memory of the brain and also different mechanisms might exist to acquire knowledge. These states have less elementary excitations like entities known as *karmas* in the brain.

II. Theory of Karmas and Consciousness in Jainism: An Analogy with Quantum Field Theory of Elementary Excitations in Solid State Physics

According to the Jain doctrine of *Karmas*, every mundane soul can have an infinite knowledge, infinite intuition, infinite bliss and infinite power (Four infinities). But from an infinite time in the past, it has been infected by matter. This matter has been held responsible for the disorder present in the mundane souls. This form of matter has been termed as *Karma*. (The word *Karma* in Jainism does not mean work). The whole universe is full of that kind of matter which can become *Karma*. Due to the presence of different types or *karmas* in different quantities, different characteristics are manifested by mundane souls i.e. by different living beings. Thus a perfectly ordered consciousness is analogous to a ground state which is free from any excitations. These excitations then correspond to *Karmas*.

At every moment, an empirical self is attracting this matter towards him by his actions through mind and body. This matter which has now become *karma* then remains latent in the empirical self for some time which is determined by the passions at the time of arrival of new matter. Passions in turn are determined

by *karmas* which are already present. *Karmas* have the following four characteristics (A) Nature, (B) Number, (C) Lifetime and (D) Intensity **A. Nature** Different properties of different systems originate from different elementary excitations. Thus phonons, rotons and vortices are meant for different properties of superfluid helium at different temperatures. Similarly in case of superconductors, there is a superconducting state with very high order and there are elementary excitations over it in form of Cooper Pairs. Similarly *karmas* have the following species. Knowledge obscuring, Intuition obscuring, Feeling producing, Age determining, Belief and conduct producing, Body determining, Status determining and Power hindering.

Each one of these is held responsible for different types of disorder present in the empirical self and impedes the manifestation of true nature of consciousness. Jainas claim that all properties of living beings can be explained in terms of these 8 *karmas* and their 158 categories. It may be easily noted that some kind of energy gap like thing exists which may prevent us to realize actual nature of consciousness. **B. Number** The relative number of various elementary excitations present in a system are different at different temperatures and this number varies with temperature. In a similar way the number of *karmas* changes from one animate to another and within a given animate they vary from time to time, depending on one's mental state and state of evolution. Their relative quantities are given by the following rule: The age determining species receive the smallest part; a greater portion goes to the body determining and status determining ones, both of which obtain an equal portion. More than that goes to the knowledge obscuring, intuition obscuring and power hindering species each of which gets an equal portion. Still a larger part than this goes to the belief and conduct obscuring species and the greatest of all goes to the feeling producing species. It is obvious that these *karmas* are not very similar to the matter which constitute the bodies of living beings but are very small in sizes. This difference in the number will then determine different properties of different animates. In case of concept of elementary excitations, it is again the number of these excitations which determine the disorder in the state of these systems, say at different temperatures. **C. Lifetime** The interaction among various excitations causes scattering among them. Thus in a particular state an excitation stays only for some definite time. Similarly the lifetime of the incoming *karmas* depends upon their interaction with *karmas* already present which actually determine one's passions. This lifetime is then determined by *karma-karma* interaction. **D. Intensity** Pure matter is neutral. The various effects are manifested because of its association with the soul. The effect which these *karmas* can show depends upon their *rasa* (juice) which is determined by the passions of the empirical self. This intensity is analogous to the energies of different excitations which show different properties. Thus phonons and rotons determine propagation of sound in liquid helium. The properties of sound will depend on

the contribution from different parts of the spectrum of these excitations. The concept of elementary excitations can also explain the phenomena of phase transitions. Thus different phases of helium have been tried to explain in terms of elementary excitation picture. Similar situation occurs here in this theory also. There are fourteen stages known as *Gunasthanas* which have been recognized in this theory which one passes before acquiring the perfect consciousness starting from a state of highest sinfulness. These have been nicely explained in terms of various *karmas* and their mutual interaction. **E. Phase Transitions, and Jain Concept of Evolution of Soul through Fourteen Stages:** The path of evolution of soul in Jainism is described through fourteen stages through which one has to pass before getting liberalized (that is becoming a pure soul from an impure soul which is associated with many material particles known as *karmas*). These fourteen stages or phases are called fourteen *Gunasthanas* (Pokharna 2012). *Guna* means characteristics and *sthan* means a position or situation. It is very interesting to know that the Jain Acharyas have gone into great depth to describe these fourteen stages. They are being described through twenty nine parameters. (Pokharna 2012). The logic used in taking up so many parameters is highly impressive and there are several subcategories among these twenty nine categories also. An excellent description is given about the movement of a worldly soul from one birth to another and so on. With each stage of development, the knowledge content of soul goes up.

III. Higher Stages of the Consciousness Reflected by a Large Increase in Memory and Awareness:

A. Remarkable memory of Swami Vivekanand implies a highly ordered state of consciousness:

It is too well known that Swami Vivekanand had such a sharp memory that he almost remembered 11 volumes of Encyclopedia Britannica, which he had just scanned once (using read would not be correct). He could virtually recall any line on any page of any of the 11 volumes available at that time. It appears that with continuous dedication and spiritual practices, the state of consciousness evolves and in many cases, it is accompanied by an increase in memory, that is improvements in capture, storage and recalling of objects and events.



B. Shatavadhan (Capability to memorize one hundred questions or events and recall)

An example of the hypothesis of the above formalism is given below which is called *shatavadhan*. *Shatavadhan* (Shat- 100 + Avdhan) is a power to cover 100 different activities in a single act of attention. One who reaches the stage of *shatavadhan* is called *Shatavadhani*. A *shatavadhani* can remember 100 different things in a 100 different orders, spoken by 100 different people. This unbelievable power has been attained by a handful of people over the human history

and because it needs very high stage of spiritual development. According to the modern scientific belief, a normal human being utilizes hardly 2% to 3% of his total mental potential. A common man can hear and remember serially 3 or 4 at a time. This is based on conscious mind. Anyone with exceptional intellect can extend this number from 3-4 to 10-11. However, taking this number to 100 is beyond the powers of most of the people. Shatavadhan is the ability to receive, retain and retain 100 activities accrued through eyes or ear during one period of attention and carried from the conscious to the subconscious. In Jain tradition one can name ShrimadRajchandra, Guru of Mahatma Gandhi[6,7]. Similarly these days, Ajeet Chand SagarjiMaharashab, a satavdhanihas demonstrated his spiritual powers in Ahmedabad (2008) and Mumbai (2012).

He can listen to two hundred questions (or scenes he watches) asked by two hundred persons at a stretch for say four hours and can answer them in the same sequence or reverse sequence after four hours, just like a machine with almost 100 percent accuracy. He is expected to give a similar demonstration involving 500 avadhans in Mumbai on November 16, 2014.



C. Did ancient Jain Acharyas tried to estimate size of smallest particles of matter: An evidence that some unexplored mechanism to acquire knowledge exist:

Another example is taken from ancient Jain scriptures [8]. It gives a Table for measurement of length (Appendix 3). It starts from the smallest particle of matter and goes up to one *Yojana* (a commonly used unit of length prevalent in ancient India). It indicates that ancient Jain acharyas have made an attempt to develop a table for measurement of length in 20 steps. This is an octal system till step 12. As explained in the Appendix 3, if we statistically interpret it then we find that as per their assessment, the size of the smallest particle of matter (known as *avśannasanna skandha* from practical point of view in prakrit language) is 2.9X 10⁻¹¹ cm. This value lies in between the size of a modern atom (10⁻⁸ cm) and size of a nucleus (10⁻¹³ cm). Now we may not be knowing the meanings of many of the objects used in this Table. But statistically, this is a very significant observation and should be taken quite seriously by the scientists. At least it should not be ignored. The mere fact that it was arrived at from the telepathy of advance level through which one can see even the smallest particle of matter should be a very exciting observation. This again shows that the Jain concept of knowledge should be taken very seriously by the scientific community and should be further explored in a careful way.

Now the mere fact that this concept might have evolved through a realization of this higher level of consciousness is worth examining. It appears to involve advanced telepathy (known as *avadhi jnana* in Jainism) or some type of advanced knowledge.

IV. Is knowledge really structured in the consciousness: qubits, quantum information and the brain

Actually the recent development in computer science and neurobiology clearly show that knowledge is nothing but information organized in some way [9] and information in turn is just organization of data in some fashion. It is also realized that human consciousness (and even animal consciousness) is capable of organizing these data and can generate information and hence knowledge in some way [9]. Therefore what we call as scientific knowledge is just a subset of this grand concept of knowledge, which can exist in the human consciousness. Because all interpretations of all scientific experiments are ultimately done by human consciousness [10]

Actually it is argued that quantum computers like processes are possible in the human brain even at biological temperature [11]. It is claimed that human sub-conscious mind works on the basis of quantum computers (assuming tubulin's groups acting as a cellular automata), and so its activities are hidden from us. When the Orch OR takes place, one enters into classical world. Now let us look at the following numbers: [11,10].

- Number of neurons in the human brain: 10¹¹
- Number of synapses per neuron in the human brain: 10³
- Number of operation per synapses in one second: 10³
- Number of bit states per second in the human brain: 10¹⁷
- Number of tubulins per neuron : 10⁷
- Number of oscillation per Microtubule : 10⁸
- Nanosecond switching in Microtubule automata per neuron per second : 10¹⁶
- Hence for a human brain, number of bits offered per second: 10²⁷

Thus till quite recently, capacity of human brain was assumed to be possess 10¹⁷ bits states per second in the human brain. It was based on the assumption that there are 10¹¹ neurons in the brain, and on the average there are 10³ synapses per neuron and again there are around 10³ digital operations per synapse per second. And these are treated as classical bits. However, with the new discovery of tubulins who individually and collectively (entanglement) behave as quantum systems, this human capacity has gone upto 10²⁷ quantum bits of information. It is so because now there are around 10⁷ tubulins and there can be at least 10⁹ (actually in the range of 10⁹-10¹¹ oscillations per second). So this number of 10¹⁶ has to be multiplied with the total number of neurons in the brain is, which is 10¹¹. This may be compared with performance of the best supercomputer in the world that is A Iexa FLOPS (EFLOPS) computer system, which is capable of performing one quintillion (10¹⁸) floating-point operations per second. However, in case of brain, these bit states are not classical bits but quantum bits (known as qubits). Hence this will ultimately leads to almost

infinite information, as per the latest work in the field of quantum computers and quantum information. This means that a human brain essentially can possess almost infinite knowledge. This idea is therefore very close to the concept of infinite knowledge possessed by a pure soul in Indian philosophy in general and Jainism in particular.

It appears that the spiritual practices of Jain and other Indian monks results into decrease in decoherent activities in their brain and realization of the quantum information through the biological quantum computers.

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Appendix-1

Jainism , traditionally known as Jaina Dharma is an Indian religion that prescribes a path of non-violence towards all living beings and emphasizes spiritual independence and equality between all forms of life. The essence of Jainism is concern for the welfare of every living being in the universe. Practitioners believe that non-violence and self-control are the means by which they can obtain liberation. Jains believe in the notion that truth and reality are perceived differently

from diverse points of view. This doctrine is formally called *anekantavada*. According to it, human beings are always limited in their perception and knowledge about the reality. They can thus have only partial information/knowledge of reality.

Philosophical and theological disputes arise only because of the partial knowledge of human beings. The Jain doctrine stresses on the existence of soul. According to Jainism, every living being is a soul and have a separate existence from the body that houses it. This soul undergoes a cycle of reincarnations. Jainism postulates the existence of fine particles of matter called *karma*. These karmic particle are attached to the soul from infinite past. On account of the soul's interaction with the *karmas* and it is through this *karma* that the soul is reincarnated and feels pleasure and pain.

The word Jainism is derived from a Sanskrit verb 'Ji' which means to conquer'. It refers to a battle with the passions and bodily pleasures that the Jaina ascetics undertake. Those who win this battle are termed as *Jina* (conqueror). The term Jaina is thus used to refer to laymen and ascetics of this tradition alike. Jainism is one of the oldest religions in the world. Jains traditionally trace their history through a succession of twenty-four propagators of their faith known as *tirthankara* with Adinath on the first *tirthankara* and Mahavira as the last.

Appendix-2. Details of one hundred questions answered in same sequence by Shri Ajeet Chandra Sagarji Maharasahab in the process of Shatavadhan

- | | |
|----------|--|
| 1 to 10 | One Line sentences may be in questioners form |
| 11-20 | Words of Wisdom in a sentence of 5 to 7 words |
| 21 | First line of a Sanskrit <i>Shloka</i> |
| 22 to 30 | Synonym or Antonym in Gujarati |
| 31 | Second line of the same Sanskrit <i>Shloka</i> |
| 32 to 40 | Idioms |
| 41 | Third line of Sanskrit <i>Shloka</i> |
| 42 to 50 | Any first line of the same Sanskrit <i>Shloka</i> |
| 52 to 60 | Names of any priest, religious book or religious place |
| 61 | A mathematical puzzle |
| 62 to 70 | Name of any philosopher, scientist or patriotic person |
| 71 | First part of 16 Blocks- mathematical miracle |
| 72 to 80 | See and Remember (<i>Darshan Avadhan</i>) |
| 81 | Second part 16 blocks- mathematical miracle |
| 82 to 90 | See and Remember(<i>Darshan Avadhan</i>) |
| 91 | 9 Blocks- Mathematical miracle |
| 92 to 99 | Mathematical calculation with 8 persons |
| 100 | Day of the Birthday |
| 101-104 | A line from Religious, cultural or patriotic song |
| 105to108 | Shloka from Jain Aagams |

Appendix 3. Table of Measurement of Length as Found in the Jain Literature [8]

- | | |
|-----|--|
| (1) | Infinitely many <i>parmanus</i> = 1 <i>Avasannasanna skandha</i> |
| (2) | 8 <i>Avasannasanna</i> units = 1 <i>Sannasanna skandha</i> |
| (3) | 8 <i>Sannasanna</i> units = 1 <i>Trutrenu</i> |
| (4) | 8 <i>Trutrenu</i> units = 1 <i>Trasarenu</i> |
| (5) | 8 <i>Trasarenu</i> units = 1 <i>Ratharenu</i> |
| (6) | 8 <i>Ratharenu</i> units = 1 <i>Uttamabhogbhumi balagra</i> |

(7) 8 U. b. b. units	= 1 <i>Madhyama bhog bhumi balagra</i>
(8) 8 M. b. b. units	= 1 <i>Jaghanyabhogbhumibalagra</i>
(9) 8 J. b. b. units	= 1 <i>Karma bhumi balagara</i>
(10) 8 K. b. b. units	= 1 <i>Liksa</i>
(11) 8 <i>Liksa</i> units	= 1 <i>Yuka</i>
(12) 8 <i>Yuka</i>	= 1 <i>Yava</i> (Barley corn)
(13) 8 <i>Yava</i> units	= 1 <i>Angula</i> (Finger breadth)
(14) 6 <i>Angula</i> units	= 1 <i>Pada</i>
(15) 2 <i>Pada</i> units	= 1 <i>Vitasti</i>
(16) 2 <i>Vitasti</i> units	= 1 <i>Hasta</i> (Forearm)
(17) 2 <i>Hasta</i> units	= 1 <i>Rikku</i> or <i>Kisku</i>
(18) 2 <i>Kisku</i> units	= 1 <i>Danda</i> or <i>Dhanus</i> (Bow)
(19) 2000 <i>Dandas</i> units	= 1 <i>Krosa</i>
(20) 4 <i>Krosa</i> units	= 1 <i>Yojana</i>

Here a parmanu has been defined as the smallest particle of matter having no length, no breadth and no height. This is defined as a particle which can be only thought of but is not practically perceivable. The particle which is perceivable is a group of *parmanus*.

The smallest of such *skandha* is an *avsannasanna skandha*. Let us therefore estimate its size by roughly taking the average size of a finger to be equal to 2 cm. We can therefore write the following simple formula by using the above table:

$$2 \text{ cm} = 8^{12} \times \text{size of } \textit{avsannasanna skandha}$$

$$\text{Therefore Size of } \textit{avsannasanna skandha} = 2 \times 8^{-12} \text{ cm.} \\ = 2.9 \times 10^{-11} \text{ cm.}$$

Hence the size of smallest particle of matter that is *avsannasanna skandha* is around 2.9×10^{-11} cm. This value lies in between the size of a modern atom (10^{-8} cm) and size of a nuclei (10^{-13} cm). Now we may not be knowing the meanings of many of the objects used in this Table. But statistically, this is a very significant observation and should be taken quite seriously by the scientists. At least it cannot be ignored. The mere fact that it was arrived at from the telepathy or some advanced channel of knowledge through which one can see even the smallest particle of matter. This again shows that Jain concept of knowledge should be taken very seriously by the scientific community and should be further explored in a careful way.

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Opening of the Building of the Center

The new building constructed for the research in
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donor Mulchand Nahar and Dharam Chand Lunkar, the



President of the Parental body, to the Vice Chancellor of JVBI
for BMIRC. The opening ceremony of the building of center
was held on the grand occasion of the 25th Foundation Day
and Silver Jubilee Year Celebration of JVBI on 20th March 2015
at Ladnun.



Future Attractions and Events

1. Publication of Monograph of the Chair “Jain Science
and Mathematics” on “Scientific Perspectives of
Jainism”.
2. International Conference on “Science and Jain
Philosophy”, Dec. 27-29, 2015, Mumbai.
3. Plenary session on “Saving the Earth : The Jain
Philosophy may provide New Avenues of Thought”
Oct. 15-17, 2015 in Parliament of World Religions,
Salt Lake, USA.
4. Inviting status papers and organizing a workshop on
the Chair “Ethics, Environment and Social Sciences”.
5. Two-day seminar for international students on “Jain
Meditation and Yoga”, with Special Reference to
Preksha Meditation.
6. Convention of the youths interested in Jain Studies
“1st BMIRC Youth Convention”, Dec. 26, 2015,
Mumbai.

For any information please contact : bmirc.jvbi@gmail.com

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