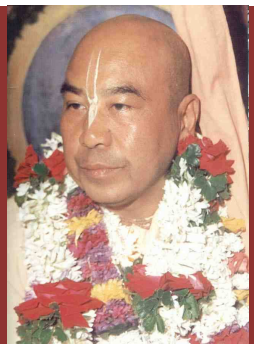
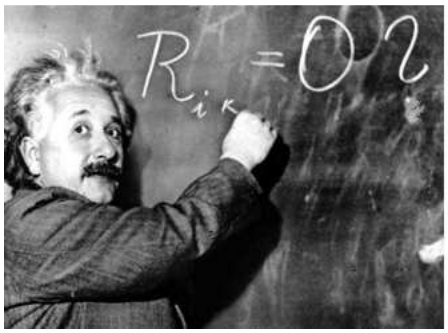
All Glories to Sri Guru and Sri Gauranga

A humble offering to Srila Bhaktisvarupa Damodara Goswami Maharaja (Dr. T.D. Singh, Founding Director Bhaktivedanta Institute)

On his 76th Auspicious Appearance Day





Scientists are able to explain science, but . . .

Is Science Able to Explain the Scientist ?

INTERNATIONAL CONFERENCE

Science & Scientist – 2013

SYNERGY INSTITUTE OF TECHNOLOGY, BHUBANESWAR, ODISHA, INDIA

December 8, 2013

PROGRAMME & BOOK OF ABSTRACTS

International Conference on "Is Science able to explain the Scientist?"
Science and Scientist – 2013

Organised by:

Sri Chaitanya Saraswat Institute, *Siliguri, West Bengal, India*: www.bviscs.org/scsi

Bhakti Vedanta Institute of Spiritual Culture and Science, *Princeton, NJ, USA*: www.bviscs.org

Synergy Institute of Technology, *Bhubaneswar, Odisha, India*: www.synergyinstitute.ac.in

Organizing Committee:

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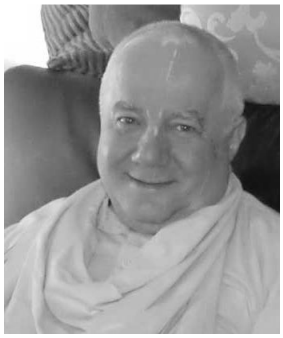
Sripad Bhakti Madhava Puri Maharaja, Ph.D. ***Serving Director, Bhakti Vedanta Institute of Spiritual Culture &Science Princeton, NJ, USA***



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MESSAGE FROM THE CHAIRMAN, ORGANISING COMMITTEE, SCIENCE AND SCIENTIST – 2013

Sripad Bhakti Madhava Puri Maharaja, Ph.D.

Serving Director Bhakti Vedanta Institute of Spiritual Culture and Science, Princeton, NJ, USA

Namaste. It is my honor to welcome you to this scientific conference on a topic of fundamental concern to all scientists and non scientists alike. Inspired by our own teachers who were broadminded enough to bridge the domains of science and religion to show the harmony that exists when proper rationality prevails in both spheres. We are all thankful to the organizers who made this important conference possible: Dr. Niskama Shanta Maharaja, Dr. Vijnan Muni Maharaja, Mr. Binod Dash and Dr. Kapileswar Mishra.

Science is the body of Man's knowledge and understanding of the natural and social world derived by following a systematic methodology based on evidence. As a body of knowledge, it exists, but not as a mechanical body that can be analyzed in terms of physics and chemistry. Rather, physics and chemistry are subsets of Scientific knowledge that are products of Science. In turn, Science is the product of the rational activity of Scientists. It is the peculiar perversion of modern materialistic science to think they can invert this natural sequence.

But the enthusiasm to explain biological life in terms of physics and chemistry has led mechanistic science to a threshold, beyond which it has not been able to cross. The phenomenon of life has proven itself to be inaccessible to mere physical and chemical scientific explanation, despite the most strenuous efforts of thousands of scientists worldwide.

Twenty-first century biology has revealed a level of detail and complexity of even the most simple biological organisms that was unavailable and unimaginable to scientists even a few decades ago. They are now faced with evidence that suggests that all living organisms appear to exhibit an essentially sentient nature of regulation, manipulation and control even at the cellular level. This has given rise to the new field of cognitive biology.

This may be an unexpected surprise to mechanistic science, but mankind has always understood that the difference between life and non-life is sentience. It is one of the chief shortcomings of mechanistic science that it has attempted to explain everything in the universe except sentient phenomena such as life, mind and intelligence. Even the most ancient science of *Samkhya* did not avoid incorporating such obvious features of Nature within its system.

The natural progress of science has led to the need to broaden its scope to include such features that all rational people know are part of their reality. The work of our Institutes is to encourage this type of scientific research for the benefit of Mankind, and to follow the evidence wherever it may lead.

Life comes from life is a scientific conclusion based on evidence. Matter or biomass is also a product of life only. Neither of these principles can be explained or produced from mere matter only. Authentic science must be based on these real principles of Nature that are confirmed by repeatable evidence, and not based merely on prevailing ideological dogma. It is our hope that this conference, and many more like it, will help to bring about the inevitable progress toward a scientific understanding that is worthy of the concept of life.

MESSAGE FROM THE CHAIRMAN, SYNERGY GROUP OF INSTITUTIONS, DHENKANAL & BHUBANESWAR, ODISHA, INDIA

Mr. Binod Dash

Chairman, Synergy group of Institutions Dhenkanal and Bhubaneswar, Odisha, India

The theory of evolution of bodily forms given by Darwin caused degradation in the moral and spiritual standards of humanity all over the world because it neglected the spiritual foundation of all life. The Darwinian principle is based upon random mutations and natural selection and therefore it is a functionalist paradigm for appearance of biological forms. This leads to the problem of deducing how chance combination could ever give rise to living forms. Further, how that can explain consciousness? Is it possible that randomness could ever give rise to new information leading to cognitive reality? If we begin with a chaotic system in some combination of matter and it is subjected to and led only by undirected forces and if a filter of natural selection is applied, will it lead to the creation of a design or pattern or an autopoietic system? If it is that some new information can arise from a given set of circumstances through some selection filter, what will be the selection principle and what will be its ontology? When mutational changes occur, the chances of unbeneficial results are extremely high. The theorists have no idea of the influences of the entire cell and they think as if everything is occurring in a neutral medium. Thus a more practical approach will be to specify something about evolution that what kind of system can evolve from a chaotic system or any other similar systems. Does the information content from the selection principle come from external environment or is it something from within? Then what is the selection principle of nature? Why should survival be a part of nature? Famous mathematician Gödel was a confirmed personalist in this regard. He even wrote to his mother about his spiritual concepts that he developed and for which he had so much admiration. Further the work of Gödel leads to the inference that the symbolic aspects of living systems must differ from those of the formal systems like that of Gottlob Frege or David Hilbert's meta-mathematics. Gödel said, "But do we have reason to assume that the world is rationally organized? I think so. For the world is not at all chaotic and capricious, but rather, as science shows, the greatest regularity and order prevails in all things; [and] order is but a form of rationality." Thus there is a lot of thinking material present in today's advanced scientific thinking that confirm a holistic, cognitive basis of life rather than any molecular basis of life based upon chance and randomness.

I wish the 'Science and Scientist – 2013' all success in exploring the deeper spiritual nature of life and its divine origin. Science comes from the Scientist. But can Science explain the Scientist without whom no science is possible. I have been interacting with the devotee scientists of Sri Chaitanya Saraswat institute, Siliguri and we feel encouraged that by our combined effort the message of Bhagavad-Gita and the advanced 21st century Biology, which is confirming the cognitive, spiritual understanding will be communicated to the entire society of the scientists and scholars.

MESSAGE FROM THE PRINCIPAL, SYNERGY INSTITUTE OF TECHNOLOGY, PHULNAKHARA, BHUBANESWAR, ODISHA, INDIA

Prof.(Dr) Kapileswar Mishra

Principal, Synergy Institute of Technology, Phulnakhara, Bhubaneswar, Odisha, India

Modern educational system especially conventional science and biology unfortunately propagated a material origin of life following mechanistic science and Darwinian misconceptions. Teachers are forced to teach students that man is nothing but a membrane full of chemicals. Following this vision, the human civilization proceeded towards a self-destruction in the form of environmental pollution and materialistic lifestyle. Biologists worked hard to find relevant evidence for this materialistic ideology of material origin of reality. However, we are witnessing a revolutionary change in the mindset of prominent scientists all over the world. Many reputed journals and research works in biology have started highlighting biological systems as cognitive systems and therefore are looking for a new paradigm to deal with the evidence that they are gathering from their studies.

It is a matter of great happiness for Synergy Institute of Technology, Bhubaneshwar that we are organizing an international conference 'Science and Scientist -2013' in collaboration with Sri Chaitanya Saraswat Institute, Siliguri, West Bengal, India and Bhakti Vedanta Institute for Spiritual Culture and Science, Princeton, NJ, USA. This conference is unique in all respects because it is an effort to bring together the leading scientists and scholars in scientific disciplines to discuss the Origin and nature of life and Universe from the perspective of 21st century science. Consciousness is a subjective reality which has bearing on living phenomenon. Wherever there is life, there is consciousness and wherever there is consciousness, there must be life. I had the good fortune of listening to Srila Bhaktisvarupa Damodara Maharaja (Dr. T.D. Singh) in an unique conference 'Aging and Dying' organized by IIT Kharagpur during my Ph.D. I also had a good fortune to associate with some of his disciples like Sripad Bhakti Niskama Shanta Maharaja, Ph.D. and Sripad Bhaktivijnana Muni, Ph.D. who were also pursuing Ph.D. at IIT Kharagpur with myself. We had many good discussions on the topics of Harmony of Science and Religion. I also organized a few seminars with them in recent time. The message that I have understood from the arguments of these devotee scientists is that life can only come from life and there is no evidence whatsoever for abiogenesis or material origin of life. Therefore an honest scientist must accept the truth based on evidence and spread the same for the benefit of humanity. We are hoping that Science and Scientist 2013 will inculcate such spirit among the practicing scientists.

MESSAGE FROM THE DIRECTOR (R & D), SYNERGY INSTITUTE OF TECHNOLOGY, PHULNAKHARA, BHUBANESWAR, ODISHA, INDIA

Prof. P.L. Nayak, Ph.D, D.Sc, FSPS, FANS

Director (R & D), Synergy Institute of Technology, Phulnakhara, Bhubaneswar, Odisha, India

The opinion that science and religion are antagonists is rather widespread in our present cultural environment and this view can be seen as an inheritance of positivism, a philosophical doctrine originated by Auguste Comte at the beginning of the nineteenth century and then rapidly penetrated in almost all European and American countries. The main reason for the fervor encountered by positivism was its being an explicit celebration of science as the most perfect form of knowledge, a fact that seemed obvious in a historical period in which mathematics and the natural sciences were accumulating an astonishing harvest of new knowledge that was also producing a great display of useful technological applications. Typical of Comte's positivism was the thesis that, in those fields of knowledge where humankind has been able to make real progress, a transition has taken place from the initial stage (what he calls as theological) in which the explanation of phenomena was sought in the causal action of the supernatural entities, to a successive stage (called metaphysical) in which such an explanation was found in some alleged fundamental principles of reality (such as the principle of causality, of the simplicity of nature, of the rational order of the world), to a third and final stage (called positive) in which the scientists are content with an accurate description of phenomenon, refraining from any interpretation, and at most recording those "regulation" occurring among the phenomenon that we call natural laws.

This seems to be simply a historical understanding of the course of human knowledge, but is much more than that science the transitions from one stage to the subsequent is present as the result of hard struggle, a struggle that is never finished because theological and metaphysical efforts of interpreting reality are always alive in society, and in order to promote human progress it is necessary to find harmony between science, metaphysics and religion. Ignoring empirical facts is a major enemy of science, the force that tries to oppose the progress and freedom of science. There are also many people, however, who do not subscribe to this antagonism between science and religion and among them there are plenty of scientists, so that it is not possible to say, for example, that scientifically uncultivated persons think that religion and science are compatible while scientists are of the opposite opinion. Indeed, besides persons who feel that no contrast between religion and science exists, simply because religion is a question of faith with respect to which scientific knowledge is irrelevant, there are among scientists and non-scientists, many persons who even believe that science as a good support for religion.

A MISSION TRANSFORMING MATERIAL SCIENCE INTO SPIRITUAL SCIENCE

How Educational System Transformed from Spiritual to Material?

Our attitude is greatly dependent on the way our education has prepared us to think about reality. Systems of schooling include institutionalized education and acquiring knowledge based on a syllabus, which itself is based on a predetermined purpose of the schools in the system. In the past school systems were founded on religion providing them different curricula. At that time education was for the sake of itself. The main reasons people pursued education and attended schools were to satisfy the spiritual quest – *athato brahma jijnasa* (*Vedanta-sutra* (1.1.1)) and longing for spiritual development, to uplift oneself, without livelihood-based motivations for doing so. The prime focus of modern education is to acquire necessary knowledge and skills to improve ability to learn basic interpersonal communication, literacy skills and earn a livelihood for themselves. The three main pillars responsible for this transformation of educational systems from spiritual to material are: (1) Francis Bacon's campaign of "power/control over nature", (2) Descartes' epistemology – science can 'make us masters and possessors of nature', and (3) Darwinian's objective evolutionary biology.

Francis Bacon's campaign 'power/control over nature'

Francis Bacon (1561–1626) was one of the prominent personalities in natural philosophy and in the subject matter of scientific methodology during the shift from the Renaissance to the beginning of modern era. Bacon discussed questions of ethics (*Essays*) in his works on natural philosophy (The Advancement of Learning).[1] He criticized Plato, Aristotle, humanists and Renaissance scholars such as Paracelsus and Bernardino Telesio. Bacon, in his systematic structure of the disciplines in the *Advancement of Learning* (1605), rejects the book learning of the humanists, on the grounds that they 'hunt more after words than matter' (Bacon, III [1887], 283).[2] Furthermore, he carps about the Cambridge University curriculum for giving importance on dialectical and sophistical training (Bacon, III [1887], 326).[3] Thus Bacon reformulated and altered Aristotle's conception of science as knowledge of necessary causes. Rejecting Aristotle's logic (which is based on his metaphysical theory), Bacon assumed that our sensual experience (things as they appear), automatically presents things as they are to our understanding. Bacon pursued his work on natural philosophy and brought back the concepts of Pre-Socratic philosophers, especially the atomists, and among them, Democritus, as the leading figures. Bacon gave preferences to Democritus' natural philosophy and thus dismissed Aristotle's deductive logic and belief in authorities. Bacon rejects any approach based on tradition to start with and believes in a direct investigation of nature and then to ascend to empirical and general knowledge.[4] For Bacon the value of power and utility is so immense that frequently truth, power and utility become identical concepts in his understanding. Bacon stated in *Novum Organum*,[5]

"*Truth, therefore, and utility, are here perfectly identical, and effects are of more value as pledges of truth than from the benefit they confer on man… There is a most intimate connection between the ways of human power and human knowledge… and that which is most useful in practice is most correct in theory*."

The great scientist of the seventeenth century, Newton, developed the mechanistic concept of reality in science by deriving inspiration from Bacon's work. This has caused a shift from harmonious organic or wholistic word view to dangerous mechanistic worldview of reductionism. Bourdeau stated,

"*For Bacon we must subdue nature, penetrate its secrets and chain it to satisfy our desires. Man is the center of the world and the object of science is to dominate nature*."[6]

In the past nature was seen as a worshipable divine gift of God and after Bacon's campaign all that has changed. Bourdeau futher stated,[7]

"… Now nature is threatened by man who has become detached from it. Technology has endowed humans with the power of a major geological agency, which may act on a continental or even planetary scale (e.g. acid rain, photochemical smog, radioactive contamination, stratospheric ozone depletion, climate change).

"*These man-made environmental problems cannot all be solved by technology alone. Changes in human behaviour are necessary, hence the need for codes of conduct based on the ethics of the environment. The relationship between man and nature must be reconsidered.*"

Descartes' epistemology – science can 'make us masters and possessors of nature'

Bacon's mechanistic science is further strengthened by Rene Descartes' (1596 – 1650) dualistic philosophy – Cartesian duality. In the Cartesian view, to make sure that we believe only what is authentically definite, we must first knowingly reject all of the confidently held but debatable beliefs we have formerly acquired by experience and education. Separateness of the physical and mental reality was established by Descartes theory of perception and his famous *cogito ergo sum* – 'I think, therefore I am.' For Descartes the power of the human mind/reason is central to science. By exercising the mind for understanding nature, one can obtain scientific knowledge and hence can become the master and possessor of nature. Descartes explained that man must overcome the slavery to nature and by developing the knowledge of nature man can make nature useful to men. Thus Descartes established a mechanistic understanding of reality by proposing nature as a bag of tools ready for any human purposes. In Descartes view we were considered to be sitting dualistically outside the world discovering the laws of physics to direct them towards our own purposes.

Descartes explained that human beings are made up of two things: *res extensae* (corporeal body, physicochemical, material and tangible entity) and *res cogitans* (metaphysical mind–non-corporeal, intangible, immaterial entity unavailable for empirical examination by any observational natural science). However, he could not provide a convincing explanation on how something non-physical could be intimately related with something physical. Descartes' dualistic view is like a 'ghost in a machine', but he was not sure how a ghost can control the machine. In addition to this mind-body dualism, Descartes also explained that animals are completely distinct from humans because he believed that animals don't have *res cogitans* – 'thinking substance'. For Descartes animals are organic automata (machines), which are much more fabulous than artificial ones, but machines nonetheless. Gaukroger[8] stated,

"*Descartes completely reshapes the relation between metaphysics and natural philosophy, and develops the first mechanist physical cosmology,… the first mechanist physiology and embryology, the first mechanist account of animal sentience …*"

In Introduction to *Animal Rights*,[9] Gary Francione describes the anticipated consequences of the Cartesian view:

"*Descartes and his followers performed experiments in which they nailed animals by their paws onto boards and cut them open to reveal their beating hearts. They burned, scalded, and mutilated animals in every conceivable manner. When the animals reacted as though they were suffering pain, Descartes dismissed the reaction as no different from the sound of a machine that was functioning improperly. A crying dog, Descartes maintained, is no different from a whining gear that needs oil.*"

Darwinian objective evolutionary biology

Following Descartes physics started developing based on the mechanistic Cartesian world view, and on that foundation the principles of Newtonian physics retained their strong authority in Western scientific thinking. Even though Descartes' straightforward mechanistic biology was revised significantly, the faith that all features of living organisms can be explained by reducing them to their smallest constituents, and the mechanisms through which these interact, forms the foundation of evolutionary biology developed by Charles Darwin (1809 – 1882) and his faithful followers. In biology, the Cartesian view of living organisms as machines made from distinct parts, provided the central conceptual framework until the last few decades of the 20th Century. Clear evidence of the mechanistic view of reductionism in biology can be sensed from this statement of a textbook on modern biology: "*One of the acid tests of understanding an object is the ability to put it together from its component parts. Ultimately, molecular biologists will attempt to subject their understanding of cell structure and function to this sort of test by trying to synthesize a cell.*"[10]

Under the command of Captain Robert FitzRoy, the HMS Beagle set sail in 1831, with British naturalist Darwin on board. In this voyage, serving as a naturalist, Darwin studied the geographic distribution of plants and animals in terms of the uniformitarian geology based on Charles Lyell's published *Principles of Geology*. The patterns of extinct fossil forms and extant life gave Darwin an impression that some natural and gradual process that involved migration and adaptation to local environments had taken effect, rather than some act of inimitable or extraordinary creation of God. Thus he tried to come up with a general rationalization for his observations of the natural world. Influenced by *Essay on the Principle of Population* by Thomas Robert Malthus, Darwin believed that competition for natural resources was a fact of life and that populations remained stable as a result of processes that included checks and balances. In a struggle for existence, individuals with the most favorable characteristics would be favored to survive and reproduce themselves. Thus, Darwin claimed that over a large time scale, organisms with favorable traits and characters would diverge from their ancestral forms to give rise to new species.

In the year 1859 Darwin explained 'descent with modification' by means of 'natural selection' in his famous publication *On the Origin of Species by Means of Natural Selection; or, The Preservation of Favoured Races in the Struggle for Life*.[11] Although Darwin had only one line on human evolution in his 1859 book, his theory clearly indicated that humans were also subject to the same mechanistic process as plants and animals. Thus, this mechanistic theory of natural selection provided a naturalistic foundation for modern biology by eliminating God's creation and established a nonpurposive view of reality. In a famous letter[12] to his botanist friend Joseph D. Hooker in 1871, Darwin stated "*It is often said that all the conditions for the first production of a living organism are now present which could ever have been present. But If (and oh what a big if) we could conceive in some warm little pond with all sorts of ammonia and phosphoric salts, light, heat, electricity etc. present, that a protein compound was chemically formed, ready to undergo still more complex changes at the present such matter would be instantly devoured,*

which would not have been the case before living creatures were formed." Hence, in Darwin's view, life is nothing but a majestic arrangement of atoms and molecules.

Bhakti Vedanta Institute for Spiritual Culture and Science – a mission transforming darkness into light (*tamaso ma jyotir gamaya*)

Lord Sri Krishna and Lord Balaram mercifully appeared as two full moons in the form of Lord Chaitanya Mahaprabhu and Lord Nityanada Prabhu to dispel the dense darkness of ignorance in this dark age of *Kali* by spreading the cooling rays of extreme mercy. In *Srimad-Bhagavatam* 11.5.32, we find evidence of the advent of *Kali-yugaavatar* Lord Sri Chaitanya Mahaprabhu and His associates:

krsna-varnam tvisa 'krsnam sangopangastra-parsadam
yajnaih sankirtana-prayair yajanti hi su-medhasah

Translation: In the age of Kali, persons of great piety and intelligence will worship the Lord as Sri Chaitanya Mahaprabhu. He will appear in a golden form chanting Krishna's name, accompanied by His associates and entourage.

Lord Chaitanya appeared along with His eternal associates 517 years back in Sri Navadwip Dham, West Bengal, India and established the congregational chanting or *Sankirttan*, as the universal religion for this age of Kali. Lord Nityananda Prabhu appeared in Rada-desa, Birbhum District, West Bengal, India. Lord Chaitanya Mahaprabhu predicted that his mercy would spread to every town and village and Lord Chaitanya Mahaprabhu's manifesting potency Lord Nityanda Prabhu, expansively initiated that distributing function. Lord Nityananda Prabhu was running after fallen souls, making them qualified by giving his causeless mercy and finally sending them to his master Lord Chaitanya Mahaprabhu (the relishing function). Hence, the mercy of Nityananda Prabhu is the foundation of devotion to Lord Chaitanya Mahaprabhu. Only by the mercy of Lord Nityananda one can obtain Lord Chaitanya Mahaprabhu's divine grace. These two divine functions of Absolute: relishing and distributing functions are eternally manifesting in our Gaudiya Sampradaya.

After 500 years of Mahaprabhu's appearance, distributing and relishing functions of Absolute again appeared extensively in the form of Srila A.C. Bhakti Vedanta Swami Prabhupada and Srila Bhakti Rakshak Sridhar Dev-Goswami Maharaja. Fulfilling the prediction of Lord Chaitanya Mahaprabhu, in ten short years, Srila A.C. Bhaktivedanta Swami Prabhupada inundated the whole world with Krishna consciousness. Srila Prabhupada went to the West in 1965 and distributed Krishna consciousness in an extraordinary manner, which is unique in the history of our Sampradaya. Like merciful Nityananda Prabhu, Srila Prabhupada ran after the most fallen souls in western civilization and made them qualified to accept Krishna consciousness in their practicing life. Prior to his divine disappearance from this mortal world in 1977, Srila Prabhupada guided his disciples and followers to obtain further spiritual guidance from Srila Bhakti Rakshak Sridhar Dev-Goswami Maharaja, whom he considered his own siksha Gurudev. Srila Sridhar Maharaja affectionately nourished the sincere souls, who approached him following the order of Srila Prabhupada. Srila Sridhar Maharaja is world renowned as the guardian of pure devotion for his saintly simplicity, affectionate nature and many other wonderful Vaisnava qualities. He blessed the world with many beautiful compositions of spiritual prayers and literature, revealing a devotional stature in common with that of the famed Goswamis of Vrindavan.

Srila Prabhupada decided to go to America, because whole world (especially India) was following the American mentality. Srila Prabhupada thought if America took to Krishna consciousness, other countries would simply follow. This was a wonderful vision of Srila Prabhupada and he could practically achieve it by convincing the whole world about Krishna consciousness in ten short years. However, the scientific community of the world did not take up the movement of Lord Chaitanya Mahaprabhu very seriously. As explained before, scientists believe that life can be reduced to molecules and in the future, by massive molecular manipulation, they can successfully synthesize life in their laboratory. Knowing scientists are the powerful preachers of modern materialistic civilization, Srila Prabhupada was very concerned about their mentality. To save the world from this dangerous position, Srila Prabhupada organized a scientific preaching mission 'Bhaktivedanta Institute' under the leadership of Srila Sripad Bhaktisvarupa Damodara Goswami Maharaja (Srila Sripad Maharaja, also known as Dr. T.D. Singh). Srila Prabhupada gave much energy and special attention for this most important preaching mission of Lord Chaitanya Mahaprabhu to defeat materialistic science and to gradually transform it into spiritual science. Lord Sri Krishna says in *Srimad Bhagavad-Gita* 3.21 that,

yad yad acarati sresthas tat tad evetaro janah
sa yat pramanam kurute lokas tad anuvartate

Translation: Whatever action is performed by a great man, common men follow in his footsteps. And whatever standards he sets by exemplary acts, all the world pursues.

In the same lines, Srila Prabhupada envisioned that, if the top class man of society, engineers, medical men and scientists take up the Krishna Consciousness movement as a scientific movement, following them common men will also do the same. Srila Prabhupada said,

"… we have formed one party of scientists under the leadership of Sriman Svarupa Damodara Prabhu. Also we have formed the Bhaktivedanta Institute for organizing scientific presentations of Krishna Consciousness. This party is our most important preaching arm with which we will be able to destroy the bogus speculation and cheating which goes under the banner of scientific advancement.

"*Therefore I have got great hope for Svarupa Damodara and his colleagues. I want them to travel vigorously throughout the world to lecture in all universities and other institutions. There is no lack of financial resources and we shall spare nothing to see to this party's success.*".

The three main members of Srila Prabhupada's party of scientists are Srila Bhaktisvarupa Damodara Goswami Maharaja, Sripad Bhakti Madhava Puri Maharaja (Sripad Puri Maharaja) and Sripad Sadaputa Prabhu. All the three members are Ph.D. degree holders in different scientific curricula. It is explained in *Srimad Bhagavatam* 1.5.22

idam hi pumsas tapasah srutasya va svishtasya suktasya ca buddhi-dattayoh
avicyuto 'rthah kavibhir nirupito yad-uttamasloka-gunanuvarnanam

Translation: Learned circles have positively concluded that the infallible purpose of the advancement of knowledge, namely austerities, study of the Vedas, sacrifice, chanting of hymns and charity, culminates in the transcendental descriptions of the Lord, who is defined in choice poetry.

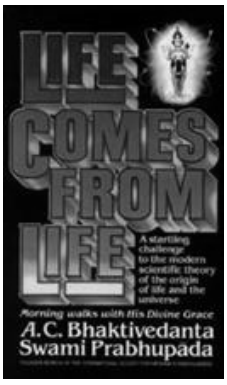
In the purport of this verse of *Srimad Bhagavatam* Srila Prabhupada says,

"*When advancement of knowledge is applied in the service of the Lord, the whole process becomes absolute. The Personality of Godhead and His transcendental name, fame, glory, etc., are all nondifferent from Him. Therefore, all the sages and devotees of the Lord have recommended that the subject matter of art, science, philosophy, physics, chemistry, psychology and all other branches of knowledge should be wholly and solely applied in the service of the Lord. Art, literature, poetry, painting, etc., may be used in glorifying the Lord. The fiction writers, poets and celebrated litterateurs are generally engaged in writing of sensuous subjects, but if they turn towards the service of the Lord they can describe the transcendental pastimes of the Lord. Valmiki was a great poet, and similarly Vyasadeva is a great writer, and both of them have absolutely engaged themselves in delineating the transcendental activities of the Lord and by doing so have become immortal. Similarly, science and philosophy also should be applied in the service of the Lord. There is no use presenting dry speculative theories for sense gratification. Philosophy and science should be engaged to establish the glory of the Lord. Advanced people are eager to understand the Absolute Truth through the medium of science, and therefore a great scientist should endeavor to prove the existence of the Lord on a scientific basis. Similarly, philosophical speculations should be utilized to establish the Supreme Truth as sentient and all-powerful. Similarly, all other branches of knowledge should always be engaged in the service of the Lord. In the Bhagavad-gita also the same is affirmed. All "knowledge" not engaged in the service of the Lord is but nescience. Real utilization of advanced knowledge is to establish the glories of the Lord, and that is the real import.* ***Scientific knowledge engaged in the service of the Lord and all similar activities are all factually hari-kirtana, or glorification of the Lord.***"

Srila Prabhupada wanted his scientist disciples to engage themselves in such scientific sankirtan under the banner of Bhaktivedanta Institute. It is described in *Srimad Bhagavad-Gita* 7.6:

etad-yonini bhutani sarvanity upadharaya
aham krtsnasya jagatah prabhavah pralayas tatha

Translation: All created beings have their source in these two natures. Of all that is material and all that is spiritual in this world, know for certain that I am both the origin and the dissolution.



Srila Prabhupada wanted to make scientists understand these teachings of *Srimad Bhagavad-Gita* that life is a non-material principle and is distinct from molecules or matter and that the Supreme Lord is the source of both life and matter. To convince the scientists, Srila Prabhupada gave two very powerful mantras: **(1) Life Comes From Life**, and **(2) Matter Comes From Life**. Srila Prabhupada empowered and trained Srila Sripad Maharaja to preach expansively the first mantra 'Life Comes From Life' and Srila Prabhupada gave the task of developing the scientific philosophical understanding of the second mantra 'Matter Comes From Life' to Sripad Puri Maharaja.

Mechanistic Worldview of Reductionism is Self-Defeating in Nature

Darwin, the father of modern objective evolutionary theory, had suspicions about his own suggested elucidation for the diversity of life. He was seriously concerned about the philosophical implications of his dogma. According to Darwin, human's sentient belief producing abilities had evolved from purposeless chemicals and the lower animals. Hence, the reductionistic view explains that non-rational, random accumulation of molecules produced human reasoning ability, which is rational, self-aware, intelligent and purposive (teleological) in nature. Obviously this non-rational source for human rationality creates valid suspicion about the trustworthiness of human reason. Furthermore, the whole emphasis of objective evolution is about species survivability and hence cannot explain anything about cultivation of true beliefs. Therefore, Darwin's objective evolution theory fails to provide a practical pathway to guarantee that humans developed trustworthy, true beliefs about reality.[13] This fact is evident from the statement of world renowned biologist Francis Crick[14]: "*Our highly developed brains, after all, were not evolved under the pressure of discovering scientific truth, but only to enable us to be clever enough to survive and leave descendents.*" In this reductionistic view, reliability of true beliefs is founded on survivability and hence the truthfulness of human beliefs about reality is highly uncertain. Following his own dogma, can Darwin put his confidence in his own beliefs? Darwin's insecure position is very clear from his own statement[15]:

"*With me the horrid doubt always arises whether the convictions of man's mind, which has been developed from the mind of the lower animals, are of any value or at all trustworthy. Would any one trust in the convictions of a monkey's mind, if there are any convictions in such a mind?*"

Being ignorant about the foundation of such imprudent philosophy, a few extremely overconfident scientists claim that faith in God, existence of the soul and morality are mere evolutionarily driven realities which might have provided some survival benefits in the distant past. Lawrence Krauss said, "*Religious belief that the universe is the handiwork of an all-powerful being is not subject to refutation. This sort of reliance on faith may itself have an evolutionary basis. There has been talk of a "god gene": the idea of an early advantage in the struggle for survival for those endowed with a belief in a hidden patrimony that gives order, purpose and meaning to the universe we experience.*"[16] World renowned atheist of modern times, Richard Dawkins, explains that religiousness in human culture is basically an outcome of a defective *'mental virus.'*[17] However, these scientists forget that, the very foundation of science is based upon humans having trustworthy and true beliefs about reality. If human beliefs are product of mutation in an evolutionary development, then they should realize that the human belief based scientific claims of scientists are completely untrustworthy. The foundation of objective evolution theory suffers from epistemological incoherence and hence is self-defeating in nature.[18]

Foundation of Scientific *Sankirtan*

Materialists and Mayavadis adopt the above mentioned defective process of knowing by argument and reason, which is known as *aroha-pantha* in Vedantic tradition. According to Mayavada philosophy, all living entities are one with Brahman. In the similar lines, modern science believes that all living beings are mere atoms or molecules. There is no space for distinct individuality within the monotony of atoms and molecules in modern science. Hence, modern science is in a sense modern Mayavad. On the other hand, men of highest intelligence follow the perfect process of knowing or *avaroha-pantha* – descending knowledge or acceptance of *parampara* system. It is impossible to teach a Mayavadi or a materialistic scientist immediately about the *parampara* system or *avaroha-pantha*. One must follow the path shown in this regard by Lord Chaitanya Mahaprabhu Himself – *trinad api sunichena taror iva sahishnuna amanina manadena kirtaniyah sada harih*: "One who is more humble than a blade of grass, more tolerant than a tree, respects everyone, without desire for respect from anyone, only such a person is qualified to taste the sweet nectar of Mahaprabhu's sankirtan rasa." These teachings, Lord Chaitanya Mahaprabhu Himself practiced in his dealings with leaders of Mayavadis – Sarvabhauma

Bhattacharya and Prakashananda Saraswati. Like, Chaitanya Mahaprabhu, a scientific preacher must respectfully hear and properly understand the explanations of scientists, and only with a mood of great humility one can explain the deficiencies of those scientific theories in a language understandable to scientists.

On several occasions, Srila Prabhupada recognized Srila Sripad Maharaja as a perfect Vaisnava, because Srila Sripad had those qualities (*trinad api sunichena taror iva sahishnun aamanina manadena kirtaniyah sada harih*) to taste and preach the sweet nectar of Mahaprabhu's sankirtan rasa in the educated section of the society.

Following the example of Lord Sri Chaitanya Mahaprabhu, Srila Prabhupada also wanted that sincere devotees of Lord Chaitanya Mahaprabhu must take up the task of preaching to the modern Mayavadis – scientists, in a most compassionate attitude under the expert guidance of Srila Sripad Maharaja. In 1977, prior to his divine departure, Srila Prabhupada said to Srila Sripad Maharaja, "*The next phase is yours. You must establish our movement as a genuine scientific movement.*" After successfully establishing, Krishna consciousness throughout the world Srila Prabhupada wanted Krishna consciousness to be accepted scientifically in the highest academic circles so that the whole world would understand that Krishna consciousness is not simply religious sentiment but the authentic ontological Truth of Reality. To fulfill this mission Srila Prabhupada transferred all his potency to Srila Sripad Maharaja and highly empowered him to spread scientific sankirtan moment all over the world.

First Victory of Scientific *Sankirtan* Over Material Science

In 1968 addressing faculties and students at MIT, Srila Prabhupada stated that, although the modern educational system has so many departments of knowledge, none of them explain, what makes the difference between a living body and a dead body. Srila Prabhupada challenged, if you materialistic scientists are really competent, then you should be able to make the dead body alive by injecting the missing chemicals in the dead body. However, Srila Prabhupada wanted that devotees should present the explanations of 'Science of the Soul' from *Srimad Bhagavat-Gita* more scientifically to convince the scientists. Srila Prabhupada instructed Srila Sripad Maharaja, "*… when you present more scientifically, then they will be convinced.*"

The 'spontaneous generation of life' hypothesis includes a conspicuous history of unrelenting derision from several prominent personalities in science. At various times in its history, 'spontaneous generation' has been identified by two different concepts. They are: (a) abiogenesis, and (b) heterogenesis. Abiogenesis is the field of science dedicated to study how life might have arisen spontaneously for the first time from inorganic chemicals. On the other hand, the notion that life can arise from dead organic matter, such as the appearance of maggots from decaying meat, is known as heterogenesis. For a long time major western thinkers like Newton, Harvey, Descartes and von Helmont accepted heterogenesis with full confidence. Francesco Redi by his experiments demonstrated that meat placed under a screen of muslin never developed maggots. The works of Schulze, Schwann, von Dusch and Schroeder provided significant challenges to heterogenesis, and finally in 1864 Louis Pasteur's famous swan-neck flask experiment sounded the death knell for this theory. Pasteur famously stated that "*Never will the doctrine of spontaneous generation recover from the mortal blow of this simple experiment*".[19]

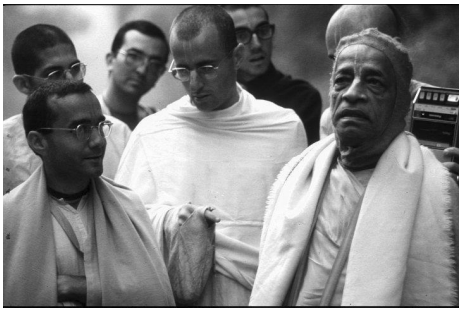
However, soon after establishment of Pasteur's famous biogenesis theory – 'Life Comes from Life', the reductionist school proposed an even more intricate and incredible form of spontaneous generation –

abiogenesis. This hypothesis gathered its support mainly due to the collapse of the false dilemma of organic and inorganic matter (synthesis of urea in 1828 by Wohler), and the development of the concept of conservation of energy.[20] The modern form of chemical evolution theory began to develop following the proposal by Russian biochemist A.I. Oparin.[21] According to this claim, complex molecular arrangements and functions of living systems evolved from simpler molecules that pre-existed on the lifeless, primitive earth. Thus, abiogenesis provided an ideal sense of balance to the Darwinian objective evolution theory, requiring billions of years to go from dead atoms and molecules to cells, and then, via random mutation or natural selection, from cells to the varieties of living beings present today. Following Oparin, in 1929 John Haldane proposed that in a reducing primitive atmosphere and with a suitable supply of energy, such as lightning or ultraviolet light, a wide range of organic compounds might be synthesized.[22] According to Haldane, the primordial sea was the source of a vast chemical laboratory motorized by solar energy. Haldane explained that, in due course of time, the sea turned into a 'hot diluted soup' containing large populations of organic monomers and polymers. The term 'prebiotic soup' was coined by Haldane, and is well-known as Oparin-Haldane's view of the origin of life.

In 1953 Stanley Miller[23] offered experimental support for the theory of prebiotic evolution. Miller experimentally produced amino acids such as glycine, alanine, aspartic acid, and glutamic acid by passing an electric discharge through a gaseous mixture of methane, ammonia, hydrogen, and water vapor. Thus, he suggested that the implausible complexity in the molecular organization of living cells might someway have been produced from nothing more than simple chemicals interacting at random in a primordial ocean. It is suggested by scientists that the potential resources of energy for primitive cells are heat, chemical, and light energies.[24] However, the major impasse is: how can unguided physical energies manufacture a state of such massive complexity and specificity as a living cell? Srila Sripad Maharaja in 1973 asked molecular evolutionist Stanley Miller at one of his lectures on the origins of life at the University of California, Irvine, "*Suppose, if I were to give you all of the ready- made bio- molecules, DNA, proteins, lipids, sugars, etc., will you be able to produce life within a test-tube by combining these molecules?*" Miller's immediate answer was, "*I do not know.*"[25]

Srila Prabhupada was extremely pleased to hear about this incident. In several lectures and conversations Srila Prabhupada mentioned this incident and stated that, our Svarupa Damodar had challenged the scientist and defeated the idea that life comes from matter. Referring to this incident Srila Prabhupada stated to Srila Sripad Maharaja, "*... you are also scientist, there are other scientists. But your consciousness is different from theirs. Therefore you could challenge him like that: if you can create life by accumulation of these facts? He says that I do not know. He is not confident in his science.*"

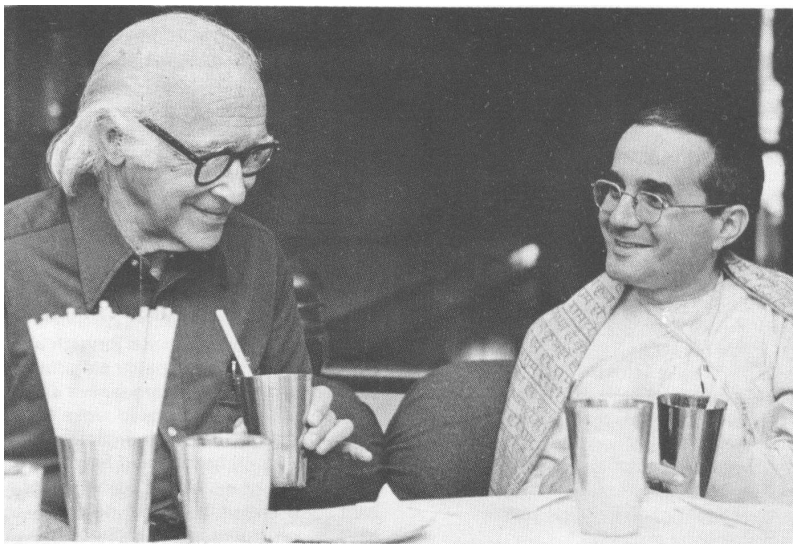
Transcendental Power of Srila Prabhupada's Mantra to Scientists



Srila Prabhupada specifically asked Sripad Puri Maharaja to preach about 'Matter Comes from Life'. With utmost faith in his spiritual master in 1980, Sripad Puri Maharaja approached Professor of Biology at Harvard University Nobel Laureate George Wald (1906-1997), who was still a hardcore atheist at that time. Professor Wald was having strong faith in the Darwinian view of origin of life and it is very much evident from his statement:

"*The important point is that since the origin of life belongs in the category of at least once phenomena, time is on its side. However improbable we regard this event, or any of the steps which it involves, given enough time it will almost certainly happen at-least-once. And for life as we know it, with its capacity for growth and reproduction, once may be enough.*

"*Time is in fact the hero of the plot. The time with which we have to deal is of the order of two billion years. What we regard as impossible on the basis of human experience is meaningless here. Given so much time, the "impossible" becomes possible, the possible probable, and the probable virtually certain. One has only to wait: time itself performs the miracles.*"[26]



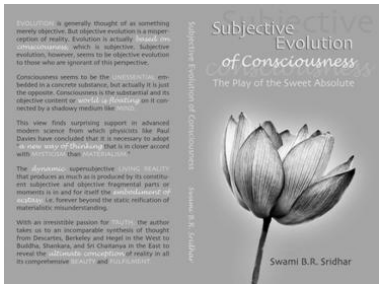
During the meeting, with a simple heart and strong faith on the words of his spiritual master, Sripad Puri Maharaja asked Professor Wald: Why do you think that life comes from matter? Why don't you think opposite, 'Matter Comes from Life'? Miraculously, this pure deliverance of mantra of Srila Prabhupada entered deeply in the heart of Professor Wald. In a very short time, Professor Wald completely rejected all his past concepts on the material origin of life and became an active supporter of the message of Bhaktivedanta Institute – 'Matter Comes from Life'. His change is very strongly evident from his statement:

"*Let me say that it is not only easier to say these things to physicists than to my fellow biologists, but easier to say them in India than in the West. For when I speak of Mind pervading the universe, of Mind as a creative principle perhaps primary to matter, any Hindu will acquiesce, will think, yes, of course, he is speaking of Brahman [God].*

"*That is the stuff of the universe, mind-stuff; and yes, each of us shares in it.*"[27]

Professor Wald stated, "*The Bhaktivedanta Institute is greatly to be congratulated for having produced so crucial and productive a discussion. It should be given every encouragement and support in going ahead with an enterprise so well begun.*" He actively participated in the conferences and activities of Bhaktivedanta Institute. He delivered the key-note address at the 'First World Congress for the Synthesis of Science and Religion' held in Bombay in 1986 and also participated in the 'First International Conference on the Study of Consciousness within Science' in San Francisco, 1990.

Subjective Evolution of Consciousness



After the divine departure of Srila Prabhupada, both Srila Sripad Maharaja and Sripad Puri Maharaja approached Srila Sridhar Maharaja for spiritual guidance to carry forward services of Bhaktivedanta Institute. Srila Sridhar Maharaja with great love and affection encouraged the scientific preaching services envisioned by Srila Prabhupada. Srila Sridhar Maharaja mentioned to Srila Sripad Maharaja, Swami Maharaja (Swami is the Sanyas title of Srila Prabhupada) gave you the task of building a

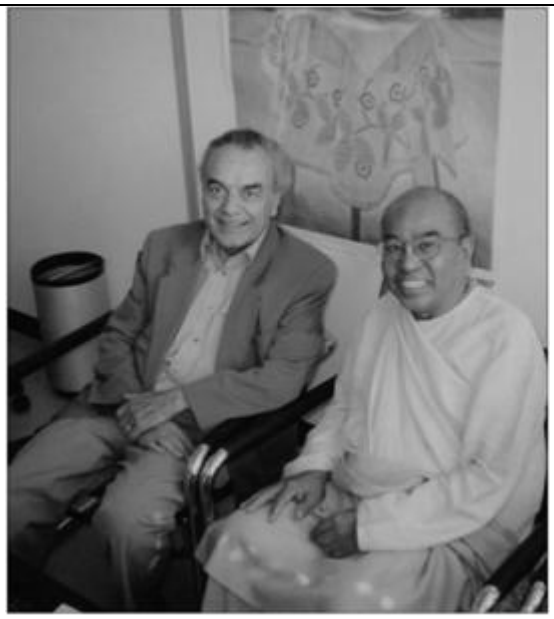
temple on the tomb of the Darwin. In several discourses Srila Sridhar Maharaja explained that consciousness is the foundation and its objective content or world is floating on it connected by a shadowy medium like mind. These collections of Srila Sridhar Maharaj's taped discourses have been compiled as a unique book:Subjective Evolution of Consciousness – The Play of the Sweet Absolute.[28] This book is an incomparable synthesis of thought from Descartes, Berkeley and Hegel in the West to Buddha, Shankara, and Sri Chaitanya in the East to reveal the ultimate conception of reality in all its comprehensive beauty and fulfillment.

Srila Sripad Maharaja's Scientific Sankirtan Worldwide

Srila Prabhupada, the founder Acharya of the Bhaktivedanta Institute appointed Srila Sripad Maharaja as the founding director of institute. Srila Prabhupada instructed Srila Sripad Maharaja to organize scientific conferences, and to write books and articles that scientifically present Krishna Consciousness or Bhagavata Culture. In Srila Prabhupada's presence Srila Sripad Maharaja organized a conference in Vrindavan, India, produced literature and delivered lectures at various institutions. Srila Sripad Maharaja was the only disciple of Srila Prabhupada to write a book during Srila Prabhupada's manifest pastime that Srila Prabhupada himself ordered to be printed and distributed in mass. The book is entitled, *The Scientific Basis of Krishna Consciousness* and is based on instructions that Srila Sripad Maharaja had received from Srila Prabhupada. Srila Sripad Maharaja offered the book to Srila Prabhupada on his Vyasa Puja day, in Los Angeles, in 1973. Srila Prabhupada was extremely impressed with the book. Srila Prabhupada would often show it to his guests, stating that the book was written by one of his scientist disciples. He ordered the Bhaktivedanta Book Trust (BBT) to publish and print over 100,000 copies of the book. This book is still being used extensively for presenting Krishna consciousness to students at colleges and universities throughout the world and over a quarter million copies have been printed to date. For this purpose it has been translated into many different languages.

During the initial period of the Institute, Srila Sripad Maharaja was working as a research scientist at Emory University and therefore most of the Institute's major activities were done after Srila Prabhupada's departure from this world. After Srila Prabhupada's departure, Srila Sripad Maharaja underwent a long struggle to establish the Bhaktivedanta Institute's activities. This was primarily due to a lack of financial support. In spite of the financial obstacles that Srila Sripad Maharaja faced in establishing the Bhaktivedanta Institute, it is now a well recognized research and educational institution. Srila Prabhupada was eager to have Srila Sripad Maharaja scientifically present the 'Life Comes From Life' paradigm at colleges and universities around the world. Srila Sripad Maharaja's acceptance of his spiritual master's instructions as his life and soul has caused Srila Prabhupada's vision of introducing the Bhagavata Paradigm to the world's scientists, intellectuals and leaders to become a reality. For over three decades, Srila Sripad Maharaja has been giving lectures on the spiritually based Bhagavata Paradigm. He has spoken on such subjects as Bioethics, Theobiology, Life Comes From Life and the Synthesis of Science

and Religion at many of the world's most prestigious colleges and universities such as, Stanford University, USA; National University of Singapore, Singapore; Tehran University, Iran; University of Durban, South Africa; Federal University of Campina Grande, Brazil; Medical College, Suva, Fiji; Udayana University, Bali, Indonesia; University of Malaya, Malaysia; Emory University, Atlanta, USA; Institute for Oriental Studies, Peru; National Institute of Medicine, Senigaglia, Italy; the IIT at Bombay, Kanpur, Madras, Gauhati, Delhi, Kharagpur; Andhra University, Andhra Pradesh; University of Calcutta; University of San Francisco, USA; University of Malaga, Spain and Vishva Bharati University, West Bengal.



Srila Sripad Maharaja with Professor Werner Arber from the University of Basel, Switzerland, Nobel Laureate in Physiology and Medicine. He is an authority on viruses. Maharaja visited him a few times in his laboratory in Switzerland to discuss about life and its Origin. Their dialogue was published in the Journal of the Bhaktivedanta Institute, Savijnanam.

"*I think that life could be beyond the assembly of biomolecules.*"

– Professor Werner Arber,
Nobel Laureate

Srila Sripad Maharaja with Professor Richard R. Ernst, Noble Laureate in Chemistry. Professor Ernst contributed an article on, 'Science in the Third Millennium: Expectations between Hope and Fear' for the Bhaktivedanta Institute's publication, Thoughts on Synthesis of Science and Religion.

"*Science and technology alone cannot solve the problems of the new millennium. We need additional guidelines for our actions, for the selection of our research projects and research goals. These guidelines have to do with ethics, with philosophy, and with faith.*"

– Professor Richard R. Ernst,
Nobel Laureate

Srila Sripad Maharaja with Professor Charles H. Townes, Nobel Laureate in Physics, reading the Journal of the Bhaktivedanta Institute. Professor Townes delivered the key-note address of the 'Second World Congress for the Synthesis of Science and Religion' held in Calcutta, India, 1997.

"In India, there is much more union between the two (science and spirituality) than there is in the West. I think that the Western scientists are coming back to that point of view - what the universe is all about. A few scientists are interested and their number is increasing."

– Professor Charles H. Townes, Nobel Laureate

In the name of the Bhaktivedanta Institute, Srila Sripad Maharaja has organized three major conferences and a large number of seminars. He has published two important books on the synthesis of science and religion and numerous other literatures, which have all received world wide acceptance from the academic community. As director of the Bhaktivedanta Institute he has interacted with thousands of scholars from around the globe, including many Nobel Laureates and leading scientists. Srila Sripad Maharaja has authored *The Fundamental Principles of Reincarnation, Theobiology and What is Matter and What is Life?* He co-edited two major volumes; *Synthesis of Science and Religion – Critical Essays and Dialogues and Thoughts on Synthesis of Science and Religion* containing important thoughts from some of the most prominent contemporary scientists and thinkers of the world including several Nobel Laureates. Srila Prabhupada also instructed Srila Sripad Maharaja to publish the Journal of the Bhaktivedanta Institute, *Savijnanam*. The title *Savijnanam* was given by Srila Prabhupada and was inspired by the *Bhagavad-Gita* Verse 7.2:

jnanam te 'ham sa-vijnanam idam vakshyamy aseshatah
yaj jnatva neha bhuyo 'nyaj jnatavyam avasishyate

Translation: I shall now declare unto you in full this knowledge, both phenomenal and numinous. This being known, nothing further shall remain for you to know.

Srila Prabhupada desired that an academic journal with a modern scientific perspective of the divine Bhagavata Paradigm be published. Capturing the mood of Srila Prabhupada, the English subtitle, "*Scientific Exploration for a Spiritual Paradigm*" has been added. Srila Prabhupada also instructed Srila Sripad Maharaja to write a scientific commentary on the *Vedanta Sutra*, the topmost philosophical treatise of the Vedic literatures. In Los Angeles in 1973, Srila Prabhupada said to Srila Sripad Maharaja, "*…we can publish this scientific explanation of Vedanta Sutra.*

You have to explain scientifically that a human beings' only business is to inquire about the Absolute Truth. … You have to prove it logically and scientifically… I will guide you for every sutra." Srila Sripad Maharaja, praying for Srila Prabhupada's mercy, has very humbly started writing a scientific commentary on the *Vedanta Sutra* as per Srila Prabhupada's divine instructions and has presented his commentary on the first verse in his article in *Savijnanam*. Bhaktivedanta Institute published a book, *Bhagavat Sevarpanam* about Srila Sripad Maharaja's scientific sankirtan world wide with relevant photos and is available online at **www.bhaktiswarupadamodara.com**

Hint of Prominent Beginning of Transformation of Material Science into Spiritual Science

Darwin proposed that all organisms have descended with modification from a common ancestor and, in addition, advocated natural selection as part of the mechanism of evolution. During the first half of the 20th century, the integration of genetics and population biology into Darwinian evolution led to a Neo-Darwinian theory of evolution, also known as Modern Synthesis. Neo-Darwinism recognized the importance of mutation and variation within a population. Natural selection then became a process that altered the frequency of the appearance of viable genes in a population and this defined evolution. The short summary of this conventional evolutionary theory, or Darwinism, is: the environment poses problems and the organisms posit solutions, of which the best is at last chosen.

With the advancement of molecular biology the concept of chromosome, DNA, RNA, gene, etc. came into the picture. Biologists believe that the gene is made up of a specific number and sequence of nucleotides. Furthermore, they consider that the sequence of nucleotide reveals the message of a gene. In the 1940s, the nexus between genetic information and proteins was explained by the 'one gene one enzyme' proposition of Beadle and Tatum. This nexus was the foundation for the functioning of the genetic code for amino acids. The central dogma of molecular biology was first formulated by Francis Crick in 1958.[29] This central dogma attempts to provide a mechanism by which genes could decide traits through protein synthesis. This wishful thinking of rigid mechanism for a biological system can be sensed from the words of Crick: "*a boundless optimism that the basic concepts involved were rather simple and probably much the same in all living things.*"[30] It is a vision of oversimplification of the transfer of sequential information in an organism. According to this concept, sequential information in biological systems can only flow from the gene to the proteins and it cannot be transferred back from protein to either protein or gene. Following this idea, geneticists proclaim that by the assistance of RNA, the structure of DNA can decide the structure of proteins.

Central Dogma: DNA → RNA → Protein (Enzyme) → Trait

This vision of the way DNA worked was translated into conventional evolutionary theory, and random mutations were considered as copying errors that changed the DNA sequence one base-pair at a time, and, as a result, changed protein sequences one amino acid at a time. This scheme was in line with the Neo-Darwinian view of gradual accidental change. It also supplied a molecular depiction of how proteins, the working molecules of the cell, could evolve new structures and functions.[31] Thus they attempted a total reduction of an organism to its genes, which they believed are mere combinations of purposeless molecules. They were under the impression that knowledge of genes is the knowledge of the organism. They believe that the organism has no control over the alteration process, and that the genome mechanically decides an organism's characteristics. For them the genome is a read-only memory (ROM), which is modified only by accident. This claim of Darwinists about randomness and accident became dogmatic with the intent to reject all possible revivals of the role of a supernatural agent found in religious explanations as the cause of origin of diverse living organisms.

Srila Prabhupada once said, "*The evolution theory is there in the Padma Purana. It is not Darwin's theory. Darwin stole it from the Padma Purana, and he presented it in a distorted way with his own imagination. The soul is wandering within the different species. This is Vedic knowledge.*" For over thirty years, Srila Sripad Maharaja has been presenting this Vedic paradigm of evolution of consciousness versus evolution of species, as per Srila Prabhupada's instructions. These extensive efforts of Bhaktivedanta Institute under the leadership of Srila Sripad Maharaja lead to a prominent beginning of the transformation of material science into spiritual science.

The last three decades of the 20th century witnessed increasing research findings that rigorously challenged the assumptions of both Darwinian and Neo-Darwinian theories, which provided the foundations for most biological research during that century. Rose and Oakley stated that, "*The foundations of that 'Modernist' biology had thus largely crumbled by the start of the 21st century. This in turn raises the question of foundations for biology in the 21st century.*"[32] Despite the fact that the knowledge of the molecular minutiae of living organisms is undergoing a revolutionary growth, unprejudiced consideration of the consequences of these findings are very rare. A pioneering biologist, James A. Shapiro, Professor of Microbiology, University of Chicago, states: "*We have progressed from the Constant Genome, subject only to random, localized changes at a more or less constant mutation rate, to the Fluid Genome, subject to episodic, massive and non-random reorganizations capable of producing new functional architectures. Inevitably, such a profound advance in awareness of genetic capabilities will dramatically alter our understanding of the evolutionary process. Nonetheless, neo-Darwinist writers like Dawkins continue to ignore or trivialize the new knowledge and insist on gradualism as the only path for evolutionary change.*"[33] In the same article Shapiro also states that: "*The past five decades of research in genetics and molecular biology have brought us revolutionary discoveries. Upsetting the oversimplified views of cellular organization and function held at mid-century, the molecular revolution has revealed an unanticipated realm of complexity and interaction more consistent with computer technology than with the mechanical viewpoint which dominated the field when the neo-Darwinian Modern Synthesis was formulated. The conceptual changes in biology are comparable in magnitude to the transition from classical physics to relativistic and quantum physics.*"

Research shows that proteins evolve by accumulating and rearranging polypeptide domains and not by a series of individual amino acid alterations. Hence, the evolutionary genomic alterations are not stochastic, localized point mutations, but exchanges of DNA encoding segments. The DNA substantiation does not verify the slow gathering of random gradual changes transmitted by restricted patterns of vertical descent, as claimed for 50 years by Neo-Darwinian theory.[34] It is being reported that cells have the ability to modify themselves adaptively and to change their own heredity. Upsetting the speculations of the past mechanistic views, it is well acknowledged that recombination has the capability to produce information and to modify the content of the genetic storage. Barbara McClintock's findings have shown that organisms can engineer their DNA.[35] Following the same line of research, Shapiro coined the term 'natural genetic engineering', which corresponds to the ability of living cells to manipulate and restructure the DNA molecules that make up their genomes.[36] Large parts of DNA alteration in bacteria and eukaryotes are a result of a coordinated accomplishment of natural genetic engineering. Hence, the traditional understanding of genome variation as stochastic events or unpredictable accidents is now replaced by a controlled and coordinated accomplishment of cellular biochemistry. This paradigm shift is a major setback to Neo-Darwinism, because cellular biochemistry is based on guided mechanisms and thus acts in predictable ways. In contrast to Neo-Darwinism, DNA changes are now known as nonrandom with respect to time, physiology and life history.[37]

As a result of all these developments, frontier biology rejected the dogmatic faith of Darwinists: genome is a read-only memory (ROM), which is only modified by accident. The emerging alternative view of 21st century biology explains the genome as a read-write memory (RW) system subject to nonrandom change by dedicated cell functions. The genome is actively modified in a coordinated and controlled mode by the sentient cell functions and hence new biology views life forms as self-modifying beings. The ability of living organisms to modify their own heredity is irrefutable and thus shows the failure of the black-box approach of Darwinism in incorporating this fundamental feature of life.

The declaration of the *First Annual Francis Crick Memorial Conference* states, "*… the weight of evidence indicates that humans are not unique in possessing the neurological substrates that generate consciousness.* ***Nonhuman animals, including all mammals and birds, and many other creatures, including octopuses, also possess these neurological substrates***.".[38] Furthermore, Shapiro states, "*Contemporary research in many laboratories on cell-cell signaling, symbiosis and pathogenesis show that bacteria utilise sophisticated mechanisms for intercellular communication and even have the ability to commandeer the basic cell biology of 'higher' plants and animals to meet their own needs. This remarkable series of observations requires us to revise basic ideas about biological information processing and recognise that even the* ***smallest cells are sentient beings.***". [39] Hence, Darwin's abiology or molecular view of life has no place in the frontier biology. 21st century biology is trying to understand how the whole thing is integrated within the cell, how the information is processed within the cell and how the cells achieve the needed goal. Cell sensing and its molecular bases are all well recognized by 21st century biology.[40] Old biology based on the reductionistic approach only helped in knowing the components of the cell that are participating in signal transfer and decision-making, but 21st century biology focuses on knowing how the whole system works, which we call a functional cell. The impasse of the scientific approach is that it requires a reductionistic approach to get meaningful answers and make observations. However, when science tries to understand those observations, then the reductionistic view fails to provide an explanation for the whole picture and seeks the help of an integrationist view. Biologists are now certain that there is an interaction between the participating members and the whole cell which is far more complex and multidirectional than what reductionists believed.

Darwin's abiology tried to exclude things a priori, which is unwanted from a truly scientific point of view and also does not serve the purpose of scientific understanding of reality. Modern biologists are more broadminded and more open in their approach to finding solutions to these problems. Science witnessed that biology evolved from DNA-centrism to cell-centrism, where cells operate in a sentient manner, which a few biologists are trying to compare with information processing; on the other hand, some try to see it as computational. However, none of these explanations include the sensory feature of how cells act. All these developments give the impression as if a cell has thinking or maybe there essentially exists a mind which is a vital symptom of cognition. In contrast to Darwinism, scientific evidences are forcing the scientists or academically minded people to reconsider the explanations on cognition that we find in ancient religious texts.

Hint of Prominent Beginning of Transformation of Material Science into Spiritual Science

Srila Sripad Maharaja left for the spiritual abode on October 2, 2006. Before his divine departure, Srila Sripad Maharaja instructed his scientist disciples to continue the scientific sankirtan services under the guidance of his scientist godbrother and senior most member of Bhaktivedanta Institute, Sripad Puri Maharaja. Sripad Puri Maharaja is a direct disciple of Srila Prabhupada and also Srila Sridhar Maharaja. Sripad Puri Maharaja is affectionately training devotees who are approaching him by the inspiration of Srila Sripad Maharaja. Under the guidance of Sripad Puri Maharaja a team of devotee scientists are regularly travelling to different colleges and universities to organize seminars and dialogue with scientists to convince them about 'Science of the Soul' and 'Science of God' in a scientific language. We are only a handful of devotee-scientists working on this, and

so many more dedicated souls are needed to carry out this service. Some of the ongoing humble services under Sripad Puri Maharaja can be found at:

(1)**THE BHAKTI VEDANTA INSTITUTE** of Spiritual Culture and Science – 20 Nassau St., #116 Princeton, NJ 08542: www.bviscs.org
(2) **Sri Chaitanya Saraswat Institute**: www.bviscs.org/scsi
(3)**Darwin Under Siege**: www.scienceandscientist.org/Darwin
(4)***The Harmonizer***: www.mahaprabhu.net/harmonizer
(5) **Universitity Outreach**: www.scienceandscientist.org/videos
(7) **Online Classes & MP3s**: www.mahaprabhu.net/satsanga
(8)**Vedanta and Hegelian Philosophy**: www.gwfhegel.org
(9) **Mailing Lists**: www.scienceandscientist.org/lists
(10) **Support our activities**: www.scienceandscientist.org/donate

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INTERNATIONAL CONFERENCE ON: IS SCIENCE ABLE TO EXPLAIN THE SCIENTIST? SCIENCE AND SCIENTIST - 2013

In the honor of Srila Bhaktisvarupa Damodara Goswami Maharaja (Dr. T.D. Singh) on his 76th auspicious Vyasapuja (appearance day) on December 08th, 2013 an International Conference 'Science and Scientist - 2013' will be held at Bhubaneswar, India. 'Science and Scientist - 2013' is beeing organized by Sri Chaitanya Saraswat Institute, Siliguri, West Bengal, India and Bhakti Vedanta Institute of Spiritual Culture and Science, Priniceton, NJ, USA in collaboration with Synergy Institute of Technology, Bhubaneswar, Odisha, India. 'Science and Scientist - 2013' is the premier forum for understanding the limitations of causal or mechanistic determinism in modern science and thereby exploring the Vedantic Paradigm as an alternative.

The Origin of Species was published by Charles Darwin in 1859. This had lead to a radical change in the people's perception about life and world. For more than 150 years the only major focus of biologists has been to uphold the Darwinian vision intact. Evolution is a word not limited to biological evolution. Scientists claim that our universe and solar system have evolved from explosion of matter (Big bang theory) and chemical elements have evolved from simple matter. First life has evolved from dead chemicals (Abiogenesis), and complex organisms from simpler forms (Biological evolution). Theories like the Big Bang, Origin of Life, Darwinian Evolution, etc. are failing under the influence of new evidence and concepts created by the advancement of science itself. It is not an attack on science from without. It is a wholly internal critique of science by scientists according to strict scientific principles – 'scientific critique of science'.

Modern science has generally been directed toward investigating the material world, excluding consideration of the conscious scientist who is essential to the whole process, since, of course, the very existence of the scientific endeavor itself depends upon consciousness. Complete scientific knowledge must consequently include both objective science and subjective consciousness. Modern science is based on causal determinism, which explains that: "every event is necessitated by antecedent events and conditions together with the laws of nature." Hence, scientists assume that there is nothing uncaused or self-caused. By definition 'Biology' is a science meant for the study of life. However, many biologists in reality study abiology (study of matter/inanimate-objects – DNA, RNA, Protein, etc.) in the name of biology. Following a causal determinism, even today, several biologists believe that, as scientific technologies and knowledge advance, they can completely understand life based merely on the analysis of a living organism's DNA sequence. They have a misconception that DNA contains all the secrets of life. These (a)biologists blindly presume that the traits and flaws of the body can be predicted, exclusively, based on an organism's genes, and that such a determination is as simple as using the laws of mechanics to predict the motion of an inanimate object.

By itself a genome is an inert or inanimate object. DNA by itself can neither reproduce itself, nor produce a protein. Hence, an actual cellular function cannot be accomplished by DNA itself. The Human Genome Project scientists were calling DNA the 'Book of Life', but evidence establishes the imprudence of such claims. Even Craig Venter, president of Celera Genomics and the corporate arm of the DNA sequencing project, stated: "*genes can't possibly explain all of what makes us what we are.*"

Harvard biologist Stephen Jay Gould also stated:
"*The collapse of the doctrine of one gene for one protein, and one direction of causal flow from basic codes to elaborate totality, marks the failure of reductionism for the complex system we call cell biology*."

If environment alone cannot explain to us who we are, if the program for life is not in our genes, then where is it? The program for life is the cell itself – 'an organic whole', and it cannot be reduced any further. The cell, through signaling pathways, is also connected to larger wholes (other living cells/organisms) and to the environment (external world). We are individual organic wholes and are living in an organic whole. Hence, we are subservient to a universal organic whole – Supreme Absolute. Ancient, Vedantic literature like *Srimad*

Bhagavad-Gita and *Srimad Bhagavatam* have explained since antiquity that mere bodily analysis cannot help us understand who we are. Vedantic literature concludes that soul animates the bodies of living organisms and that sentience or consciousness is the symptom of the existence of soul. In other words, there is no program in the body of a living organism that we can read or analyze to understand the secret of life. Twenty-first century biology also explains that within each cell there are sentient regulatory networks of proteins that sense or evaluate alterations in the cellular environment and understand those signals so that the cell can create an appropriate response. Even the smallest living cells obtain information from their external environment and accordingly monitor their internal processes. Twenty-first century biologists, rejecting abiology, now accept all living organisms, including the smallest cells, as sentient beings. In the context of multicellular organisms, an American biologist, expert in bacterial genetics and a professor in the Department of Biochemistry and Molecular Biology at the University of Chicago, James A. Shapiro states in his book *Evolution: A View from the 21st Century*,

"*Without an elaborate sensory apparatus to pick up signals about chemicals in the environment (nutrients, poisons, signals emitted by other cells) or to keep track of intracellular events (DNA replication, organelle growth, oxidative damage), a cell's opportunity to proliferate or contribute to whole-organism development would be severely restricted. Life requires cognition at all levels.*"

The last sentence, "Life requires cognition at all levels" is the same paradigm that Vedanta has advocated since antiquity. Under the banner of 'biologism' or 'biological determinism', scientists believed that genetic determinism, environmental determinism, or a combination of both could supply the means to fully explain the principles of livings organisms. However, overcoming that illusion, the scientific evidence in 21st century biology establishes that life is an organic whole and it cannot be reduced any further to satisfy causal or mechanistic determinism.

We now know that living organisms within a species exhibit different behavior even in the absence of differences in the environment, and hence, individual organisms execute actual novel acts. Due to this, many scientists have been forced to conclude that living organisms possess 'freewill'. Unlike dead matter (the motion of an inanimate object is determined by the laws of physics and chemistry), the prime symptom of life is that it exhibits freewill or self-determined behavior, which is volitional and intentional, and which is self-caused or self-initiated action. Hence, life is self-caused – 'Life Comes from Life', and abiogenesis – 'First life came from non-Life' – is only an illusion of determinism in (a)biology.

'Science and Scientist – 2013' has brought together leading Biologists, Engineers, Scientists and Academicians. The main goal of this conference is to provide a platform for the academic, scientific and industrial community to cultivate the proper spirit of inquiry for understanding 'Life and Its Origin' using science based progress in their respective research areas. This conference highlights topics, in such areas as: 'Failure of Biologism or Biological Determinism', 'Failure of Genetic Determinism – Life Beyond Genes', 'Debunking Darwinism', 'Scientific Critique of Science', 'Man and Machine', 'Logic of Life', 'Cognitive Biology', 'Freewill', 'Soul Hypothesis', etc. The aim of the conference is to bring together leading researchers, developers, practitioners and educators interested in advancing the state of the art in 'Life and Its Origin' for exchanging knowledge that encompasses a broad range of disciplines among various distinct communities. It is expected that speakers will highlight new prospects for scientifically understanding life based on 21st century biology. The theme for this conference is innovative and meant for inspiring the researchers to understand the scientific validity of ancient Vedantic wisdom and thus confidently practice its conclusions by implementing them in their own lives. This conference shall provide a new forum for discussions on 'Harmony of Science and Religion'.

PROGRAMME OF INTERNATIONAL CONFERENCE SCIENCE AND SCIENTIST – 2013

8th December 2010 (Sunday)

08.30 – 09.00	Registration Setting up posters
09.00 – 11.00	Inaugural Session & Press conference
11.00 – 11.15	**Herbal Tea break**
KEYNOTE SESSION	
11.15 – 12.30	**21st Century Biology Refutes Darwinian Abiology** ***Bhakti Niskama Shanta, Ph.D.*** *Sri Chaitanya Saraswat Institute, Siliguri, West Bengal, India*
12.30 – 13.30	Poster Session
13.30 – 14.15	**Lunch Mahaprasadam**
SESSION I: Scientific Critique of Science	
14.15 – 15.00	**SESSION KEYNOTE ADDRESS** **Science and Its Limitations** ***S. K. Patra, Ph.D.*** *Institute of Physics, Bhubaneswar, Odisha, India*
15.00 – 15.20	**PAPER 1** **Experiments on Stratification of Heterogeneous Sand Mixtures** ***P. H. Reddy, Ph.D.*** *Assistant Prof., Dept. of Civil Engineering, IIT – Kharagpur, West Bengal, India*
15.20 – 15.35	**PAPER 2** **Origin of life – so far explained in science and depicted in Upanishad** ***Kamales Kumar Misra, Ph.D.*** *Department of Zoology, R. B. C. College, Naihati, West Bengal, India*
15.35 – 15.50	**PAPER 3** **Protein folding at single-molecule level** ***Amar Nath Gupta, Ph.D.*** *Assistant Prof., Dept. of Physics & Meteorology, IIT – Kharagpur, West Bengal, India*

15.50 – 16.00	**PAPER 4** **Science, Religion and Society** ***Sarat Chandra Das, Ph.D.*** *Reader in Chemistry, Salipur College, Sreevihar Colony, Tulasipur , Dt. Cuttack, Odisha , India*
16.00 – 16.10	**PAPER 5** **Native deviations from ideality: its relationship to protein structural integrity – a key component to predict protein structures ab-initio, overlooked for decades** ***Sankar Chandra Basu*** *Crystallography and Molecular Biology Division, Saha Institute of Nuclear Physics, Kolkata, West Bengal, India*
16.10 – 16.25	**PAPER 6** **Science and Spirituality go hand in hand** ***Ms. Anshu Arora*** *Associate Professor, Media &Cultural Studies, Glocal University, Saharanpur,UP, India*
16.25 – 16.35	**PAPER 7** **Mother Nature and Environment: An alternate solution** ***Alak Kumar Patra*** *Research Scholar, Dept. of Civil Engineering, IIT – Kharagpur, West Bengal, India*
16.35 – 16.45	Question and Answers
16.45 – 17.00	**Herbal Tea break**
SESSION II: The Science of Spiritual Biology	
17.00 – 17.45	**SESSION KEYNOTE ADDRESS** **Failure of Darwinian evolution as well as structuralism leading to a Cognitive and Spiritual Revolution in Biology** ***Bhaktivijnana Muni, Ph.D.*** *Sri Chaitanya Saraswat Institute, Siliguri, West Bengal, India*
17.45 – 18.00	**PAPER 1** **The nature and scope of soul – the network connecting the body with the Spirit** ***Karthigayan. P., Ph.D.*** *Personal Secretary, National Institute for Research in Tuberculosis (ICMR), Chennai, Tamil Nadu, India*

18.00 – 18.10	**PAPER 2** **Understanding Life: A Holistic Approach** ***Abhimanyu Mohanta, Ph.D.[1], Rashmi Ranjan Jena, M.Phil[2]*** *1. Lecturer in Zoology, Biju Pattnaik College, Singda, Mayurbhanj, Odisha* *2. Research Scholar, P.G.Department of Philosophy, Utkal University, Bhubaneshwar*, Odisha
18.10 – 18.20	**PAPER 3** **Bio-psychosocial-spiritual model: What *Bhagavad-Gita* says?** ***Rajeev Kumar*** *UGC-Senior Research Fellow, Department of Humanities and Social Sciences, IIT – Kharagpur, West Bengal, India*
18.20 – 18.25	**PAPER 4** **God and Consciousness** ***Rahul Jain*** *Managing Director, Paragon Autotech*
18.25 – 18.35	**PAPER 5** **Soul Hypothesis** ***Shubra De*** *Research Scholar, Dept. of Civil Engineering, IIT – Kharagpur, West Bengal, India*
18.35 – 19.00	Panel Discussion
19.00 –20.00	**Drama: Darwin Under Siege by SIT – Bhubaneswar Students and Cultural Program by Nepal Devotees**
20.00 – 20.30	Dinner Mahaprasadam

09th December 2013 (MONDAY) – Post Conference Tour	
08.00	Bus leaves to Sri Jagannatha Puri Dham from Synergy Institute of Technology – Bhubaneswar
18.00	Bus leaves from Puri to Bhubaneswar – tours conclusion

PAPERS/ABSTRACTS OF ORAL PAPER

Keynote paper: 21st Century Biology Refutes Darwinian Abiology

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Scientific Humility

To teach that Man is simply an enclosed membrane of chemicals affects how people think about themselves as spiritual beings, and thus it influences the way they think about such concerns as abortion, euthanasia, bioethics in research and medicine, cloning, genetic modification of food, animal rights, etc. Our attitude is shaped by the way our education has conditioned us to think about the world. Considering life as a mere combination of molecules, educated people in science do not hesitate to grossly disrespect life and nature to its highest degree. The grave consequences of this advanced materialism has already started threatening the entire human civilization in the form of environment pollution, highly stressful materialistic lifestyles, increased suicide rates and the list is neither complete nor ever-ending.

No matter how grand a scientific venture may be, it certainly cannot capture the entire scope of reality. Modern science cannot control cosmos, sun, planets, seasons, and so on and so forth. Hence, science is forced to confine itself to an insignificant fraction of complete reality. As Sir Isaac Newton said, "*I seem to have been only like a boy playing on the sea-shore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me.*" At times the scientific schemes are exceedingly fruitful and many concepts appear to be firmly established in science. However, as time progresses, and with the development of new information, the same science recognizes new phenomena, which often fail to accommodate the firmly established old concepts. In such situations a portion of the scientific world tries to powerfully, and sometimes emotionally, preserve their belief in the old concepts. However, the empirical observations compel science to embrace the truth in the face of all such antagonism. 21st Century biology is witnessing a movement of this nature, where the empirical evidence is forcing many prominent scientists to reject the old, widely used, Darwinism. Some biologists, engrossed in the old disposition of Darwinism or *abiology*, want to preserve it at any cost. In such attempts, often they cannot recognize the blinkers they enforce on themselves due to their idealistic obligations rather than empirical inevitabilities. However, we must recognize the fundamental strength of science as rightly stated by Taylor (2012) in a recent News article:

"*The fundamental strength of science is that it compels its practitioners to confront their own fallibility…Science is not always right – very far from it. What marks it out from other fields of human endeavor is that, because of its formalized humility, it's always ready to correct itself when it makes a mistake.*"

Darwin Under Sisge

In *The Origin of Species*, Darwin speculated that a series of minute developments in reproductive success would progressively lead to major alterations that discriminate one species from another. Darwin adopted this gradualist assumption from the uniformitarian theory proposed by his geology professor, Charles Lyell. Admirers of Darwinism who followed the same line of thinking, proclaimed that natural selection boosts fitness (optimization of reproductive success) and thus, generates new life forms, including their sophisticated and complex adaptations. Darwin stated in chapter 6 of his *Origin of Species* "*If it could be demonstrated that any complex organ existed, which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down. But I can find no such case.*" This concept throughout history has suffered from

various technical shortcomings, but now, in the present era, genome sequence data has completely invalidated the foundation of Darwinian evolutionary theory. In a very recent article Raoult and Koonin (2012) stated:

"*At the time of the publication of the Origins of Species in 1859 (Darwin, 1859), Darwin's vision of evolution revolutionized the scientific worldview and even the human perception of the world beyond science. However, a century later, with the consolidation of the Modern Synthesis (neo-darwinism), evolutionary biology has adopted a rather rigid, somewhat dogmatic framework.*"

With molecular genetics, genome sequencing and many such powerful empirical testing tools, scientists are rigorously questioning the validity of Darwinian evolutionary theory. However, the invalid assumptions of Darwinan *abiology* are still commonly recognized and used in the scientific literature on objective evolution. In reality, we now have enough scientific evidence, which not only disproves this *abiology*, but also provides adequate substantiation for developing a scientific concept about 'evolution of sentience' or 'subjective evolution of consciousnesses.'

Darwinism explains that biodiversity is a result of evolution from a universal common ancestor to anatomically modern humans, and that such evolution occurs by gradual accumulation of many successive, small modifications. It is often assumed in Darwinian *abiology* that each and every heredity transmission takes place from parent-to-progeny only. In ideological debates on evolution, following a gradualist, uniformitarian thinking, Darwinists continuously insist on the blind parent-to-progeny hereditary variation. In the first decades of the 20th century, heredity was understood more narrowly as the transmission of genes (Johannsen 1911). Originally the gene was just a theoretical unit but it finally obtained a material foundation in the DNA molecule. Inheritance thus meant the transmission of germ-line DNA sequences or gene alleles (Jablonka and Lamb 1995). This hard heredity succeeded throughout the 20th century in the guise of Mendelian genetics and Neo-Darwinism or Modern Synthesis (Mayr 1982). Neo-Darwinian theory emphasized the significance of random genetic mutation and variation within a population, and natural selection became the mechanism that altered the frequency of genes within a population. Darwinian *abiology* still maintains this as the only vision for evolution that generated biodiversity on our earth.

However, now we know that living organisms have the capacity to modify their own heredity (natural genetic engineering). In 21st century biology it is now well established that genome alteration did not happen by gradual change and natural selection. Evidence confirms the transfer of genetic material among non-mating species, even between parasitic invertebrates and some of their vertebrate hosts. 21st century biology thoroughly establishes the demise of this 'parent-to-progeny hereditary only' creed in Darwinism. Completely defying Darwinian abiology, such remarkable non-Darwinian transfers of genetic material are commonly observed among living organisms (both mating and non-mating) and such transfers are of both advantageous and disadvantageous in nature. However, most importantly none of such transfers could produce a new species. Both Darwinian and non-Darwinian alterations do occur in nature, but they always produce only minor changes within species. We cannot find a single case in the literature where either Darwinian or non-Darwinian alterations successfully lead to the appearance of a new species. Recently Kuhn (2012) explained this in his article 'Dissecting Darwinism':

"*In all fairness, there is convincing evidence, that is widely acknowledged, that random mutation and natural adaptation (Darwinian evolution) does occur within species, leading to minor changes in areas such as beak size, skin pigmentation, or antibiotic resistance. Some of these changes involve a simple biologic survival advantage for a population, without a mutation in DNA. Others might be influenced by a single deletion or insertion within the DNA strand. However, the modern evolution data do not convincingly support a transition from a fish to an amphibian, which would require a massive*

amount of new enzymes, protein systems, organ systems, chromosomes, and formation of new strands of specifically coding DNA. Even with thousands of billions of generations, experience shows that new complex biological features that require multiple mutations to confer a benefit do not arise by natural selection and random mutation. New genes are difficult to evolve. The bacteria do not form into other species."

Difference Between Life and Matter

Throughout the history of modern science, repeated attempts to establish a set of essential and satisfactory properties for life — to come up with a basic definition of life — have been unsuccessful (Popa 2004; Bedau and Cleland 2010). It is necessary to recognize why such endeavors to come up with a distinctive and crucial definition of life have been failing. Over a period of more than one hundred and fifty years, biologists have attempted to discover the physical properties and chemical processes of the different biomolecules present within a living organism. Such reductionistic analysis is only a pretension to study life because, in actuality, such research only deals with the study of molecular matter that is devoid of life. As we know very well (Needhma 1929), "*an organism is something which the scientific method cannot deal with; it is a hard, round, smooth nut, which experimental analysis can neither crack nor lever open at any point. As soon as a hole is made in it, it explodes like a Prince Rupert drop and vanishes away.*" Noble prize winner, Szent-Györgyi also brilliantly presented the outcome of the mechanistic view of an organism (Gyorgy 1972):

"*As scientists attempt to understand a living system, they move down from dimension to dimension, from one level of complexity to the next lower level. I followed this course in my own studies. I went from anatomy to the study of tissues, then to electron microscopy and chemistry, and finally to quantum mechanics. This downward journey through the scale of dimensions has its irony, for in my search for the secret of life, I ended up with atoms and electrons, which have no life at all. Somewhere along the line life has run out through my fingers. So, in my old age, I am now retracing my steps, trying to fight my way back.*"

Traditionally in both Eastern and Western philosophy life is understood as a cognitive or sentient principle. Sentience cannot be manufactured artificially by any noble mechanical and chemical arrangements of inanimate atoms and molecules. Ancient Eastern philosophy, based on the *Vedāntic* or *Bhāgavat* paradigm, provides the concept of 'Organic Wholism', as found, for example, in the invocation of *Śrī Īśopaniṣad* (Prabhupada 1969) "*oṁ pūrṇam adaḥ pūrṇam idaṁ pūrṇāt pūrṇam udacyate pūrṇasya pūrṇam ādāya pūrṇam evāvaśiṣyate*–The 'Organic Whole' produces 'organic wholes'. An 'organic whole' cannot arise from parts that have to be assembled. That process can only produce inorganic, mechanical machines or chemical processes, not living organisms." A similar conclusion was made by Rudolph Virchow (Tan and Brown 2006) in 1858, "*omnis cellula e cellula*" ("every cell comes from a cell"). In 1864, Louis Pasteur also demonstrated that life cannot arise from non-life (abiogenesis is impossible) and with experimental evidence established the theory of biogenesis: *Omne vivum ex vivo* – life comes from life.

Moreover, zygote to adult embryonic development of every species also follows a fixed unique blueprint leading to the production of an adult organism of that particular species only. Driesch (1894) explained this in a sequence of results where embryological growth progressed by the interactions of the nucleus and cytoplasm:

"*Insofar as it contains a nucleus, every cell, during development, carries the totality of all primordia; insofar as it contains a specific cytoplasmic cell body, it is specifically enabled by this to respond to specific effects only. …When nuclear material is activated, then, under its guidance, the cytoplasm of its cell that had first influenced the nucleus is in turn changed, and thus the basis is established for a new elementary process, which itself is not only the result but also a cause.*"

This spectacular realization of nuclear-cytoplasmic interaction and nuclear equivalence finally forced Driesch to reject the vision of a living organism as a physical machine. Examining natural history, researchers also

reported that living organisms never evolved into different novel anatomical structures; rather they continually unaltered, even over the period of hundreds of millions of years. This non-changing aspect of an organism is known as stasis in the fossil record. Many similar observations in the literature establish that species preservation is a natural characteristic of life. Life's ability to preserve its own species over the period of hundreds of millions of years ('Stasis' in the fossil record) offers a significant challenge to Darwinian gradualism. Living organisms exhibit many goal-oriented or teleological activities, which make them distinct from insentient mechanical and chemical systems.

Darwin's *Origin of Species* utterly ignores these goal-driven activities of living organisms, insisting that natural selection is exclusively responsible for the gradual but steady appearance of more complicated organisms. This irrational obliteration of the role of teleology in the study of life and its evolution is the major deficiency of Darwinism (Dupree 1959). Despite that, right from the mid-19th century to the last few decades of the 20th century, biology witnessed a complete dominance by Darwin's mechanistic and insentient picture for sentient living organisms. In the present article, we termed this incorrect representation of life as abiology and showed that several major conceptual changes have lead to the breakdown of Darwinism or abiology. Rejecting Darwinian abiology, 21st-century biologists are now forced by the evidence to reconsider such rejected ideas as a realistic foundation for understanding life.

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SESSION I: Scientific Critique of Science

'*The Origin of Species*' was published by Charles Darwin in 1859. This had lead to a radical change in the people's perception about life and world. For more than 150 years the only major focus of biologists has been to uphold the Darwinian vision intact. Evolution is a word not limited to biological evolution. Scientists claim that our universe and solar system have evolved from explosion of matter (Big bang theory) and chemical elements have evolved from simple matter. First life has evolved from dead chemicals (Abiogenesis), and complex organisms from simpler forms (Biological evolution). Theories like the Big Bang, Origin of Life, Darwinian Evolution, etc. are failing under the influence of new evidence and concepts created by the advancement of science itself. It is not an attack on science from without. It is a wholly internal critique of science by scientists according to strict scientific principles – 'scientific critique of science'. A gullible public,

academic and scientific community has naively accepted the hegemony of 19th and 20th century science, which we may call Science-19, and Science-20, but they have not upgraded to the new operating system for the 21st Century, Science-21. Science-21 is a more self-critical version of science that:

1. Adopts an attitude of the Scientific Critique of Science, aligning scientific pursuits with the more human, spiritual and moral dimensions of Man.
2. Utilizes access to a more expanded base of modern experimental evidence that challenge the boundaries of dogmatic 20th century science and supports a wider range of conceptual possibilities.
3. Opens up wider vistas for expanding scientific study and research that are now restricted by old-school thought.

The aim of this session is to create a more honest approach to science that will more readily expose those who are motivated by a personal subjective agenda that has nothing to do with objective empirical investigation of Nature. It is science, but with the added element of self-critique.

SESSION KEYNOTE ADDRESS ABSTRACT: Science and Its Limitations

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It is understood that we know many interesting things and we learn many new things every day about Nature, but it is impossible to construct a clear, easy and comprehensible picture which will explain everything scientifically. Generally, we all assume the fundamental constituents of matter are protons, neutrons and electrons. These can be made artificially by using the relation $E=mc^2$. Although we know how the atom or new elements can be made, we do not understand how the energy acquires mass. Though there are several explanations available, the clear cut picture is till waiting from SCIENCE. Some other unsolved problems which I want to discuss are the (i) charge-mass relation: We know what is charge? We also know what is mass? But science is still unable to explain what is the relation between them. Example: The mass of a proton is 938 MeV and that of its charge is +1 unit. The same mass and charge of a positron is 0.5 MeV and +1 unit. Thus, we know what mass is and also we know what is charge, but we do not know what is their relation. (ii) Life and death: Science can only detect whether there is life or not. But it cannot explain, what is life? For example, science cannot detect the emotion of a life. It cannot predict the intention of a lively object. But it can predict perfectly, when there is no life in it.

Paper 1 Abstract: Experiments on Stratification of Heterogeneous Sand Mixtures

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Large scale experiments on stratification were carried out in the hydraulic engineering laboratory of the Colorado State University (CSU). The presentation demonstrates the simultaneous formation of stratified deposits under steady flow conditions and a continuous supply of heterogeneous particles. The deposition process involves the formation of a stratum of coarse particles between laminated deposits of fine particles as a result of velocity changes in non-uniform flow. The time sequence of the deposit formation shows that sets of laminations develop vertically upward and progress in the downstream direction. At a macroscopic scale, at the surface of the deposit, coarse particles roll on a deposit of the fine particles as a result of particle segregation. The stratification of heterogeneous sand mixtures may result from (i) segregation for lamination, (ii) non-uniform flow for graded-beds and (iii) desiccation of joints. It is easy to conclude that a stratum corresponds to successive sedimentary layers by simply looking at the cross section of strata. Therefore the

results from discontinuous sedimentary periods tell that each stratum is younger than one underneath it and older than one above it. That means the all points at same strata are at the same age. The stratification experiment invalidates these hypotheses because the strata are not identical to successive layers. This finding is important because stratum has been used to date sedimentary rocks and fossil species in them. The experiment proved that strata cannot be used to date either for fossils or rocks. In fact the fossil rocks in the bottom strata could be younger than the fossil in the top strata. The scale of geological time and the chronological succession of fossils have been calculated on the mistaken belief on the strata are successive layers of sediment. Evolution theory based on the belief that succession of the fossil species in a scale of geological time therefore demonstrates the evolutionary progress has taken place. However the experiments conducted at CSU shown that layers of incoming sediment has been wrongly identified as the strata. A single layer of sediment strata consists of parts of many strata so positions of fossils in rock strata simply could indicate the ecological zones of marine species. The conclusion of the experiment is stratigraphy interpreted by as observable facts and experimental data challenges geological time scale and therefore evolution theory.

Paper 2 Abstract: Origin of Life – so far explained in science and depicted in *Upanishad*

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Science tries to explain that the universe evolved by self-organization of matter towards more and more complex structures. Atoms, stars and galaxies self-assembled out of the fundamental particles produced by the Big Bang. Finally, in the process of biological evolution from bacteria-like tiny cells (the last universal common ancestor) to all life on earth, including humans, complex life forms arose from simpler ones. However, according to *Upanishad*, Prajapati, the cosmic mind, first created out of himself the *Prana*, the primal energy, and *Rayi* (matter), the giver of form. Existence of *Prana* in living object is in coarse form and could be understood through our five sense organs, while it is present in inanimate object in extreme finer form and cannot be realized through our senses. The role of Prajapati is creation, growth and protection to creation (*Prashna*, 1-4). The ultimate supreme source of all existence is Brahman. The Self is subtler than the subtle, greater than the great; the *Atman* (soul) resides in the hearts of all living beings. It is subtler than the subtle, because It is the invisible essence of everything; and It is greater than the great because It is the boundless, sustaining power of the whole universe; that upon which all existence rests (*Katha*, 1-2-20; *Manduka*, 3-1-7).

Paper 3 Abstract: Protein Folding at Single-Molecule Level

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Most proteins reliably fold into specific "native" 3-D structures which are required to perform their function properly. When the folding process goes awry, however, non-native structures can result that lead to disease, with examples ranging from Alzheimer's to type II diabetes. Laser optical tweezers technique was used to observe protein folding in motion as little as 0.1 nm and as fast as 0.1 ms resolutions. We tried to mimic the cellular environment by using force only as denaturant to observe folding processes without changing other environmental conditions of the medium at single molecule level. I will show high resolution force spectroscopy data of native as well as mutant prion protein, the protein which cause neurodegenerative disease in human. Few misfolding pathways were detected, all starting from the unfolded state, which may be able to propagate by recruiting natively folded prion protein. A mutant prion with higher aggregation propensity

showed increased occupancy of some of the misfolded states, suggesting these states may act as intermediates during aggregation.

Age related dementias of prion or Alzheimer's types of disease are major challenge to the aging societies. Data on dementias or cognitive functioning in humans is extremely scarce especially in third world countries which affects all for example mental status of health practitioners, families etc.

Paper 4 Abstract: Science, Religion & Society

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Science has made man a machine. His activities, life style, environment and education fully controlled by science. Scientific temper has become embodied in human body and soul. We do not make any physical exercise but make exercise with the help of a machine; we do not take natural food, but love to take artificial and synthetic food. Our environment is drastically degrading but it's no body's concern. Deep forests have now turned to desert. Is it the scientific mind of the human being? Like fire or like money, science is a good servant but a bad master. The broad difference between man and machine is consciousness and self realization. Can a machine get a satisfaction for his performance? We live in our present, think for the future and experience from our past. The aim of human life is a harmonious development of the faculties of knowing, feeling and willing or doing material progress, unless balanced, enriched and refined by intellectual social and spiritual progress, will not bring the satisfaction which all man seek.

Paper 5 Abstract: Native deviations from ideality: its relationship to protein structural integrity – a key component to predict protein structures ab-initio, overlooked for decades

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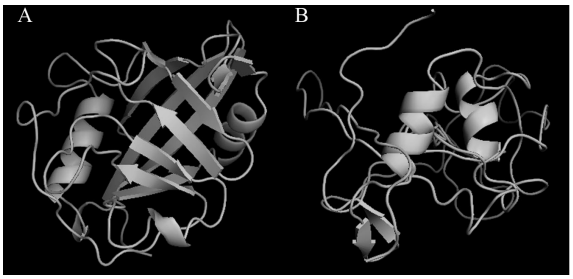
The protein folding problem has just crossed a half century last year. In 1962, Perutz and Kendrew having received the Noble prize in Chemistry for solving the first ever crystal structure of a globular protein (Myoglobin) categorically highlighted on the 'complexity and lack of symmetry' of the molecule, surprisingly contrasting to the regular double helical structures explored for nucleic acids. The central problem of protein folding could be subdivided into three distinct although related sub-problems: (i) the thermodynamic problem of how the native conformation of the polypeptide chain is detected – the folding code (ii) the kinetic problem of how could proteins fold so fast – the folding rate and (iii) the computational problem of how to predict the three-dimensional structure of a protein from its amino acid sequence – the second genetic code. The major concern with the structure prediction problem is to figure out ways to reduce the combinatorial expansion while sampling the conformational space of a polypeptide chain undergoing folding. Research in this field has grown leaps and bounds with advancement in computer power and the methods could be broadly classified into (i) purely physics based methods, (ii) knowledge-based methods and (iii) hybrid methods. Purely physics-based methods rely on building accurate all atom molecular mechanics force-fields and they are computationally very costly. On the other hand, knowledge-based methods use priori information of existing structures and derive semi-empirical probability based thumb rules for structure prediction whereas the hybrid methods combine the two. Overall, the purely physics-based methods have not been very successful although there have been exceptions particularly for small helical proteins. On the other hand, bioinformatics based methods have been able to predict the native three dimensional structures of proteins with more consistency and better accuracy and the most successful approach has been homology modeling. Over the past one and a

half decade, a standard has emerged that all predicted protein structures should be blind-tested in a biannual community-wide event called Critical Assessment of Techniques for Protein Structure Prediction (CASP). In this context, purely physics-based folding approaches have traditionally been regarded as not competitive due to reasons of both speed and accuracy. Also, in the attempt to refine poor structures, energy minimization or molecular dynamics generally drags the atomic model farther away from its experimental structure. Inaccurate ion-pairing interactions and imbalance between helices and sheets have been common problems related to molecular mechanics force-fields and / or implicit solvent models. Although, recent studies have shown improvements in physics-based approaches when properly paired with implicit solvent models. The presentation will briefly review the pros and cons of the current methods and compare their success rates. One lacuna of all such studies is probably the lack of consideration of native deviations in geometrical parameters from their corresponding ideal values whereas more emphasis given to detect the correct set of the main- and side-chain dihedral angles in the prediction procedure. A recent work from our laboratory has convincingly shown that these strategic, context dependent deviations distributed throughout the polypeptide chain are essential for the structural integrity of globular proteins (Fig 1). Although, there have not yet been any empirical rule to predict these deviations, but we are hopeful that if such a rule is established in the near future and suitably incorporated in a structure prediction protocol, it would definitely reflect in betterment in its accuracy.



Paper 6 Abstract: Science and Spirituality go hand in hand

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Science is described as systematized knowledge that is derived from observation, study and experimentation carried out in order to determine the nature or principles of what is being studied. Spiritualism stands for knowledge based on soul and spirit. Spiritualism believes in fact that soul is immortal. Science and spiritualism both are necessary for human development. Science is important for Intelligence Quotient, i.e. is gaining knowledge whereas Spiritual Quotient, SQ is equally important to give us confidence, peace of mind and success in life. Carl Sagan had said that Science is not only compatible with spirituality; it is a profound source of spirituality. It also gives inner strength and motivation to face life challenges and different situations. Our society is a conservative society and to reach to a diverse society we need spirituality. This paper is based on an extensive review of literature. Both science and spirituality are in a continuous quest of finding answers to ultimate truth and in a quest of reason. When man cannot find answers to his questions through science or physical world then he by evidence reverts to spirituality. John Hagelin explains and compares the cutting edge physics with the ancient spiritual wisdom. The universe exists in different layers from superficial into profound, from macroscopic to microscopic, and from diversified to fundamentally unified. It is in a way complex but fundamentally simple. Various philosophers, scientists and sages have talked about the so called consciousness and quantum physics has been able to give in depth answers to problems and sufferings caused to human beings. Princeton University has carried out a research on consciousness. There has been a wide scale discussion on the concepts like NDE and near death experiences, where science is not really able to answer all questions. Even in athletics and car accident cases people have experienced something like a white light and their bodies floating in the air. There are mathematical calculations which shows that neurons or our brain cells work in the capacity of 10^{27} computations/s at a scale much smaller than nano-scales in the space-time geometry. Dr. Gregg Braden also has talked about how our emotions affect our health and how by controlling

our mind we can cure many diseases, even deadly diseases such as Cancer. The various texts and examples relate to the power of the mind and consciousness which can work wonders. There are meditation techniques like Reiki, Vipassana and Samadhi. In the works of Dr. Roger Penrose and other philosophers there is the possibility of consciousness after death and also reincarnation. There is an interesting show by *BBC*, 'The day I died' that tries to explain such things that science could not find answers to. In this paper the researcher further discusses the role of media in bridging this gap between science and religion

Paper 7 Abstract: Mother Nature and Environment: An alternate solution

Alak Kumar Patra

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Mother Nature is called "Sarbangsaha" for her all assimilating power. She is regarded as goddess of Climate and environment from spiritual point of view. Pollution in land air and water was regarded as sin/crime against the God and the goddess. The view has been changed due so called popularity of Darwinism and Materialism. Industrialists often ignore the environment being blinded by exploiting mentality thinking pollution as merely some physicochemical change. We and our civilization are leading towards a total destruction due to this misconception. This is echoed in several International conferences and treaties. Most of the universal mysteries are unknown to us. We prefer to survive than to become extinct. Let us follow the Spiritual view, become a little humble towards the Nature and the universe, to save the world from a total destruction. This is proposed in the thesis of our discussion on environmental pollution: An alternate solution.

SESSION 2: The Science of Spiritual Biology
An Introduction by
Sripad Bhakti Madhava Puri Maharaja, Ph.D.

(Chairman, Science & Scientist – 2013)

Serving Director

Bhakti Vedanta Institute for Spiritual Culture and Science, NJ, USA

"*Living systems are cognitive systems, and living as a process is a process of cognition.*"
H.R. Maturana, *The Biology of Cognition* (1970/1980)

Applied mathematician, Samuel Arbesman, is an expert in scientometrics, the science of science, or metascience, and he has written a very recent book, *The Half-life of Facts*: *Why Everything We Know Has an Expiration Date*, (Sept. 2012), in which he investigates the frequency of changes in scientific facts, paradigms or theories. Knowledge in different fields of science evolves in systematic and predictable ways, and such changes have a powerful impact on our lives.

The massive accumulation of data on the bio-molecular constituents and processes in living organisms has really only begun in the last few decades. Powerful new instruments for better observing the microscopic world of the cell, and techniques for studying its dynamics have only recently become available. In the world of Darwin in 1853, when he wrote his *Origin of Species*, nothing was known about DNA or genes, proteins, enzymes, or cellular organelles. Even Mendel's discoveries of the heritable traits which he found in his experiments with pea plants in 1866, were unknown to or disregarded by Darwin and others at that time. It was not until the beginning of the 20th century that the significance of Mendel's work became recognized and the scientific discipline of genetics was established.

In his book, *Darwin's Black Box*: *The Biochemical Challenge to Evolution* (1966/2006), Michael Behe posed the question whether Darwin would propose his theory of evolution by natural selection today, if he had all the information we currently know about the living organism. Knowledge of the internal workings of the cell was almost completely lacking for Darwin, thus for him the cell was basically a "black box." His understanding of heredity was based on the vague conception of pangenesis, which was generally believed at that time, a blending of factors throughout the cells of both parents. This was shown to be wrong by Mendel's discoveries of what eventually became known as genes, localized discrete units produced from a DNA template.

Today, that concept of "gene" is now evolving into a more dynamic and inclusive conception. A tentative definition of a gene is now "a union of genomic sequences encoding a coherent set of potentially overlapping functional products." Gerstein Mark B. et al. (2007). "What is a gene, post-ENCODE? History and updated definition". *Genome Research* 17 (6): 669–681. The reason is that an oversimplified under-standing of living organisms in terms of discrete interacting molecules does not have any actual explanatory significance. Living organisms are dynamically complex functional entities not reducible to simple mechanical-chemical descriptions. Darwin wrote in his *Origin of Species*, "If it could be demonstrated that any complex organ existed, which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down. But I can find out no such case." It was on this point that Michael Behe claimed modern biology could challenge Darwin, due to the presence of "irreducibly complex" structures within living organisms, such as the bacterial flagellum, as well as numerous biological cell processes. These require the cooperative effects of a multiplicity of parts and processes in order to have any functional value for the organism, implying that a successive development would involve contingent intermediate stages that would be of little or no use to the organism.

In 1967 Arthur Kornberg first presented the elucidation of the proofreading and editing functions of DNA polymerase. The remarkable fidelity of the DNA replication process such that only one mistake is made for every 109 nucleotides copied, demonstrated the highly regulated and controlled nature of the cell. The reason is that random mutations generally result in debilitating or lethal effects to the cell. The existence of such tightly regulated and controlled systems not only challenges the idea of a sequential evolutionary development of life, but implies that randomness at the cellular level is deleterious or lethal to such systems. The idea that evolution could proceed by way of random mutations in the fundamental genetic makeup of the cell is thus called into serious doubt.

Barbara McClintock, Nobel Laureate in Physiology and Medicine in 1983, was a distinguished cytogeneticist who made many fundamental discoveries in her early years. By the 1950's she discovered what are now known as transposons and the theories that explain how genetic information is used to turn physical characteristics on or off.

The implications of her research led her to conclude that the cell was able to 'sense' when changes to its own DNA were necessary under stress. This led to much skepticism and alienation from the scientific community but she persisted, basing her views on her research rather than the consensus prejudices. Thus she concluded:

"*Organisms can do all types of things; they do fantastic things. They do everything that we do, and they do it better, more efficiently, more marvelously…. Trying to make everything fit into set dogma won't work…. There's no such thing as a central dogma into which everything will fit…. So if the material tells you, 'It may be this,' allow that. Don't turn it aside and call it an exception, an aberration, a contaminant….That's what's happened all the way along the line with so many good clues.*"

Today, the multidisciplinary field of Cognitive Biology has become an established scientific discipline. Mathematical physicist Roger Penrose wrote in 1994:

"*If we are to believe that neurons are the only things that control the sophisticated actions of animals, then the humble paramecium presents us with a profound problem. For she swims about her pond with her numerous hairlike legs — the cilia — darting in the direction of bacterial food which she senses using a variety of mechanisms, or retreating at the prospect of danger, ready to swim off in another direction. She can also negotiate obstructions by swimming around them.*"

Moreover, she can apparently even learn from her past experiences — though this most remarkable of her apparent faculties has been disputed by some. How is this all achieved by an animal without a single neuron or synapse? Indeed, being but a single cell, and not being a neuron herself, she has no place to accommodate such accessories.
[*Shadows of the Mind: A Search for the Missing Science of Consciousness* (1994) p.357]

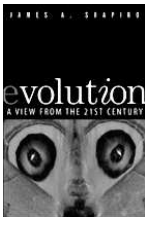
Pamela Lyon, cognitive biologist at the University of Adelaide in Australia reported:

"*...what is believed to be the simplest metazoan visual system yet discovered was recently characterized in the larvae of a type of jellyfish, one species of which (the box jellyfish) is the sometimes-fatal scourge of swimmers of the northeastern coast of Australia (Nordstrom et al. 2003). The visual system does not rely on neurons or axonal connections between different cell types or tissue layers. In short, there does not appear to be a mechanism for the exchange of information between cell and tissue types characteristic of animals with nervous systems, yet the behaviour of the larvae is indistinguishable from that of related cnidarians possessing neuron-based vision. The adult form of the box jellyfish has neurons but no brain; nevertheless, it is capable of surprisingly complex differential behaviour. Now we can declare, as did Lamarck, that nothing without a nervous system or a brain can be genuinely cognitive, but whereas this claim previously could be made without argument, I suggest this is no longer the case.*"
[Pamela Lyon, "The Biogenic Approach to Cognition," *Cognitive Processing* (2005)]

Scientific work on a wide range of cognitive functions in animals, plants, and bacteria can be found online in the recent book, *Cognition and Decision in Non-Human Biological Organisms* (2011). Günther Witzany, *Life: The Communicative Structure, a new philosophy of biology* (2000) provides a perspective on the essential role of communication at all levels of life. These bold new approaches to scientifically understanding life spurn the eliminative materialism of the reductionist school, and try to understand life as it is observed, rather than attempting to fit it into an artificially contrived, presupposed conception.

Oxford University Press has recently published a book by atheist philosopher, Thomas Nagel, entitled, Mind and Cosmos: *Why the Materialist Neo-Darwinian Conception of Nature Is Almost Certainly False* (2012). The description reads:

"*The modern materialist approach to life has conspicuously failed to explain such central mind-related features of our world as consciousness, intentionality, meaning, and value. This failure to account for something so integral to nature as mind, argues philosopher Thomas Nagel, is a major problem, threatening to unravel the entire naturalistic world picture, extending to biology, evolutionary theory, and cosmology.*"



A concise presentation of how traditional views of evolution are inadequate to explain the latest research findings, can be found in molecular biologist James Shapiro's book, *Evolution: A View from the 21st Century* (2011). This important new book presents the evidence that leads to an interpretation of life as characteristically intelligent, cognitive systems. All these

revolutionary perspectives come from scientists working within the scientific community as colleagues, and not from the theistically-oriented section.

Carl Linnaeus set forth in his *System Naturae* in 1735 a particular form of biological classification. This rank-based taxonomy classified life forms into three kingdoms (Animal, Vegetable, Mineral), divided them into classes, which were further divided into orders, genera and species, following the ideas developed by Plato and Aristotle. It was only later that this system of classification was considered from a new perspective: the ancestral relation of species that was introduced with the idea of evolution. Thus the concept of a Tree of Life was born. At first, the classification scheme was primarily based on morphological and behavioral similarities which were then interpreted as related to evolution. Latter developments in microbiology introduced the field of comparative genetics into what became known as the neo-Darwinian theory of evolution. In many cases, relations established on the basis of morphological similarities were contradicted by the comparative genetic data.

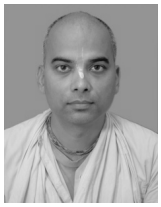
In addition, the discovery of the importance of horizontal gene transfer from the environment undermined the whole concept of the linear descendants of species being understood through progressive internal changes in cells that were thought to explain the branches of evolutionary development. Now species had to be understood as related to each other more as a bush or network, a delicately balanced web of life, in which originally unsuspected micro-organisms played a central role in all of life, and under a set of rules unique to them. There is no idea more central to Darwinian evolution than the tree of life, yet this icon of evolution is now gradually being replaced by the concept of a web of life due to the discoveries of the enormous role of bacteria. ["Why Darwin was wrong about the tree of life," Graham Lawton, *New Scientist*, 21 January 2009. "Uprooting Tree of Life," W. Ford Doolittle, *Scientific American*, February 2000.] It is now known that a large percentage of the human organism is composed of bacteria, as is essential for most multicellular organisms. It is the extensive biocommunication network within the biosphere that is the essential factor in keeping us all alive, as Witzany explains in his previously mentioned book. As an English poet wrote, "No man is an island, entire of itself. Each is a piece of the continent, a part of the main." [John Donne, *Devotions upon Emergent Occasions* (1624)]

Just as the cell has gradually come to be understood as a highly regulated and functionally integrated whole, so too is the biosphere now recognized as a finely balanced ecological whole in which local disturbances can create world-wide climatic catastrophe. The oversimplified ideas of biology that characterized the field in its immature beginning led to the theories of a progressive cumulative development or evolution to explain the present state of Nature. However, today, a more mature understanding of biology has brought with it the realization that Nature can not be the product of a gradual development, based only on the reductionist principles of chemistry and physics. In an ideal situation, where there are no strong interactions with the environment, isolated and purified chemicals may react in a mechanically simple manner, but in a living organism there are no isolated molecules. Everything within the cell interacts with everything else. The constituents of a cell are produced by the cell as much as they produce the cell itself. As the German philosopher Immanuel Kant understood, the unique judgment that allows us to identify a living organism as distinct from non-living matter, is that a living organism is both the cause and effect of itself. Thus, the life of a cell, as much as the life of the biosphere, can only be properly understood as an integrated organic whole.

The ancient aphorism of the ***Sri Isopanisad***, *om purnam adah purnam idam*, gives us the root idea of how the creation of Life and Nature comes about through the production of wholes from wholes, and of life from life.

It is these empirically verified principles that form the basis of the true science of spiritual biology. And biology should be the scientific study of dynamic life, not merely an analysis of the mechanisms of inanimate matter. Chemistry provides some idea of the processes of material Nature, but insentient matter can never rationally be expected to explain the sentient nature of life. Empirical science is easily applied in trying to understand the object-world or positive pole of reality, but has fared poorly in attempting to comprehend the subject or the negative pole. It would be considered poor science to know about only one pole of a magnet without knowledge of the opposite pole. Yet the subject can also be made object of itself by what is called introspection. This important field of knowledge has been known and carefully studied for centuries in India, but forgotten by modern scientific positivism.

Today, many biologists are being trained in outdated conceptions of biology, by teachers who know nothing else. A 21st century revolution in biological education is needed if this vicious cycle is to be broken. Progress in scientific knowledge benefits by following the sage advice of those like the Bengali saint, Srila Bhaktivinoda Thakur, who wrote in a poem, "The Jiva Soul," *Saragrahi Vaisnava* (1874): "Forget the past that sleeps, and ne'er the future dream at all. But act with times that are with thee, and progress thee shall call."



SESSION KEYNOTE ADDRESS ABSTRACT: Failure of Darwinian evolution as well as structuralism leading to a Cognitive and Spiritual Revolution in Biology

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Due to the work of a great number of plant and animal biologists and the work of McClintock, biology has discovered two irreducible features which are life's distinguishable features: (1) They are Intelligent, meaning they are purposive and, (2) They exhibit cause/consequence circularity. Last year the Cambridge declaration of consciousness held that all animals were conscious and display intelligent behavior [1]. One consequence of the cognitive revolution in biology is the confirmation of the teleological arguments of Kant which were later substantiated by Hegel. Although Darwinists talk of teleology in terms of Natural Selection, in reality it is irrelevant to Hegel's description of natural teleology. Modern Biology has no ground for establishing any law for intelligence through necessary connections in mechanical systems. The pioneering neural cartographer, the renowned Canadian Brain Surgeon Wilder Penfield said, "*it [Consciousness] is not in the cerebral cortex! … I am forced to choose the proposition that our being is to be explained on the basis of two fundamental elements … mind and brain as two semi independent elements* [2]."

1. Kant's Teleological Understanding of Life

Kant gave a teleological explanation to organisms and called them *Naturzweck* or embodiments of Natural teleology. *Naturzweck* is different from artifacts or *zweck* [3]. There are two questions posed in Kant's argument of natural teleology: (1) What is it?, and (2) Can we have a knowledge of it? Organisms are natural ends, and can never be described in mechanical or chemical terms. Kant said, "*There will never be a Newton for the blade of grass* [4]." Consumption/digestion of nutrients and reproduction lead us to consider that organisms are natural teleologies. Kant concluded in nature (natural teleology) the part/whole relations are so demanding a concept that we can never know if anything meets those requirements [3, 5]. Each part must form others, or parts are combined into whole by being reciprocally the cause and effect of their form. Kant thought that real causes or purposes cannot precede them because that will mean it influences its own causes. Parts are possible only through their relation to the whole. An end must be comprehended by an idea that determines everything that

is contained in it quite *a priori* [5]. In this way for Kant, any knowledge of Natural teleology is denied accept as *a priori* ideal or first representation. But we could say that such thing as natural teleology exists only because we observe reproduction and consumption/digestion of nutrients by organisms.

2. Hegel's Substantiation of Teleology proposed by Kant in the Gattung or Kind

However Hegel substantiated Natural teleology by showing that the ground for it is there in Kant's own analysis. Hegel has three requirements for natural teleology: (1) Reciprocal relations between part and whole, i.e. all members are reciprocally momentary means as well as momentary ends. This is the principle of *self-preservation*, (2) *assimilation* from environment by which the system of live maintains, develops and objectifies itself, and (3) *reproduction*, i.e. all organisms must also pursue self-preservation by reproduction by producing itself as another individual of the same species. In reproduction the determination of the entire structure of the organism is manifest. This is the genus-process or maintenance/preservation of the species and is called Gattung or kind by Hegel. This results in natural teleology – as a system of activities which is actualized into a system of organs through which those activities proceed. The living thing is in this way articulated purposefully as a natural teleology. All its members serve only as means to the one end of self-preservation. In Kant's analysis there was no mediation through which we can comprehend the genesis of a teleological system. It remained only as an immediate presupposition which was not yet authenticated by the living individual itself. But Hegel has given us the focus of self-preservation, within the representation of species [3]. Hegel explained that organisms did not have parts but were manifolds of members. Members are what they are only by and in relation to their unity, meaning they are means to the end or purpose of the whole. Neither mechanism, nor chemical substances fit the analysis of life as they do not have internal ends as in life and hence cannot form any natural teleology. What the evolutionists describe about organisms in terms of physics and chemistry is a dead thing, it is never living. Only a genuine internal purposiveness can grasp it. Yet Hegel's teleological explanation does not defend or need to defend the historical development or the evolutionary history of organism. It was irrelevant to the problem left by Kant. Hegel thereby leaves no reason to doubt that we can know that there are indeed living organisms and brings it to the sensible realm [3]. These are quite unlike non-living matter or artifacts. The proponents of natural selection and evolution can be called as another kind of neo-teleologists. But they cannot give any robust causal explanation. Hegel's teleological argument is defendable even without a need of any view of the historical development, yet Darwin's Natural Selection is essentially a statement of the historical development of the organism. The burden of proof of that then lies with the Darwinists to show how chemicals could ever give rise to life which exhibits natural teleology as self-preservation. This is Hegel's strength and Darwin's weakness that is confirmed in advanced cognitive features of biology.

3. Aristotle's Hylomorphism as the Concept of Living form

In *de Anima*, Aristotle approached the concept of life from empirical observations [6]. Hegel praised Aristotle's work, '*On the Soul*' as "*by far the most admirable, perhaps even the sole, work of philosophical value on this topic*" [7]. Aristotle considered that soul was the first principle of living things and acquaintance with the thought of soul makes a great contribution to the truth of everything and especially to the study of nature. He categorized three nested degrees of soul corresponding to growth and nutrition, perception and locomotion, and intellect respectively: Nutritive souls (plants), sensitive souls (all animals) and rational souls (human beings). This is a non- Cartesian picture where initial life is a potential or a concept, where the living entity exists and comes out. Entelechy is stage of development or process by which a potentiality becomes an actuality. Actuality is something like teleology of Kant and is self determined. What comes out of the potential is already within the potential and is nothing new. The concept of life in a potential form becomes actualized by necessity. Biology follows *hylomorphism*: its matter and form is inseparable, and always united in the potential and actual form. Real substantial being is the determinate being. For example human being is distinct from every other kind of

being and so are bacteria, animals and plants, every species representing a distinct *hylomorphic* body-form. We will not be able to scientifically transpose a species, e.g. bacterium to some other species. However some adaptability and development is there, but that constant restless alteration is a bounded, but pliable within the boundaries that do not cross its species line. Species are conserved in nature but Darwin came with a wild thought that species become divergent. But there is neither any actual evidence for Darwinian evolution nor abiogenesis. Non-living matter does not possess the living potential and there is no evidence.

4. The *Pancha-kosha* Model of Vedanta in Indic tradition for Living Form

In Vedanta, species have been categorized according to their degree of consciousness as well as their body/form. This is the object/subject unity of a proper understanding of nature. *Sankya* of Vedanta calls for a subtle/gross conception of matter. There are 8.4 million species of life [8]. There are 9 lakh forms in water, 20 lakh forms of trees and plants, 11 lakh forms of insects, 10 lakh forms of birds, 30 lakh forms of beasts and 4 lakh species of human beings. According to Manu the trees have the feelings of pain and pleasure similar to ours and their souls are not of a lower standard [8]. Yet their consciousness is not yet developed to the extent of animals and the still higher category of human beings. The species categorization in Vedanta is based on the consciousness that a particular soul is attached with. The different species are categorized as five koshas or stages of consciousness (see Figure 2), (1) *annamaya*, (2) *pranamaya*, (3) *manomaya*, (4) *vijnanamaya* and, (5) *anandamaya koshas*. These five stages are hierarchical and are nested. The *annamaya* stage is the feeding stage and is common to all life forms in the world. This was also understood by Aristotle, when he explained that the nutritive stage is common to all life. According to Sripad Madhva Acharya, the suffix '*maya*' indicates *pracurya* or sense of profusion in relation to Brahman or Spirit w.r.t. terms like *anna, prana, manah, vijnana* and *ananda* in the *Upanisads*. All these five forms of Brahman are to be taught as immanent in different *koshas*. *Anna* (food) is defined as "that which eats the creature and is eaten by them." This becomes clear when we get the knowledge that all living entities are dependent on *Brahman* or Spirit. Similar analysis of *pranamaya* will signify *Mahaprana* etc. This is clear from the statements of *Brahma*, "Know *annam* to be *Brahman* …" etc [9]. *Pranamaya* stage is the immediacy of living symptoms, it is found in the vitality of living organisms. Plants, animals and humans have the potential for self-recognition to different degrees. *Manomaya* stage is the mental stage. Human stage is more advanced than plants and animals although all contain in degrees some mental or cognitive quality. It produces mental speculations among human beings leading to different cultural identities. *Vijnanamaya* stage of consciousness is the stage of reason. Aristotle said, "Man is a rational animal". Soul has the potential either to go down in different stages of material consciousness like plants, insects, animals or human being, or become situated in its true unmixed spiritual identity, or a serving member of the Absolute reality. All living entities, from the simplest on up, are immanently covered by the *anandamaya kosa*, the tendency of enjoyment. Only the devotee knows the proper process for establishing that fulfillment perfectly. Here he contributes by proper knowledge received from proper source [10]. The gradation presented in *upanisads* has reference to the stage of material bondage, or release and ultimately to the degree of dedication to the Absolute Center. The dedicated stage is stage of unalloyed happiness and is characterized by grades and themes of ecstasy. Srila Sridhar Maharaja has explained that Hegel was a very good philosopher in the West [11]. In him we can find many considerations that are useful in comprehending the Concept of Life. He is very close to Vaishnava Vedanta. The task of reason is to comprehend how the wholes are wholes. The being of the whole must be grasped as not being independent. Reality is in and for itself and not only for consciousness and reason culminates in comprehending the Whole Truth in and for itself. McClintock understood through her Nobel Prize winning work on plant genetics that the living organism is a subjective being and a thoughtful being. Plants interact with the environment thoughtfully and respond to its internal necessities thoughtfully. Hegel's natural teleology explains the concept of organisms through its activity of self preservation of species, through assimilation and reproduction. Darwin's teleological explanation through natural selection is an unsubstantiated statement of the historical development of the species and stands disputed as there is no evidence. We don't want to create Frankensteins in our laboratories due to application of improper concepts

to living organisms. For example honey bees are being lost as a consequence of agricultural chemicals [12]. Biology proper needs reevaluation of its conceptual foundations to include more spiritual understanding of life. The author acknowledges his deep gratitude to his teachers Sripad Sripad Bhakti Madhava Puri Maharaja, Ph.D. and Sripad Bhaktisvarupa Damodar Maharaja, Ph.D.

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Paper 1 Abstract: The nature and scope of soul - the network connecting the body with the Spirit

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Body was a mystery for man right from the day of his creation. Modern thinkers, until recently, believing that body is a complete entity, formed their sciences around it with the available details. The Indian philosophers, the Siddhas, believed that human creation is a conceptual miniature of the cosmos, and comparable to it in every respect. Accordingly, like the earth is situated within the sky and safely packed into the cosmos, they believed that, the Spirit is situated within a misty body, the soul, and safely packed into our physical body. According to their descriptions, the spirit is the master, the soul is the network, and body is the final performer. They believed that, the intellectual curiosities of the spirit are transformed into conscience by the soul and converted into actions by the body. Thus, the actions of body are invisibly motivated by the soul. Therefore, mere understanding of the body is inadequate to understand its complicated nature fully. An understanding of the Soul, and initiation of an academic avenue to understand the same, will greatly make good this inadequacy. The underlying information comparing the ancient definitions of the soul, comparable reports of the psychic researchers, mind-boggling findings of modern scientific findings are judiciously employed to prove the nature and scope of soul to emphasize the academic need for studying the same.

Paper 2 Abstract: Understanding Life: A Holistic Approach

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Understanding of life is a challenging quest for science and scientists. Neither physical science nor life science itself could able to explain what the life is. Scientific reductionism has lead the scientists to discover the Higgs-Boson particle, which is believed by them to be the ultimate particle of matter. In the context of molecular biology, the hereditary material-DNA is regarded as the ultimate reality of life which contradicts the Darwinian theory of evolution so far as RNA and PNA are concerned. But, neither DNA nor RNA nor PNA is life because of matter and without consciousness. On the other hand, Vedantic approach points out that life is a part and parcel of God- the Supreme Soul and equipped with consciousness. It is absolutely a transcendental entity and can animate the inanimate matter. It is recognized as atman or *brahman* or spiriton and is eternal-without birth and death.

Paper 3 Abstract: Bio-psychosocial-spiritual model: What Bhagavad-Geeta says?

Rajeev Kumar

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The western world postulated that body is the only antecedent and consequence of the diseases, other related factors were ignored. This philosophy generated the biological or medical model. It was the effort of George Engel, who expanded this model and added psychological and social components also. Later Sulmasy extended this model by adding spiritual component. Western world is coming out of this dogma gradually with inclusion of spirituality in their life, inspired from Indian Vedanta philosophy. Bhagvad-Geeta, is spiritual discourse between Bhagwan Krishna and Arjun, Bhagvad-Geeta is not only promote our spiritual growth, but also accelerate our contribution to science. This paper sheds light upon the mechanism of biological, psychological, social, and spiritual aspects of human being that might be great contribution in the evolution of the biopsychosocial-spiritual model.

Paper 4 Abstract: God and Consciousness

Rahul Jain

Managing Director, Paragon Autotech

Mankind, since the beginning of history has made an effort to explain one fundamental question – the question of origins of life and consciousness. Since time immemorial lot of efforts was made to not only explain the strange happenings 'often termed as miracles' and our origins to an act of supernatural being called GOD. This not only helped the ancient man to explain lot of observations such as eclipses, floods etc. but also ultimately led to the development of civilisations as well. Since the fear of God not only brought the people together but ceremonies were also devised to appease the supernatural. Another unexplained fact was death which made man's belief stronger in GOD or the supernatural being. As the modern man started finding rational explanations to the otherwise unexplained events or happenings of the ancient theories, it leads him to the very questions about the existence of the Supreme Being. But as science is advancing, again certain facts lead us to believe that ancient wisdom was after all not way of mark than what modern science predicts. Ancient Hindu's propounded the theory of Shrithi and Kal chakra. Shrishthi was creation of 'Brahmand' or universe as we know and its secondary creator was called Brahma. Einstein through his theory of relativity predicted Big

Bang - A singularity which led to creation of Universe and where all laws of Physics broke down. That as per Einstein was beginning of time. Eventually the universe as per his theory would end in a black hole or another Big Bang which would mean 'End of Time'. In our ancient scriptures precisely this has been illustrated in 'Kalpas'. And the life of the Universe and its creator has been described in terms of Kalpas which has been broken down into Yugas and further into millennium, centuries, decades, years, months, days and hours, minutes and seconds. And consciousness is the symptom of Atman. While working on his Unified Field Theory Einstein reached a conclusion which he did not accept and said "That the nature cannot depend upon a cast of Dice" and thus erred by introducing a constant which ultimately led to breakdown of his theory. What is this cast of Dice? "This is one of the shapes of Consciousness". If we now go by quantum theory then how can we explain both particle and wave nature of a photon or an electron simultaneously? If we devise an experiment to prove that electrons are particles (practical examples are TV screens and solar sails proposed by NASA as a form of propulsion in future), we get a result that Electrons or Photons are particles. If however, we use slits to prove the wave nature then the same electrons and photons behave like waves and form interference pattern. Then question begging is "Is our thought process deciding the outcome of the experiment?" If this is true then consciousness not only decides the outcome of the experiment but also changes the past history of the electron (in terms of its behaviour like a wave or a particle). Till date no one has found contradiction to quantum theory. People might argue that quantum theory is applicable at a very small scale of measurement. But do not these small subatomic particles make up the entire Universe? If entire histories of electrons or subatomic particles can be changed by a mere design of experiment a question arises about the very origin of Universe as it has developed? It indicates influence of consciousness. This is why Quantum mechanics also predicts parallel Universes which would also explain existence of Dark matter. Another famous equation is the Schrodinger's wave equation which is said to predict any outcome in the Universe provided the variables of the equations and the resultant String Theory are determined correctly. If we go by the string Theory then everything and every bit of matter in the Universe is connected to each other by a string and any change in state of one particle thus effects the entire Universe. Is it not what our ancients said about karma? Also the 'Atman' and 'Paramatman' had an important link of Chetna or consciousness. When our ancient scriptures say that 'Atman' will eventually meet the Paramatman (Supreme Being) after they attain Chetna or full consciousness i.e. Harmony with the play of the sweet Absolute. At the end of Shrishthi all Lord remains as the witness and according to their attitudes the atman attains different destinies. Therefore the unity of Vedanta is in the subjective truth or consciousness. The 'Atman' is a subjective portion of the Lord and is subservient. The real dignity of the soul is that it is an eternal servant of the Lord. The presence of this Universe in its current state is thus because of some conscious influence. Is this not harmony also not an inference from the concept of beginning and end of time as predicted by Big bang and big crunch? This fact is very difficult for the naïve philosopher and scientists, who cannot look beyond waves and particles. But the rational mind must appeal to reason to comprehend reality with humility. When one disciplines oneself to attain a perfect harmonious state with the Supreme Being (positive Harmony or resonance of waves of consciousness) does one understand the ontology of Life, Universe and the purpose of one's own existence.

Reference

Quantum Enigma by Bruce Rosenblum

Paper 5 Abstract: Soul Hypothesis

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As Hippocrates has said that the soul is the same in all living creatures although the body of each is different, modern science is making a continuous effort in understanding the disposition and behavior of soul. Though different religions, science, philosophy and scriptures have their own definitions of the '*atman*' or soul, the indispensable legitimacy remains unchanged that soul is the consciousness in all living beings. It is the universal, eternal self in every entities or '*jiva*'. Modern science and medicine have their own prospects about this consciousness regarding which some explain 'it' as brain activity while others utter quantum explanations of soul. The quantum soul theory is trending worldwide which confirms the survival of soul after death. Observation of near death experience of patients also reveals the immortality of the soul. The present paper deals with the various views and understandings of scientists and philosophers about soul and how its definition has modified with time keeping the fundamental of 'atman' the same ever, the immortal fraction of living bodies. The paper also covers some near death experience and different religious views about soul and its nature. An attempt has been made to draw a similitude in the outlook towards soul from various grounds of science, scientists, philosophers and religion. Our *Arya-Shastras* like *Bhagwat Gita*, *Puranas* and *Upanishads* declare the soul to be eternal and perpetual and that no energy in universe can destroy it. Hence, an effort has also been carried out to resemble that what modern science and technology is trying to discover about soul is indifferent from the verses and texts of *Arya-Shastras* and that those new discoveries has already been enlightened by *Arya-Shastras* decades ago.

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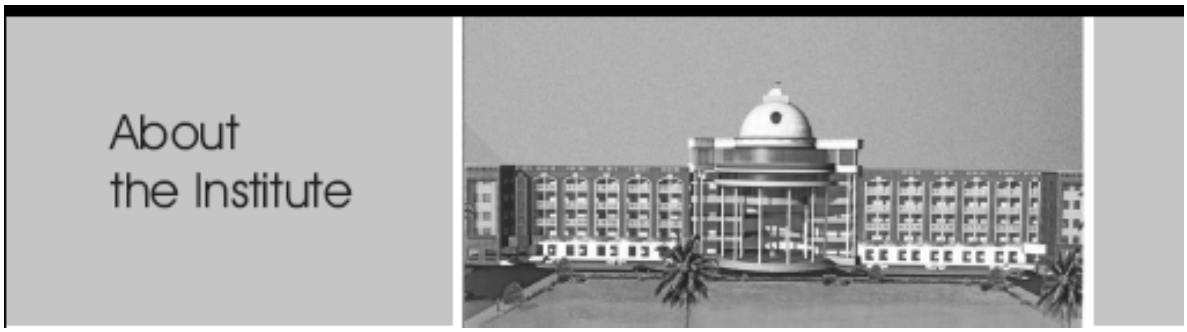

Shivani Education&Charitable Trust established its first Engineering College at Dhenkanal, Odisha in the year 1999 and named it as Synergy Institute of Engineering and Technology. In the year 2009, the same Trust established its second Engineering College, a sister unit and christened it as Synergy Institute of Technology, at Phulnakhara, Bhubaneswar, Odisha. It is equidistant (11 kms) from both Bhubaneswar and Cuttack on NH-5. The institution offers 6 Professional B.Tech programmes with due approval of AICTE, New Delhi in the following disciplines: **EE, CSE, ECE, EEE, ME and CIVIL**. It is recognized by the Government of Odisha and affiliated to the Biju Patnaik University of Technology, Rourkela, Odisha. Lush green coconut grooves and flat farming terrain surround more than 10 acres of picturesque landscape. The natural scenery and campus provide the right ambience for education and research.

Shivani Educational & Charitable Trust

SYNERGY draws its strength, commitment and inspiration from Shivani Educational & Charitable Trust, which was founded in 1998 by a like-minded group of eminent citizens from Cuttack and Dhenkanal drawn from various socioeconomic and academic profiles. The trustees include eminent Educational entrepreneurs, Technocrats, Bureaucrats, Industrialists, Management wizards and Social Workers. The Trust's mission is to carry out various educational and charitable activities in the state of Odisha, particularly in the capital of Odisha and its surroundings. The prime objective of the trust is to promote quality technical education in order to make students ethically strong and technically sound through its dedicated faculty and staff and thereby improve the quality of human life. The promoters have all along dreamt and endeavored towards setting up of a quality technical institution with ultra-modern academic facilities and dedicated faculty team to achieve the goal of technical education. Synergy, Dhenkanal is the first Engineering College in Eastern India to be certified as an ISO 9001:2000 Institute for its Quality Management System. The National Board of Accreditation – AICTE, New Delhi, has accredited four departments namely Computer Science & Engineering, Electronics & Communication Engineering, Mechanical Engineering and Electrical Engineering, for a period of three years. Synergy's Mission is to produce world-class technical professionals and to be a unique "APEX CENTRE OF EXCELLENCE" in the field of Engineering and Technology. We do believe it is achievable, not only through imparting quality education and training to prepare students for the global market, but also through continual improvement on academics and personality development.

Members of the Trust

Name	Background	Position
Sri Binod Dash	Industrialist	Chairman and Managing Trustee
Er. Ajoy Ku. Sahu	Industrialist	Trustee
Sri Sudhansu Sekhar Palo	Industrialist	Trustee
Smt. Anita Padhi	Industrialist	Trustee
Mr. Sarat Chandra Padhi	Academician	Trustee
Mr. K. C. Dash	Social worker	Trustee


Sri Chaitanya Saraswat Math, Navadwip, West Bengal
Publications
Srila Bhakti Raksak Sridhar Dev-Goswami Maharaja Founder Acharaya
Srila Bhakti Sundar Govinda Dev-Goswami Maharaja Successor President Acharaya
Srila Bhakti Nirmal Acharya Goswami Maharaja Serving President Acharaya


Affectionate Guidance
Centenary Anthology
Dignity of the Divine Servitor
Divine Aspiration
Divine Guidance
Golden Reflections
Holy Engagement
Home Comfort
In Search of the Original Source
Inner Fulfillment
KIRTAN GUIDE
Kirtan Guide
OCEAN of NECTAR
Religion of the Heart
Revealed Truth
SERVICE LIFE
Sri Guru And His Grace
The Benedictine Tree of Divine Aspiration
The Golden Volcano of Divine Love
The Search For Sri Krishna
अमृत विद्या