

2. Quantum Mechanism of Light Transmission by Biological Cytoskeletal Filaments
Michail Inyushin, Igor Khmelinskii, Lidia Zueva, Vladimir Makarov

We propose and elaborate the detailed theory of the quantum mechanism (QM) explaining the light transmission by protein filaments in live cells in general, and applied it to explain the light transmission by the bundles of specialized intermediate filaments in the Müller cells located in the eye's retina. The problem of transparency and light transmission by the biological cells with narrow processes is created by the very small effective distances of light transmission by optical channels with their diameter smaller than the wavelength of the transmitted photons, resulting from the classical models. Leaving aside the peculiarities of the biochemical structure of the intermediate filaments, we describe them as hollow electrically conductive tubes 10 - 20 nm in diameter. We analyze the quantum confinement of electrons in such tubes, creating discrete electronic states that may absorb photons at one end of the filament, generating an excited electronic state. Next, such an excited electronic state may emit photons at the other end of the filament, or transfer the energy directly to the chromophore molecules of the retinal light receptor cells, and thereby transmit the luminous energy from one end of the filament to the other. The overall calculated efficiency of the energy transmission through an individual filament, as described by the QM, may be 60 - 70 %.

5. From ‘Physical’ to ‘Metaphysical’: Heinrich Harrer’s Seven Years in Tibet within the Paradigm of States of Consciousness
Supriya Baijal

Seven Years in Tibet (1952) by Tibetologist Heinrich Harrer (1912-2006) which simply begins as a mere ‘journey’ to explore the Forbidden City, Lhasa towards the end becomes much more than a journey. Harrer’s literary work is a gripping delineation of his scepticism, perplexity with frequent questioning of various aspects of Tibetan Buddhism. His journey becomes remarkable as it brings to light aspects related to re-incarnation and other religious beliefs of Tibetan Buddhists. The real journey of the writer to metaphysical consciousness begins when he comes in association with Dalai Lama. The paper attempts to explore and analyze Harrer’s voyage as a philosophical and spiritual voyage and locate it within the paradigm of altered states of consciousness. ‘Altered States of Consciousness’ are states in which the quality of experiences is significantly different from ordinary states of consciousness. It would situate Harrer’s vacillations during his journey within the framework of different material and higher transcendental states of consciousness. This paper would re-interpret this physical journey as something which results in the discovery of his Self to a great extent. An attempt will also be made to draw together some concepts of Hinduism and Tibetan Buddhism to throw more light on the concept of transcendental consciousness.

11. How Thoughts are Generated: An Eastern Philosophy Hypothesis
Vijai Kumar, Anjoo Bhatnagar

There are about 1 million billion synapses in human brain with possibly hyper – astronomical neural circuits. “Somehow.....that’s producing thoughts” says Charles Jennings, Director of

Neurotechnology, at the MIT McGorven Institute for Brain Research. In this view thoughts may be regarded as “sparks” of neuronal activity. However well conceived be the ideas (Taylor and Le Fann 2004) they still fail to recognise the “explanatory gap” between current understanding of brain structure and “what it does, how we think, feel and emote.” We attempt to present a hypothesis of how and where the thoughts are generated on the basis of the concepts of Eastern Philosophy (Radhasoami Faith) and reach the level of consciousness, and its synergy with the scientific understanding of brain structure and function. Relationship of the Eastern concept of the constitution of the macrocosm and microcosm and generation of thoughts will be discussed.

13. Development of Activity Based Learning Programme (ABLP) of spiritual education and studying its effectiveness on Spiritual consciousness and Happiness of Secondary school children

Ranjeet Satsangi, Dayal Saini

In today's world despite comforts and amenities, people generally lack inner happiness and harmony. Even children are living in stress. They are overburdened with studies or are ignorant of the real source of happiness. The major cause of this state of affairs seems to be the lack of proper education. In the words of Sir Sahabji Maharaj, the fifth Revered Leader of Radhasoami Faith “Education, more education, education made perfect is the only panacea for all our country's ills and evils.” Man is said to be a complex triune of Body, Mind and Soul or Spirit. Spirit is the highest truth that has ever been discovered. Spirit is all knowing, ultimate truth, consciousness and bliss. It is our real self. It can be awakened through right education or spiritual education. Through spiritual education spirituality could be enhanced. A spiritually conscious person seeks happiness not from material pursuits but from within. The researchers, being teachers themselves developed an “Activity Based Learning Programme”(ABLP) of spiritual Education for secondary school children and studied its effectiveness on spiritual consciousness and level of happiness of children. The seven days programme of Spiritual education incorporated seven activity based lessons on spiritual education of one hour duration. Each lesson was designed incorporating a small prayer, silence, two or three scientific experiments, questions, answers and discussion and summing up with a short conclusion.

16. Tanmatras , the spiritual quantum basis of perception and emotions

Mani Sundaram, Prem Sundaram

The present paper is an attempt to understand the process of perception and especially of qualia, by introducing the concept of Tanmatras. We propose that the basis of our perceptions,senses/ qualia are Tanmatras, the inner senses which display the power of prime consciousness or the spanda principle. Tanmatras are basic principles, potentials or essence, vibrations, the subtlest particles of spiritual quantum field or dark matter, associated with each external sense. Impressions from physical sense organs have to interact with the spirit force in order to be sensed. In reality spirit/real self is the perceiver.

21. A comparative analysis of well - being of yoga practitioners (general yoga asanas and pranayam) and practitioners of ultra-transcendental meditation (surat - shabd yoga)

P Sriramamurti, Purnima Bhatnagar, Shalini Nigam

The objective of this study is to compare the well - being of people who practice yoga (general asanas and pranayam) with those who practice ultra - transcendental meditation. In a quest for a better life, happiness as well as peace of mind, people have adopted different means. Yoga in its myriad forms is one of the methods. For the purpose of the study, well - being is defined as 'good mental states, including all of the various evaluations, positive and negative, that people make of their lives and the affective reaction of the people to their experiences'. The study will encompass primary data collected through a survey with respondents belonging to yoga practitioners (general asanas and pranayam, etc) and ultra - transcendental meditation (surat - shabd yoga).

24. Mystical Experiences: Dualistic vs. Non-dualistic

Sona Ahuja

Advanced meditators experience dualistic and intuitive mystical state sequentially. There is quantum leap from dualistic to intuitive experiences. The non-dualistic state with the absence of subject-object duality is critically debated. The mystic experiences the emptiness or absence of any content which is in contradiction to having an experience itself. The question arises if there is non-duality in experience that is the experiencer unites with the experience itself then how does the subject report it? The nothingness can be the beginning that is the absence of sensory experiences or the union of observer and the observed. But it cannot be tested. There are five different schools of Vedanta philosophy describing the relation between the two. (i) Dvaita (dualism) clearly differentiates the observer and the observed. (ii) Vishista Advaita (qualified monism), espouses that both exist but they are not separate entities. (iii) Bheda Abheda (difference – non-difference/ dualistic monism), the experience is emphasized more than the experiencer. (iv) Kevala Advaita (monism), recommends that only one entity exists. (v) Shudh Advaita (pure monism), the observer and the observed are believed to be inseparable. The description of this association is more like different stages on the philosophical path.

In the oriental philosophy of Saints (Radhasoami Faith), at higher level of consciousness, the mystics report to be in dualistic state or intuitive state at free will. The observer can be witnessing awareness or the awareness itself. This solves the mystery of the experiences. Since, the mystic can be in both the states at free will once the state is reached progressively, he can report the experience. This model allows us to generate testable hypothesis. It can be scientifically examined through inner science approach which is both repeatable and verifiable. The valid instrument to test this hypothesis can be none other than the mystic himself. Thus, the experimenter along with co-investigators can himself be the subject and can experience the state by practice of mediation for verification of the claim. To sum up, this paper discusses the debate of dualism vs. non-dualism in the light of objective verification of mystical experience. The analogy of five schools of Vedanta philosophy, eastern and western perspectives and verifiable model of oriental philosophy of Saints is analyzed to reach the conclusion.

25. Overcoming The Observer Paradox Through Harmonic Resonance
Nagma Markan, Bhakti Kapur, Priti Gupta, CM Markan

The Observer has been an integral as well as an intriguing aspect of Quantum Theory. While western science defines an observer as a ‘conscious’ entity that facilitates the measurement of a quantum system, an alternate yet interesting definition of observer is discussed in eastern literature (Spandh Shastra) and is reiterated through the Sampling Theorem in signal processing. According to this definition any system operating at a higher frequency (subtler) can observe a system working at a lower frequency (coarser), however, the inverse is not possible i.e. the coarser cannot observe the subtler. By applying this ideology to the brain we can have a hierarchy of observers in the order of increasing frequency e.g. whole-brain, network, neuronal, microtubular, protein-level, molecular, atomic, subatomic, EM waves down to the Planck’s frequency level where the higher frequency systems essentially control the lower systems in a top-down fashion. During meditational practices the practitioner takes his/her attention inside towards subtler (higher frequency) realms of creation where he/she is able to observe or experience a greater sense of reality, manifesting at that level of subtlety. This method of taking attention inwards amounts to a lower frequency brain observing higher frequency regions in a bottom-up manner thus contradicting the definition of observer and creating a paradoxical situation that we term as the Observer Paradox (i.e. how during meditation the coarse brain is able to observe and experience the subtle levels when the sampling theorem only allows the subtler to observe the coarser). To understand how the brain could accomplish this, there is a need to understand how the brain builds an inverse hierarchical pathway/bridge between lower and increasingly higher frequency levels using attention wherein certain higher order experiences guide this internal journey. Recently it has been shown that wave function collapse can be observed on a lab instrument by Homodyne Interferometry which down-shifts the wave function vector information (high frequency) to the detector's range (low frequency apparatus). Therefore, a hierarchical process in the brain that is similar to interferometry might be the key to overcome the Observer Paradox. In this paper we discuss how focused attention could create Quantum Coherent Feedback between lower and higher frequency levels establishing a state of Harmonic Resonance between them. In this state, by the principle of interferometry, the information at the lower region is a dimensionally reduced version of the higher frequency information that is consciously experienced in the form of mystical lights and sounds.

28. Yoga and Meditation alters Visuo-spatial Retention and Processing
Sona Ahuja

The mystics report to have extra-ordinary experiences in the form of complex images which are not similar to the ordinary sensory perceptions. The psychological view on imagery suggest that maintaining an image for long time is not possible because of limited working memory resources. In such a case the retrospective report of mystics regarding their experiences is debated for credibility. The present study examined the effects of yoga and meditation on capacity for storing visual form and colour information, visuo-spatial processing skills, and perceptual task demanding concentration on complex images. The participants included advanced meditators (trained for sound practice along with the practice of contemplation of form), intermediate meditators (trained for the practice of contemplation of form), beginners and

non-meditators. The automated tasks were administered on participants before and after meditation to assess their visuo-spatial processing, focusing attention on complex images, verbal and visuo-spatial retention. Their performance was compared with that of control groups. The results indicate that all the groups performed at the same baseline level, after the practice of yoga and meditation (based on oriental philosophy of Saints - Radhasoami Faith) for a period of 20 weeks, the experimental group demonstrated an increase in performance on visuo-spatial working memory and processing skills compared with the other groups. The results suggest that yoga and meditation specifically train one's capacity to access heightened visuo-spatial processing resources. Further, the difference in the gain of each strata is discussed in the light of alteration in verbal and visuo-spatial working memory. The dopaminergic and other external methods of improving working memory are well-known. But these are supplemented by side-effects. The non-pharmacological and self-sufficient methods like yoga and meditation can be more beneficial and practical for improving the visuo-spatial retention and processing skills. The results can advance the study of mystical experiences where mystics report the extra-ordinary experiences in the form of complex visual image.

30. Spiritually-Inspired Quantum Holographic Theory of Intuition
Sant Saran, Sukhdev Roy

Considering the teachings of eastern spiritual traditions that include the vibrational theory of consciousness, the Spanda Shastra, Nada Yoga and Surat-Shabda Yoga in Kashmir Shaivism, Vedanta, Sant Mat and the Radhasoami Faith, respectively, it is proposed that focused attention on an object, for instance in meditation, attunes the individual's psychophysiological system to the quantum level of the object, through energetic resonance, which contains implicit, holographically encoded information about the object's future potential. The body's perception of such implicit information about the object's future is experienced as intuition. A socially coherent group amplifies nonlocal interaction and intuitive and telepathic effects by resonant feedback loop between the collective bio-emotional field of the group and an individual member or in yoga-meditation, the spiritual teacher. It is shown that the quantum holographic theory appears to effectively conform to the descriptions of perception and intuition in eastern spiritual traditions.

31. Effect of Yoga-Meditation on Music and Color Perception
Pritam Pyari, Saran Pyari Roy, Sant Saran, Sukhdev Roy

In this paper, we extend our previous study reported in TSC-2015 by studying the effect of Yoga Meditation on Music and Color perception. 50 Male and female yoga practitioners were made to listen to four 5-minute instrumental flute compositions of Alap form of Ragas, namely, Ahir Bhairav, Jaijaiwanti, Bhupali and Darbari that affect the Anahata (heart), Vishuddha (throat), Agnya (third eye) and Sahasrara chakras respectively, after meditation. The order of the Ragas was not in the progressive order of the chakras. The responses were recorded through a questionnaire by noting their order of preference and the qualitative effect in terms of feelings, imagination, color etc. The procedure was repeated after each month of meditational practice. The subjective experience pertaining to the preference of ragas, perception of feelings and colors

in majority of the individuals showed progressive improvement to higher states of consciousness that corresponded to that attributed to the different Chakras, according to eastern spiritual traditions. The study highlights the impact of Yoga on Music and Color preference. It also demonstrates a means of assessing the consciousness of an individual and the usefulness of designing musical consciousness tests to ascertain consciousness levels. Such a test can be invaluable for illiterate individuals and better suited to obtain direct honest responses than through purely written psychometric questionnaires. It would not only help in measurement but also to tune consciousness to higher levels. The results were also correlated with other psychometric tests. The results of a correlational study with frequencies generated during the musical test using a SQUID based Magnetoencephalogram (MEG) will also be presented.

33. Understanding Cognitive-Emotive Phenomena using Experiential Science: Case Study of Intuitive Experiences

Nandita Satsangee, Prasun Sharma, Shabd Roop Satsangi, Soami P. Satsangee

The science of inner experience or Experiential Science is being increasingly accepted as an approach to exploring human consciousness. This approach has the potential not only to scientifically analyze and influence complex human emotions and experiences of individuals, but also to extend the benefit to collective human emotions as well. James Barrell and Donald Price have initiated pioneering work in this area. They have attempted the exploration of negative emotions, among other things, with the aim of resolving ‘human problems’ arising from these negative emotional states. Based on a similar research paradigm their study may be extended to understand positive cognitive-emotional experiences also. Whereas the understanding of negative emotions may help to mitigate human conflict and crises, such attempts may be fortified by studying the positive human emotions and experiences not only to provide an additional lever in uprooting deeply engrained negative emotions but also to propagate desirable cultural ethos. Based on the methodology and insights from Barrell, the present study attempts to explore the complex phenomenon of intuitive experiences which have not only cognitive and affective dimensions but psycho-physical and transcendental-spiritual as well. In a world replete with logical knowledge, often ineffectual in solving human problems, there is an increasing need for intuitive knowledge – a parallel mode of knowing capable of handling highly complex and incompletely known contexts.

The present research undertook an experiential study of intuitive experiences initially based on case studies of four individuals. The study is being presently extended to include a larger sample of about thirty adults of varying age groups and backgrounds to identify the ‘necessary and sufficient conditions’ that characterize intuitive experiences. A clearer insight into the nature of intuition resulting from the investigation, it is hoped, will help in nurturing them and applying their benefits to personal, professional and larger social contexts.

34. Hearing is Seeing: Spectral Geometry and Spirituality
Shiroman Prakash, V Gurucharan

A beautiful mathematical question which defines the field of spectral geometry is: "Can you hear the shape of a drum?" The question was asked in an article written in 1966 by Kac, but goes back to mathematical physicist Hermann Weyl. When you strike a metal vase you hear a sound that is the superposition of several discrete frequencies, (typically not integral multiples of a fundamental frequency unless the vibrating object is a string). Can you infer the shape of the vase from the sound alone? This question has recently been invoked by Achim Kempf of Waterloo to provide a new way to think about quantum gravity -- the allowed "vibrational frequencies" of a space-time may be more fundamental (gauge-invariant) degrees of freedom than the geometric description of the shape of space-time (given by the metric). Within string theory, the answer to the question is "not always uniquely" -- apparently different shapes of extra dimensions can give rise to the same spectrum of string states (a phenomenon known as Mirror Symmetry in Calabi Yau Manifolds, or more generally, T-duality). Studying the equivalence classes of manifolds that give rise to the same vibrational states of a string is the start of a subject called stringy or quantum geometry.

In the classical limit of quantum geometry, one can, in practice, hear the shape of a drum without much difficulty. However, in general, vibrational frequencies (at least within string theory) seem to define a slightly more abstract mathematical structure which is perhaps more fundamental than the classical notion of shape. The central ideas of spectral geometry and quantum geometry provide an analogy (and perhaps also a logical basis) for the duality between form and formlessness invoked in the Radhasoami tradition. In the meditational practice taught by the Radhasoami faith, practitioners see beautiful lights as well as hear a characteristic sound in a hierarchically ordered series of stages of meditation (e.g., a bell sound at one of the early stages). However, for ascending to higher states of meditation, practitioners are instructed to focus attention on sound rather than lights, and hearing is considered to be a more "fundamental" sense than sight. The sound is accompanied by beatific form, which, in light of spectral geometry could perhaps be thought of as reconstructed by the observer from the vibrational frequencies heard. However, sound is ultimately more fundamental than the form as in the final, highest stages of meditation one hears a sound and the accompanying form disappears.

39. A data science study of Subliminal imaging, brain functions and creating Unconscious Cognitive decision making models
Swati Idnani, Suresh Idnani, Sneha Idnani

This abstract proposes to study the effects of subliminal communication propagated via imaging on human brain functions (conscious and unconscious). Conclusion from this study intends to be reviewed to determine feasibility of creating an externally guided decision making model with supporting data scenarios to establish if a similar internal unconscious cognitive brain state (promoting spiritual quest, value-based physical, emotional, moral conduct) can be reached if certain subliminal stimuli are provided to the brain.

41. Mindfulness Based Cognitive Therapy – “Mind Full or Mindful?” A study of Biochemical, Genomic & Neural structure changes governed by the Brain
Teena Idnani, Swati Idnani, Suresh Idnani, Sneha Idnani

The secular practice of meditation is associated with a range of physiological and cognitive effects, including lower blood pressure, lower cortisol, cortical thickening, and activation of areas of the brain associated with attention and emotion regulation. Studies to date have included both behavioral and physiological data focusing on key cognitive aspects of mindfulness practice, such as attention, memory and have included secular and spiritual forms of mindfulness/meditation. The term Mindfulness is common to Buddhist traditions, where it forms part of the eightfold noble path to awakening, and was adapted by Kabat-Zinn in his therapeutic program to mean "...paying attention in a particular way, on purpose, in the present moment, and non-judgmentally". It focuses on becoming aware of all incoming thoughts and feelings and accepting them, but not attaching or reacting to them. Given the increased interest in investigating the benefits (health/spiritual) and processes involved, our aim is to review and reflect on how measurement of brain activity can be achieved within an empirical framework while studying the effects of MBCT in the brain. This study therefore intends to link brain activity and effects from MBCT to different states of consciousness in order to deduce the degree of impact in achieving the latter, and therefore promote the concept of a disciplined and structured method that is required to baseline spiritual practices and their importance, which can essentially fuel young minds at an early stage to connect with their core of existence.

42. Manifestation of Consciousness
Vineeta Mathur

A study taken up in DEI, Agra, India, on people of different age groups showed that spiritual Consciousness not only manifests more with age but also in people who have the required qualifications of a seeker of spirituality. Such people generate Consciousness in others so that it can be regenerated in the form of Universal Consciousness. The study included around 60 individuals of different age groups and following different faiths. Their spiritual consciousness was compared to their age and the kind of spirituality they were seeking. It was found that some of the most spiritual elders were followers of Radhasoami faith. Further analysis is underway.

43. Intuitive Consciousness and Creativity
Vineeta Mathur

It is believed that intuitive consciousness arises from perceptions that are not mediated through the ordinary senses, and brings creativity and speed to the process of enquiry, thus opening the way for intellectual freedom. The creativity which arises may be in the form of art, invention or emotion. This paper endeavours to investigate how intuitive consciousness is linked to creativity and projects hidden perceptions in creative forms.

49. Impact of Dayalbagh (Eastern) Culture and Eco-System on Students and Western Visitors
Mukti Sahni

The impact of Dayalbagh (eastern) culture and eco-system on students from Kindergarten to Ph.D. (K to Ph.D. levels) is clearly discernible to any observer inside as well as outside the system. The Dayalbagh values system is imbibed by participating in activities like community prayers (Satsang), community service (Seva), Yoga, spiritual exercises (Abhyas), working in the agricultural fields, cleaning the campus by picking plastic and polythene litter and waste management from a very early age. We follow the adage ‘Cleanliness is next to Godliness’ and are economical in use of resources that strain the earth through use of modern technology (like electric rickshaws and solar vans), since the century old existence of Dayalbagh, while the world is waking up to remedy this crisis only in the present times. We have a Children’s Science Centre to update us of the scientific advancements in the world and a Children’s Recreation Centre where games to enhance our mathematical and linguistic abilities are made available to children of all strata of society. There are special lectures on state-of-the-art studies on brain, consciousness, discoveries in the solar system among others. We have a School of Art and Culture, School of Languages and a Children’s Library which organizes Children’s Book Fair to inculcate the reading habit at a very young age. We are taught to appreciate the unity of Ultimate Truth, Ultimate Knowledge, Ultimate Beauty (Satyam-Shivam-Sundaram) which helps in the physical, emotional, cultural and spiritual development of school going children into supermen of tomorrow.

Dayalbagh has been a liberal advocate of adopting modern scientific techniques to study of the teachings of the sages of the East, over a century and this has been appreciated by several visitors from the West over the ages. We adopt all the rigour of science to study spiritual phenomena. Max Mueller, the great German Indologist, in his book “Ramakrishna : His Life and Work” appreciated Rai Bahadur Saligram Sahab (Huzur Maharaj), the second Revered Leader of Radhasoami Faith. Sir Sahabji Maharaj, the Founder of Dayalbagh appreciated the Einstein-Tagore meeting in Berlin in 1930. Major Yeats Brown in his book ‘Lancer at Large’ (1936) called Dayalbagh ‘a colony of work-a-day mystics’ and an “Indian Utopia”. Paul Brunton in “A Search in Secret India” (1935) described Sir Sahabji Maharaj as “Master of over one hundred thousand people, who practise a mysterious form of yoga; prime organizer of the multifarious and materialistic activities which seethe around me in Dayalbagh; taken all in all, I write Him down as a brilliant and breath-taking man. Nowhere in India, nowhere in the entire world, may I expect to meet His like again.” Dr. Volker Moeller, a German visited Dayalbagh in 1950s and obtained Ph.D. from University of Tübingen, Germany on Radhasoami Faith in 1956. In the present times, numerous western scientists like Sir Roger Penrose, Prof. Stuart Hameroff, Prof. Vlatko Vedral, Prof. James Barrell, Prof. Rocco Gennaro, Dr. Chris Fields, Prof. Jack Tuszyński, Prof. Elizabeth Behrman and Prof. William R. Klemm among others have appreciated the synthesis of western liberal thinking with the simple eastern lifestyle of Dayalbagh.

50. Experimental Study of the Effect of Peak Frequencies of Instrumental Melodies on Cortical Activity of the Brain of Meditators Measured by SQUID Based MEG Device
Dayal Pyari Srivastava, Vishal Sahni

Ancient religious literature of the east, particularly that on the Radhasoami Philosophy, is replete with descriptions of the Saints about different levels of spirituality. Apart from perceiving manifestation of the presiding deities of different spiritual planes of spirituality in terms of specific “shabda” (sound form), the accomplished meditators experience the hearing of melodious musical instruments or their approximations or characteristic tones specific to these planes. (Soamiji Maharaj, Sar Bachan)

In the quest towards a science of consciousness, research at the Center for Consciousness Studies, DEI, Agra, India has revealed that characteristic peak wave frequencies associated with different levels of spiritual planes are detected by MEG device from the brains of subject meditators, depending on their spiritual attainments or the regions of spiritual planes where their spirit current is focussed at the time of MEG measurements. (Satsangi and Sahni, 2007).

In the present study, a sophisticated SQUID device has been used to unobtrusively record the brain wave patterns when the subjects meditate. The results are compared with the brain wave records obtained from an experimental condition when melodies or musical tones with peak frequencies identified for different spiritual planes are played through a headphone in the ears of the meditators. This study is an attempt to study the effect of induced experience in the form of spiritual musical frequencies on the inner spiritual phenomenology of consciousness through well-established scientific epistemology, including three important stages of observation (awareness), report (description) and analysis (understanding). (Price and Barrel, 2012).

51. Correlational Study of Nature and Eastern Mind: The Philosophy and the Science Pooja Sahni, Jyoti Kumar

The open air, natural habitats and forest trees have a special fascination for the Eastern mind as symbols of spiritual freedom. The Eastern approach to nature requires that we first understand how the world of nature is viewed, which is very different than that of the predominant western religions. The Vedic vision of unity is the basis for an ecological approach in which we need not protect nature as we would an inferior creature. We honor nature as our own greater life and expression. In Radhasoami faith , there are several texts available that vouch for the pertinent connection of nature and human consciousness. According to Buddhist teachings there is a very close interdependence or inter-relationship between the environment and the inhabitants. Inspite of its historic and religious importance, in the past few decades the worth of nature and the contact with the natural world has diminished and this has caused many a problem for urbanized dwellers.

Recently the significance of natural environment for holistic health – physical , mental , spiritual well-being and functioning is being scientifically studied. It is seen that interaction with natural environment inevitably yields corresponding states of conscious experiences through positively affecting our brain/cognition. (Selhub, Eva M and Logan, Alan C.2012). Further EEG studies have also provided evidence of enhanced structural plasticity, brain synchrony and oscillations-the electrophysiological correlates of attention and cognitive functions while in natural environments (such as wilderness). In this paper, we study the consciousness level and the inclination towards natural surroundings, environmental issues through standardised test. High

correlation between Consciousness Quotient and the pro-Environmental behavior was demonstrated. Further analysis also deduced that the spiritual consciousness- a sub-factor of Consciousness quotient is very high among subjects demonstrating high pro- environment behaviour. This research further delves into deeper issues of what drives the human consciousness, behavior and actions vis-a-vis environment. Once this strong link is understood and established interaction with natural environments could potentially help in therapeutic and optimal cognitive functioning.

52. Correlational Study of Triguna Test with Strength Deployment Inventory (SDI) on Yoga

Practitioners: Comparison of East-West Approaches to Consciousness

Shobha Bhasin, Gurdev Roy, Shagun Dayal, Sukhdev Roy, Timothy Scudder

In our previous study presented at TSC-13, the correlation between MBTI and Vedic approaches had been identified on consciousness states of 100 Yoga practitioners in America and India. We considered the Vedic Personality Inventory developed by Wolf that had Cronbach $\alpha > 0.90$. In a subsequent study presented at TSC-14, we identified the correlation between these two approaches for a larger set of 280 University students in India. In both cases, we found evidence of construct validity from the correlation data. We found lower Sattva component in students as compared to Yoga practitioners, revealing the efficacy of yoga meditation on personality development.

In the present study, we have taken the widely used Strength Deployment Inventory (SDI) as another approach to determine the consciousness level of meditationers and students in America and India. SDI helps in assessing a subject's motives and strengths in relating to others when everything is going well and when faced with conflict. The correlation analysis between Triguna and SDI tests suggest that Satogun has a relatively high correlation with SDI Blue (Altruist-Nurturing personality) and inverse correlation with SDI Green (Analytic-Autonomizing personality). Rajogun, Tamogun have a high correlation with SDI Green and an inverse correlation with SDI Blue. The results of this study will be presented along with inferences. Since most concepts and phenomena in spiritual and transpersonal psychologies are complex, unidimensional instruments that assess these constructs do not suffice for most research purposes. The present study highlights the importance of multidimensional tests and/or multiple measures for consciousness studies.

55. Religiosity And Consciousness In University Students

Kavita Kumar, Kanti Singh Pawar

Religion first appears, or is learned or embraced, through the operation of ordinary, automatic, cognitive processing. Religious ideas, like all kind of ideas, owe their existence to a raft of specialized tools used in the brain's mental workshop to interpret and organize the world. However, the consciousness can be defined as a state of awareness, wakefulness, the ability to experience or to feel, having a sense of selfhood, and the executive control system of the mind. It has been widely understood by cognitive scientists that religious ideas and behaviours sustain on human cognitive and psychological processes. In the present paper, the investigators have

aimed to study the Religiosity and Consciousness of university students. Hundred students from Dayalbagh Educational Institute, Dayalbagh, Agra, India, have been selected and administered Religiosity and Spirituality Scale for Youth by Hernandez (2011) and Consciousness Quotient inventory by Brazdau (2013). The data has been analysed on the basis of multiple regression. Hence, the present study is valuable for the individual's overall enhancement of mental, social, emotional and spiritual growth. It will also be beneficial to get a better insight into the various components of consciousness and its predictors.

59. Machine Morality: Need of Ethics in AI and a study of Artificially Intelligent Agents from a Moral Perspective

Achint Satsangi

In the present era of advanced technology, there is extensive research going on in the field of Artificial Intelligence. Artificial Intelligence refers to human-like intelligence exhibited by machine or software. Presently, the research is primarily focussed on neural networks, machine learning and making the artificial agents smarter and faster in terms of functionality. However, the issue of Machine Morality has also emerged as a challenging subject of debate and research. The emergence of autonomous killing machines, self-driving cars etc. has raised issues regarding machine morality. This paper will discuss issues pertaining to Machine morality, technological advancements and research in the field of artificial intelligence, propose modifications in laws of robotics, and highlight the need of ethics in artificial intelligence, concepts of machine learning, emotion and cognition in machines, advantages and risks of A.I. (artificial intelligence) technologies. From observing the state of crime and violence in various parts of the world, the paramount importance of human values and ethics is clearly evident. The usage of drones and development of autonomous killing robots by some countries is being debated on ethical grounds. Also, there are speculations that the artificially intelligent agents may pose a threat to humanity in future. Hence, there is an important need for integration of ethics into the machines. The paper would also discuss the development of emotional artificial intelligence technologies and applications like the pain detectors, emotion detectors through conversation, typing patterns, and facial expressions etc. self-learning robots and artificial brains like Robo-Brain which learns from the internet resources, mind-reading fashion Neurotiq,(Google's) self-driving cars etc. The limitations and risks associated with "unethical" artificial intelligence would also be discussed. Also, the interesting idea of how can we, as humans, benefit from the process of incorporation of ethical values in machines will be introduced, and thereby use similar methods for training human beings for inculcating humane moral values and emotions in present scenario will also be discussed. The concept of roboethics would also be discussed- that how humans should interact with the robots. Also, more issues will be discussed like- the responsibility of making the life-death decisions should be taken by humans, not robots; the robot should give priority to the lives of humans above its own safety etc.

60. Impact of Yogic Practices on Spiritual Consciousness

Prem Pyari, Anoop Srivastava

Many studies have proved positive influence of yoga in enhancing overall consciousness. Yoga being understood as a set of certain physical exercises, surat shabda yoga refers to well established spiritual exercises practiced in India for spiritual advancement. Therefore, positive impact of yoga on surat shabda yoga and in turn of the two on spiritual consciousness is highly likely. But absence of a properly validated and reliable questionnaire to assess spiritual consciousness has remained a hinderance in the assessment of Spiritual consciousness so far.

Though a component of Spiritual consciousness is included along with components of Physical, Emotional, Mental and Social consciousness, and of the consciousness of the Self in a composite measure of consciousness given by psychometrically reliable and valid Consciousness Quotient Inventory (CQI) (Brazdau, 2009), an assessment of Spiritual consciousness alone can also be made through the relevant portion of CQI. Accordingly, this paper attempts to highlight the impact of yogic practices on Spiritual consciousness.