Сознание и физический мир

(Consciousness and physical world)

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Наряду с кривизной важнейшим свойством пространства-времени является также и кручение. Эта физическая идея, выдвинутая Э. Картаном, лежит в основе концепции спин-торсионного взаимодействия (поля кручения), активно развиваемой в настоящее время как в теоретическом, так и экспериментальном аспектах.

На протяжении многих десятков лет проблема достоверности пси-феноменов и возможности их научного объяснения служила предметом острых, но почти бесплодных дискуссий. Ситуация стала меняться в последнее время. С появлением надежных опытных данных выдвинуты и несколько теоретических схем, претендующих на новизну в постановке психофизической проблемы.

Необычные свойства полей кручения позволяют надеяться на прогресс в понимании природы пси-феноменов. Сборник адресован в первую очередь

специалистам в области физики, но может быть также интересен и широким кругам научной общественности.

Содержание

Предисловие

На рубеже нашего века была выдвинута программа "сведения физики к геометрии" (Клиффорд, Эйнштейн). Эта идея оказалась весьма плодотворной при создании общей теории относительности: понятие кривизны пространства-времени было сопоставлено с гравитационным взаимодействием.

Между тем кривизна пространства не единственная его характеристика, и конструктивные возможности теории значительно расширяются, если ввести в оборот другое геометрическое понятие - кручение. В настоящее время усилия многих выдающихся теоретиков направлены на реализацию такого подхода в рамках концепции спин-торсионных полей (полей кручения). Это дает возможность рассмотреть с единых позиций целый ряд, казалось бы.

разнородных проблем. в том числе весьма далеких от тех, с которыми имеет дело традиционная наука.

К числу последний относится и так называемая психофизическая проблема. В некотором весьма частном и относительно новом аспекте - это вопрос о соотношении психологических и физиологических процессов. В более широком и изначальном смысле - это вопрос о месте и роли сознания во Вселенной.

Поэтому термин "психофизика" применительно к обсуждаемой нами теме может вызывать возражения. Дело в том, что начиная с конца XIX века он по преимуществу используется для названия весьма специфического раздела экспериментальной психологии, изучающего, например, количественные отношения между силой раздражителя и величиной возникающего ощущения. Между тем, все большее число авторов использует его в гораздо более общем и верном контексте, восходящем к изначальному пониманию психофизической проблемы. Речь здесь идет как о феноменах, демонстрирующих роль сознания в физическом мире, так и о попытках построения физических концепций, в которых сознание и материя трактуются в рамках единого подхода.

На протяжении многих десятков лет проблему соотношения сознания и физического мира принято было считать скорее философской, чем естественнонаучной. Что же касается экспериментального ее аспекта, то он почти всецело находится в компетенции парапсихологии, к которой подавляющее большинство ученых относилось весьма настороженно, если не враждебно. Многочисленные критики постоянно указывали (и не без основания) на весьма невысокую достоверность сообщаемых данных. Ясно было и другое: возможности современной науки явно недостаточны для качественного объяснения псифеномена.

В последние годы ситуация стала заметно меняться. С одной стороны усилиями многих квалифицированных специалистов (среди которых и авторитетные физики-экспериментаторы) были проведены исследования, удовлетворяющие самым строгим методическим требованиям. Теперь реальность пси-феноменов можно считать таким же твердо установленным фактом как, например, вращение Земли вокруг Солнца. Быстро растет и понимание того, что подобные явления не есть лишь свидетельство о неких "резервных возможностях мозга", но должны рассматриваться в гораздо более важном контексте, а именно, как источник уникальной информации об устройстве мира в целом. То обстоятельство, что она следует только из опытов, в которых "неуловимый флюид" - сознание играет ключевую роль, свидетельствует, что сознание и материя на каком-то очень глубоком онтологическом уровне образуют единство. Этот уровень до недавнего времени был недоступен пока никаким экспериментальным методам, кроме тех, которыми располагает парапсихология.

В конце прошлого века перед теоретической физикой стояла проблема соотношения двух видов материи: "грубой" (вещество) и "тонкой" (излучение, эфир). Ясно, что будущий Великий Синтез, то есть объединение всех известных видов взаимодействий в рамках единой концепции, не может быть окончательным и успешным, если при этом не будет решена и психофизическая проблема. Ведь при всей своей экзотичности психофизические явления предоставляют собой часть реальности, часть природы. Если традиционная физика не может объяснить этот аспект реальности, то следовательно она просто неполна.

Необычные свойства полей кручения, следующие из теоретических соображений и обнаруженные экспериментально, позволяют надеяться, что

именно в рамках спин-торсионных представлений в понимании психофизических явлений может быть достигнут существенный прогресс.

Настоящим изданием Межотраслевой научно-технический центр ВЕНТ начинает публикацию серии сборников, посвященных данному круг проблем. В первом выпуске представлены доклады сотрудников Центра, сделанные на Российско - Американском семинаре "Vision of the Future" (С.-Петербург. май 1993 г.).

THE CONSCIOUSNESS AND THE PHYSICAL WORLD

Collected pepers. Issue 1

Edited by A.E. Akimov. Moscow, IMS

PREFACE

In the 1920s A. Einstein advanced the program of reducing physics to geometiy". This idea proved to be fruitful in the development of the general theory of relativity - the notion of curvature of spacetime was compared with the gravitational interaction.

However, curvature is not the only characteristic of the space, and the theory becomes much more constructive if another notion, that of torsion, is introduced. The efforts of many outstanding theorists are directed today to realizing this approach within the framework of the spin-torsion fields. This enables one to consider a diversity of seemingly different problems from a general standpoint, including problems that are far from the scope of the traditional science.

Among the last-named problems one could cite the so called psychophysical problem. In a very special and relatively new aspect, this is the question of relations between

psychological and physiological processes. In a wider and original sense, this is the question of the place and role of the consciousness in the Universe.

That is why application of the term "psychophysics" to the issue under consideration can provoke many objections, because it has been used since the end of the XIXth c. mostly as the name of a specific section of the experimental psychology exploring, for example, the quantitative relations between the force of stimulus and the value of arising sensation. Meanwhile, increasingly more authors employ this term in a much more general and correct context ascending to the initial understanding of the psychophysical problem. The question concerns both the phenomena demonstrating the role of the consciousness in the physical world and the attempts to construct physical concepts where the consciousness and the matter are treated within the framework of a unique approach.

Over many decades the problem of relation between the consciousness and the physical world was regarded more as a philosophical than natural-scientific one. As for the experimental aspect of the problem, it almost completely lies within the realm of parapsychology, which met with a careful, if not hostile, reception of the majority of researchers. Numerous critics pointed out for good reason to high uncertainty of the parapsychological data. However, it was also obvious that modern science lacked capabilities for qualitative explanation of the psiphenomena.

The situation began to change recently. Many qualified experts (including authoritative physical experimenters) have carried out research works obeying the strictest methodologital requirements. Now the existence of the psi-phenomena can be regarded as real as rotation of the Earth around the Sun. Awareness grows rapidly that these phenomena are not only indicative of some "reserve capabilities of the brain", but must be regarded in a much more important context - namely, as a

source of unique information about the world as a whole. I he fact that it is obtained only from the experiments where the imperceptible emanations" - the consciousness - is of primary importance implies that the consciousness and matter make up a unity at a very profound ontological level, which until recently was inaccessible to any experimental methods except those of the parapsychology.

By the end of the last century theoretical physics faced the problem of relation between two kinds of matter, "rough" (substance) and "fine" (radiation, ether). Obviously, the future Great Synthesis, that is, the union of all known kinds of interactions within the framework of a unique concept, cannot be final and successful if it does not solve the psychophysical problem.

The unusual properties of the torsion fields, which follow from the theoretical considerations and were confirmed experimentally, give rise to the hope that significant progress in understanding the psychophysical phenomena can be attained precisely within the framework of the spintorsion concepts.

This publication, by which the Center of Intersectoral Science, Engineering and Non-Conventional Venture Technologies, VENT' opens a series of collected books devoted to this problem, contains the presentations of the Center's researchers at the Russian-American Seminar "Vision of the Future" in St. Petersburg, May 1993. Our address: CISE VENT P.B. 214. Moscow 112190 Russia.

A.V. Moskovskii and I.V. Mirzalls THE CONSCIOUSNESS AND THE PHYSICAL WORLD

In the classical science there is actually no problem of "the consciousness and the physical world" , because the prevailing trend is to push the consciousness outside of the scientific picture of the world.

At the same time, rather heated discussions go on about the relation between the consciousness and the matter in modern science. We will identify the two most important aspects of this topic. The first one is related to the role of observer in quantum physics. I low is the virtual quantum world related to the macroscopic one, what makes the potential to transform into the real? A lot of different answers to this question have been proposed, but the standpoint of the theorists believing that the wave package is reduced finally in the consciousness of the observer (Wigner, Wheeler, d'Espagnal, et al.) seems to be the most logically consistent one. Thus, the consciousness turns out to be the most important element of the physical reality as seen by our mind.

The second range of topics concerns the possibility of scientific explanation of the psychophysical phenomena. If one admits existence of even a part of these phenomena as a working hypothesis, an explosive question arises: "ls it possible to construct a scientific picture of the world where they have a chance of being reasonably accounted for? What is the price of making this explanation feasible in principle?"

The difficulty of the situation lies not only in the difficulty of explaining the psi-phenomena per se, but also in the fact that their explanation requires, at least, two pictures of the world ("the psychophysical paradox"). For example, whereas the phenomena of precognition (prediction of the future events) force us to regard the world as a fixed scenario in the sense of the Wheeler-Feynman theory. Phenomena like psychokinesis are indicative of the fact that the causal chains of the world are far from being continuous and admit some volitional interference.

In an effort to solve this contradiction, we consider the heuristic potentialities of our previously proposed world model, which combines two approaches - the concept of

Everett and the modern theories action-at-a-distance. The set of possible combinations of the Universes makes up a continuum of equivalent Everett copies, of which each is a Wheeler-Feynman world. The consciousness, which can "move" both along the field lines - this corresponds to the natural course of time and causality- and across them, is an essential element of this world. In the context of this model, we also discuss the well-known phenomenon of retroactivity (action upon the past events) studied by
H. Schmidt.

The physics of the XXth century began with the fundamental assertion that the four space-time axes make up the framework of the world. It seems that increasingly significant evidence in favor of substantionality of the consciousness is the most striking event of the century's end. Therefore, the key words of the future science are space, time, and the consciousness.

A.E. Akirnov

HEURISTIC DISCUSSION OF SEARCH FOR NEW LONG-RANGE ACTIONS. THE EGS-CONCEPTS.

As is well known, it is difficult, if possible, to explain the psychophysical phenomena from the standpoint of the existing paradigm. The amount of nonexplained physical phenomena is considerable, the gray areas covering the territories of the micro- and macro-worlds. The following list is far from being exhaustive: conducted by A. Krish experiments with spin-polarized photons: the experiments of A. C. Tarn and W. Happer with circular polarized laser beams: the experiments with gyroscopes varying their weight during rotation; the experiments of N. Kozyrev, M. Lavrent'ev and their collaborators in registration of superluminous signals, and other experiments, which find no explanation within the framework of the standard theories. One can often see

that these physical phenomena share many traits with the psychophysical ones. Therefore, the assumption that an explanation of the seemingly heterogeneous facts should be looked for in the context of a new physical paradigm seems to be quite reasonable.

Analysis of the physical phenomenology has demonstrated that the unusual behavior of spinning objects is their common feature. If the torsion fields are treated as generated by the classical spin, their unusual behavior could be attributed to the manifestation of spin-torsion interactions. Consideration of the spin systems of living organisms can provide a sufficiently substantiated explanation for many psychophysical phenomena. Here are the properties of the torsion fields that suggest that such an explanation could prove successful: the potential of a torsion source is independent of distance; the torsion fields generated by spinning objects feature axial spatial symmetry; the group speed of torsion waves is much higher than that of light and its lower bound is estimated as IO^c; torsion radiation is not attenuated (screened) upon passing through natural media; the spin-polarized media, including the Physical Vacuum, generate stable spin (torsion) phantoms owing to the spin-torsion interactions; and all organic and inorganic objects have their own characteristic torsion fields. The existing industrial sources (generators) of torsion radiation have enabled investigation of the effect of static torsion fields and wave torsion radiation on various physical, chemical, and biological objects as well as simulation of some psychophysical phenomena. The last-mentioned studies have corroborated the torsion nature of the psychophysical phenomena. The starting point of these experiments was awareness of the fact that, in contrast to the case of spinning source without radiation, for a spinning source with radiation the theoiy does not require that the constant of spintorsion interactions be necessarily small. The design of the experiments and their interpretation were made sufficiently clear owing to the

developed phiton model of Physical Vacuum and to the fact that the physical fields were considered as different polarization (phase) states of the Physical Vacuum. The concept of brain as a spin glass of a kind was an important outcome of the studies. In distinction to the standard model, however, the brain is represented as a spin torsion system of nonmagnetic nature. Here, the brain is simultaneously a torsion receiver and torsion transmitter. The experimental data have confirmed high predictiveness of the torsion and Physical Vacuum theories.

G.I. Shipov

PSYCHOPHYSICAL PHENOMENA AND THE THEORY OF PHYSICAL VACUUM

The psychophysical phenomena constitute a part of reality, a part of the Nature. If traditional physics cannot explain them, it follows only that it is incomplete and that a new physical paradigm is required. The theories of Physical Vacuum and of torsion fields, which are being actively developed today, provide precisely this new paradigm as a natural and logical continuation of the present science. They explain the Nature in its entirety and do not overlook the "inconvenient" phenomena.

We introduce the notion of seven levels of reality such as solids, liquids, gases, plasma. Physical Vacuum, primary torsion fields, and the Absolute "Nothing". The notions of the traditional Physical Vacuum and of the Empty Space, which is understood by the Oriental philosophy as the basis of all existence, are regarded as descriptively equivalent.

The Physical Vacuum is the first principle of all kinds of physical fields. The problem of constructing a unique theory of field is solved within the framework of the

Clifford-Einstein program ofgeometrization by including geometrization of spin. The basic relations required for solution of this problem are expressed as the structural Cartan equations in the Weizenbeck geometry of the absolute parallelism. In this case one can describe an infinite empty space (different states of the Physical Vacuum) featuring a pseudo-Euclidean geometry, where the torsion and curvature are equal to zero (the Absolute "Nothing"). To order this Absolute "Nothing", "primary consciousness" capable of understanding the Absolute "Nothing" is required. In physical terms, the field of the consciousness can be modeled by the the torsion fields as material carriers of the field of the consciousness. Here, the structural Cartan equations for the Absolute "Nothing" pass into the form describing dynamics of the primary torsion fields. The vortices occurring in the Physical Vacuum as a result of torsion fields arc the information carriers. Torsion fields cany information at a superluminal speed without carrying energy and propagating in the domains of both the future and the past. Following P. Penrose, one can represent the vacuum equations, including those of the primary torsion fields, in the spinor form and obtain a system of nonlinear spinor equations for two-component spinors playing the role of the potentials for torsion fields. Vacuum equations and their precise solutions can describe the quantum and classical particles, both charged and neutral. Additionally, equations are obtained involving imaginary and negative masses and charges moving back in time with superluminal speeds. Psychophysical phenomenology can be most adequately described by these properties of torsion fields. Within the framework of the formulated concepts, torsion fields are identified with inertia fields, which enables one to formulate a physical approach to explanation of the telekinetic phenomena. Teleportation may be related to the possibility of "going into the Vacuum" or "coming out of the Vacuum" by acting through the field of the consciousness on the critical (bifurcation) points of the Vacuum where all levels of reality simultaneously manifest themselves in virtual manner.

A. E. Akirnov and V. N. Binghi ON PHYSICS AND PSYCHOPHYSICS

Along with curvature, the space-time geometry also admits the property of torsion. By now the effects of the torsion field (TF)- unusual behavior of the particles with spin in the torsion spaces - have been predicted and are investigated in more detail. At the same time, both traditional physics and psychophysics have obtained experimental data indicative of long-range actions of unknown nature. These data can be explained within the framework of the theories of torsion fields and spin-torsion interactions. The present work proposes to use the TF concept to explain the psychophysical phenomena. A hypothetical mechanism of interaction between the torsion field and the processes of the consciousness is considered. Relations between the notion of torsion field and the categories of material and ideal are discussed.

Since spin is regarded as the source of TF, it is the spin system that must be TF-sensitive. A complex nonequilibrium spin structure having many states that are energy-close can accumulate the action of TF up to a macroscopically perceptible level. The spin subsystems of the nuclei of some of the associated liquids, water inclusive, are known to be comparatively weakly related with thermal oscillations. The same holds for small atomic groupings inside the biophysical macromolecular globules. These states of the nuclear spin degrees of freedom might serve as sensitive TF probes and, at the same time, affect to some extent the course of biochemical processes. There is good reason to believe that the brain neurons feature such biophysical structures. Importantly, neurons are united into a neural network and operate cooperatively. This fact enables one to relate the different states of the neural network to different physical organizations of the subsystem of spin-active sites of neurons and, therefore, to different TF configurations. The states of the brain neural network at the level of subjective reflexion are associated with appearance of the thinking images or the ideal objects of the consciousness. A model of neural network

is discussed consisting of elementary neurons whose biological states are related to the physical states of their spin subsystems acting, in their turn, as a TF transceiver, This model accounts for many psychophysical phenomena.

Reality of these phenomena also implies reality of interaction of the ideal and material objects. Obviously, the carrier of this interaction must have both material and ideal properties and also be a real-world object. It is precisely the torsion fields of complex configuration that satisfy these conditions. By virtue of nonlinearity of the TF equations for the sources with radiation, a part of TF configurations appearing during reflection of ideas prove to be stable and exist independently as torsion phantoms, that is, objects that are both material and ideal.

It is not surprising that, like any sufficiently profound physical theory, the TF theory, which deals with the spatial-temporal geometry of the world, touches upon the foundations of scientific world-outlook.

A. E. Akirnov and V. N. Binghi

COMPUTERS, BRAIN AND UNIVERSE AS PHYSICAL PROBLEM

Analysis of a seemingly pure scientific and technical problem - estimation of the feasibility of overcoming the quantum limits that handicap a breakthrough in computer performance - has unexpectedly provided an insight into some psychophysical and parapsychological problems. Development of the computer from the first, tube-based machines to the modern ones has been traced. Comparison is based on the power (M) of the computing medium characterized by the spatialtemporal switching density and ranging from M~'10^ for the tube computers to M-"10^ for the modern ones. The today microminiaturization has actually reached the quantum limits confining computer performance to M~W". It seems unlikely that

mole-cular electronics will make it possible to exceed the power of computing medium over M~10^. The optical computers feature the same value of M, The problem of overcoming the quantum limits of the computing facilities is primarily the problem of theoretical physics, the more so because the origin and validity boundaries of the quantum-physical postulates are not clearer today than at the time of the discussions between A. Einstein and N. Bohr. If such specific material medium as the Physical Vacuum (PV) is employed in computers instead of the matter (e. g., semiconductors), then, by relating the speed of light and the Planck length we can estimate the power of com-puter facilities based on this medium as M = c/L" -10"". As compared to the existing limitations, computer facilities featuring such performance would surpass the wildest imagination. Development of such computing facilities would be much more than a simple breakthrough into the next generation of computers.

The traditional ideas about the Physical Vacuum are based on quantum electrodynamics, but this approach can be further extended. As G. 1. Shipov has demonstrated, if within the framework of the Clifford-Einstein program of geometrization the Vacuum is described in terms of not only the Riemann curvature, but also the Cartan torsion, a wide range of PV torsion properties can be obtained. Besides the strict approach of G.l. Shipov, a phenomenological model of the Physical Vacuum also can be constructed, which enables one to interpret all the fields as polarized (phase) states of the PV, which is PV is regarded here as a medium consisting of specific elements, "phitons" that have at least two metastable spin states - S^ and S" in other words, they can be regarded as binary elements. In distinction to the microelectronics, these binary elements seem to have parameters not inferior to the Planck ones- the time of switching 10'^ sec and the linear dimension 10'" cm. If we take into consideration that there are good theoretical and experimental reasons

to believe that the speed of torsion signals is much higher than that of light, the power of such a Physical Vacuum-based spin (torsion) computer will be of the order of M~10'". Dwelling on the Little-Hopefield model of spin glass, which describes the brain mechanisms, and on the notion of the classical spin, we can regard operation of the brain as reception and transmission of torsion signals.

Taking into account the ability of torsion radiation to spin-polarize the Physical Vacuum, we can hypothesize that binary spin polarization of the PV in the pericerebral space enhances dramatically the information-processing (computational) potentiality of the brain. From the standpoint of this approach, thinking is realized in a space much larger than that occupied by the brain proper, and execution of computations, then, turns out to be much faster than it would be possible taking into account the low relaxation speed of the brain cells. In particular, this explains why some people calculate faster than computers. The torsion concept of the brain mechanisms provides a natural and consistent physical ground for explaining perceptive transmission of information (Puthoff, Targ, and Jahn). If we consider the Physical Vacuum as a universal material medium of the entire Universe and take into account that the PV elements have the properties of the binary ones, we can render a rather clear physical sense to the philosophical concepts ascending to the Vedic knowledge and using notions such as God, the Absolute, or the Universe as a supercomputer, where the Universe was regarded as having Superintelligence. If the computer realized with the PV spin structures is considered as a torsion computer (TC) operating within the entire space of the Universe, the Superintelligence of the Universe (God, the Absolute) can be treated as a supercomputer, which enables one to give a convincing explanation to the psychophysical phenomenology related to these notions.

Taking into consideration that the field processes of human thinking and consciousness and of the Superintelligence of the Universe are of the same physical character, it would appear reasonable that the human brain is incorporated in a natural manner into this field Superintelligence as its integral part. This approach offers a means for investigating at the physical level numerous psychophysical phenomena such as clairvoyance (precognition), for example. There was no difficulty in obtaining sufficiently clear - at least, at the level of physical models - answers to the questions about analysis of the human creative activity, which were formulated by P. Penrose who concluded that there might exist an external bank of data, from which new knowledge is drawn out.