

ABSTRACTS

**SELECTED MATERIALS OF THE ALL-RUSSIAN CONFERENCE
«METHODOLOGY OF COMPLEX SELFDEVELOPING SYSTEMS COGNITION»
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APPARATUS OF COMPLEXITY**

P. 8. *Bahtiyarova E.Z.* ON THE FATEFUL MEANING NBICS TECHNOLOGY IN THE DEVELOPMENT OF HUMANITY. Nowadays the anthropological crisis is coming to the foreground surpassing by its significance the environmental crisis. It is necessary to say that the both topics cannot be considered separately because they mutually imply each other. Many modern philosophers try to understand the forthcoming problems' scale of the humankind, which are connected with the rapid scientific and technical development. It is not surprising because science approaches to the foundations of the human existence in the world and makes us think about our tomorrow.

The anthropological crisis manifests in the growth of contradictions between new opportunities of technical achievements and human unavailability to value the possible risks of using these innovations. It acquires fateful significance. Today is high time to think about methods of this contradiction's decision, because these methods will determine the possible vectors of future development.

What are the possible ways out of this situation? Based on the discrepancy between the external environment to man and his domestic environment, there are several options of ways out: to adapt a person to the environment, to change the environment, to change the person. NBICS technologies may play the decisive role in the solution of this discrepancy.

Key words: *technical sciense, NBICS technologies, destiny of the humankind, scientific rationality, philosophical understanding.*

P. 12. *Bryzgalina E.V.* MANAGEMENT OF EDUCATION AS A COMPLEX SOCIAL INSTITUTION: THE PHILOSOPHICAL PROBLEMS. Education Management - one of the forms of social control that supports the focus and organization of the educational process in the education system. Traditionally distinguished anglo-american and continental approaches to understanding the mechanisms of education management. These approaches come from a different comprehension of the goals and objectives of education.

Among the elements of the education management system are: management strategies for the system of education in general and educational institutions, certification management, management of personnel (human resources) and social development, management of economic development of education, management of research activities, management of material resources, management of educational process and methodical activities, management of organizational and educative activities of institutions, business management and educational marketing, management of international relations, management of quality of education.

Like key areas of education management as a complex social institution are: quality management, availability management, efficiency management.

The quality management system of education built as an answer to the questions: 1) why (to achieve what result) is the process of education done? 2) What is the measure for the achieved results (quality indicators)? 3) who does it? 4) how is it done? The key question - is the question of goal-setting.

Availability management of education requires solutions to many problems of the territorial accessibility of educational institutions, guarantee of accessibility of education for children with disabilities.

Performance management of the education system should be based on the fact that the system of education is complicated and interdisciplinary in nature (which includes educational, economic, social, and organizational aspects). The system's component is the educational process (education and training). Communication is the transactor of education. All other components play a supporting role. As an

example, in the article the mechanism of determining the list of inefficient universities of Russia is considered.

At last, the article notes that the concept of "management" should be attributed not to any effects of the subject to the object. Management of education should be directed to the optimization of the educational transformation process as a social system from one state to another. The educational reforms of modern Russia especially in higher education, is not purposeful enough. Therefore procedural approach to education management in our country prevails; priority is the operational management and control of certain quantitative and not qualitative parameters and interim results. This process of educational reform is prolonged and becomes virtually permanent.

Key words: *education, quality, management, philosophy, reform.*

P. 20. Zeile N.I. ABOUT SOME DIFFICULTIES OF METHODOLOGICAL INOCULATIONS IN THE HISTORY OF CHEMISTRY. The reduced interest to the philosophical methodological problems of Chemistry is connected with its empiric character and the presence of theories possessing the less degree of abstractedness in comparison with those in Physics. Many questions of genesis, knowledge development and operation in Chemistry stay out of the indicated interest, while many of them need a new methodological interpretation.

In this paper the analysis of disputable questions of genesis in scientific Chemistry is given on the base of methodological conceptions of scientific knowledge development and operation which are created by well-known Russian scientists V.S. Styopin, M.A. Rosov, V.I. Kusnetsov. The specific way of systematization in subject structures of chemical practice as well as the operation and competitive struggle of research and collecting programs in the history of Chemistry development have been distinguished. Particular emphasis is placed upon the process of chemical reality image formation, which contributed to the systems integrity of chemical knowledge in the XIX century.

Chemistry always kept to the main goal in its complicated evolution: the preparation of substances with necessary properties. At present it is solved at the fourth conceptual level (chemistry of self-organization) and it faces considerable difficulties in evolutionary Chemistry which is formed now.

Key words: *collecting program, research program, element, structure, conceptual system, self-organization, reactivity, chemical reality image.*

P. 27. Izmailov I.V., Poizner B.N. COMPLEXITY OF SOCIAL INTERACTIONS AND DYAKONOV-VINGE SINGULARITY. The authors suggest a new object of research by universal evolutionism, in which complexity growth is exhibited. It is singularity of biosphere-social evolution, transition of the World System to a stabilization and its consequences. The authors aim: to present this object as the general factor, which sets a transformation direction of social system now; to supplement knowledge toolkit of auto-complexifying and self-upcoming systems; to imagine the strategy of the future attitudes of man with engineering.

The authors suppose by an indirect complexity index of the World System the Earth population N , which depends on a level T of engineering development. I. Dyakonov has shown: in the last 120000 years in the history there were eight phase transitions (bifurcations). It is essential, that each phase of evolution is shorter previous almost in the same number of times. A moment t^* , called by Dyakonov a singularity of the history therefore is inevitable, when the last phase duration works for zero. It means, that after a moment $t^* \approx 2064$ year in character of historical process the unprecedented changes are inevitable. A. Panov has proved: 19 phase transitions (bifurcations) to complexity increase on the Earth, including on 8 in the history, to the law satisfy. The authors mark, that the singularity is known in relativistic physics. In synergetics it name as a mode with a peaking: long duration quasistationary stage on start and superfast growth – near to a final moment t^* . The peaking is possible in opened non-linear systems with strong positive feedback. The authors conclude 1: complexity growth in a system accelerates it evolution, sequentially reducing it characteristic stages.

The authors analyse of demographic model by H. von Foerster et al., hypothesis by S. Kuznets, concept by M. Kremer, model by A.V. Korotaev et al. The analysis results in a conclusion 2: self-development mechanism of the World System is a mutual determination of auto-complexifying and self-development on a principle of a cyclical causality: $N \leftrightarrow T$. But for whose account the auto-complexifying is reproduced? The answer results in a conclusion 3: growth of complexity (N) leads out the World System from a mode of auto-complexifying (mode with a peaking) to stabilization ($N \approx \text{const}$), i.e. the complexity growth transforms the system in self-restricting. But by virtue of interdependence $N \leftrightarrow T$ it threatens with stagnation of technological growth T . The authors discuss idea of a

technological singularity, which J. von Neumann and St. Ulam, V. Vinge, R. Kurzweil and other put forward.

And there conclusion 4 is suggested: techno-singularity is a probable mechanism of maintenance of knowledge (*T*) production *in futurum*, when the stabilization of the World System will set in. The conclusion 5: the techno-singularity *versus* the stabilization of the World System is a new theme. Developing it, the authors put forward a six hypotheses concerning the scripts of the future.

Key words: *biosphere-social evolution, auto-complexifying, singularity of the history, technological singularity.*

P. 33. *Kartashova A.A.* THE INFLUENCE OF DIFFICULT THINKING OVERCOMING ON A CRISIS IN THE MODERN EDUCATION. State of the education system is highly inconsistently in the world today. On the one hand, education has been one of the most important spheres of human activity in the twentieth century, and on the other hand, the rapid expansion of education and changing its status is accompanied by a sharp worsening of problems in this area in the twenty-first century.

The article is devoted to the problems of modern education, associated with the transition from traditional to innovative education. The crisis of education is viewed from a philosophical point of view. The article presents the comparative assessment of traditional and modern education. Special attention is paid by such a concept as "complex thinking" and its impact on the current situation in education.

Information society and science set above problems to society: 1) formation of a common strategy between modern science and education; 2) convergence of the natural sciences and humanitarian sciences, science and art; 3) organization of thoughts, in accordance with the modern type of scientific rationality; 4) creation of a comprehensive interdisciplinary system of traditional and modern knowledge and introduction to her ideas of the global evolution and self-organization; 5) education of the new modern subject as a responsible, independent and rational person; 6) creation of a certain ideal of man, providing existential needs of the individual; 7) formation of personality and worldview.

It is shown that the solution of tasks leads to the crisis in education. The above problems of the crisis of education and ways out of its need in the general philosophical justification of the idea of existence in the light complex thinking.

Key words: *education, "complex thinking", culture, mentality, dialogue.*

P. 37. *Klochko V.Y.* THE COMPLEXITY LEVELS OF PSYCHOLOGICAL THINKING AND MODERN COGNITIVE SCIENCE. The author argues that the use of special methods of historical analysis that are aimed at the detection of the trends of development of particular science (psychology, in particular), helps in the identification of regularities in the development of scientific knowledge. It is manifested in the complication of the system organization of science and, accordingly, in the growth of complexity of thinking, used by scientists. In accordance with historical-systemic approach, science is understood as an open self-learning system, becoming more complex in the process of its development.

The use of historical-systematic approach (1987) in psychology has shown that science has consistently held in its development of two-stage and in the current moment of time starting the development of a new (higher and complicated) level systematic vision of the psychological reality. The essence of the transition lies in the fact that the man begins to be seen in psychology not only as a self-regulating system, but as a self-organizing and self-developing system. In 1989, it was proven that such transitions are common to all sciences. It allows us to distinguish between successive stages in the formation of the science: «classicism, non-classicism, post-non-classicism» (V.S. Stepin). It is shown that simple systems act as the dominant object in the classical science, complex self-regulating system is dominated by the non-classical science, and the subject of post-non-classical science is complex self-developing systems.

Affirmed, that the selectivity in the processes of cognition of the world (and myself) is in direct dependence on the organization of the multidimensional life world of the person. It is important to take it into consideration in the cognitive sciences. Cognitive sciences ascend to the multidimensional thinking with «different speeds». However, this movement towards a more complicated thinking leads to the fact, that on the background of the still ongoing phase of interdisciplinary research in the cognitive sciences is formed transdisciplinary «creative polylogue» scientific disciplines. Can you believe that transdisciplinary discourse is able to generate such knowledge, which owns no one of the sciences, and when receives it exceeds the capabilities of any of them.

Key words: *simple thinking, complex thinking, supercomplex thinking, classic, non-classic, post-non-classic, self-development, self-organization*

P. 44. *Kokarevich M.N.* FORMATION OF CULTURAL SYSTEMS AS A GNOSIOLOGICAL PROBLEM. Existing of the majority of approaches to reconstruction of cultural and historical reality is the fact of modern philosophical consciousness. The philosophy of life tells about the way of philosophizing as constructing. Post-modernist tradition insists on such identical name for philosophical comprehension of this subject like deconstruction. R. Bart regards philosophizing within the framework of structural tradition as modeling activity. Practical identity of concepts of constructing, reconstructing, modeling permits to determine methodology of philosophizing as conceptual modeling.

Conceptual models represents the conjugation of subjective and objective as a conjugation of subjective human activity and cultural and historical reality. It means "constructing" and "modification of primary reality" also. Conceptual model represents also the conjugation of value system of gnosiological subject and paradigmatic values of modeling cultural and historical reality as the specific field of research firstly. Secondly, conceptual model is the conjugation of value system of a subject and a value content of epoch with an investigator in it. Such conjugation is a condition of permanent renewal of the majority of conceptual models and cultural systems. That is why the majority of cultural systems is a norm. All cultural systems can be referred to absolutist or relative type. Recognition of invariability and totality of value content of culture, the only one criterion of well-development, the only one direction of cultural dynamics and succession of cultural and historical changes belong to absolutist conceptual modeling. Recognition of limited temporal and spatial existing of value bases leads to an idea of culture as coexistence of qualitative original cultures. Only their own distinctive basis values, determining criterion of well-development and the direction of development of this culture are their base. It belongs to relative conceptual modeling.

Key words: *reconstructive methodology, conceptual modeling, absolutist and relative cultural systems.*

P. 51. *Kornienko A.A.* THE OBJECT SPECIFICITY OF THE «STRONG» AND «WEAK» VERSIONS OF SOCIAL CONSTRUCTIVISM IN THE MODERN COGNITIVE SOCIOLOGY OF SCIENCE. The author analyzes developing of microsociological research, whose paradigm is designated in western philosophy of science of the last third of XX century. Just within the competence of microsociological research (research of concrete situations that appear during the process of scientist's cognitive activity, «case-studies») rich empirical material is formed. It allows to trace an interconnection of cognitive and social structures of science, to take a view of science as a subsystem of culture, to establish relations between separate elements of the scientific knowledge and sociocultural context, where the scientific knowledge is formed.

It's shown in the article that standart conception of the science represents the aggregate of gnosiological, epistemological and methodological interpretations of nature and morphology of the formed scientific knowledge, ways of receiving and explanation of the knowledge, interpretation of scientific character ideals. And revision of the standart conception of the science become the ideological basis that defined the specificity of cognitive sociology of science.

The author attempts to designate the differences of the «strong» and «weak» versions of social constructivism in the modern cognitive sociology of science.

Key words: *cognitive sociology of science, context, constructivism, deconstructivism, criteria of scientific content, sociality in science, interpretation.*

P. 58. *Kudashov V.I.* SOCIAL TECHNOLOGIES IN THE KNOWLEDGE SOCIETY: COGNITIVE ASPECTS. The development of social technologies is connected with the need for new activities that are designed to ensure the transfer of social knowledge based on current scientific evidence. If we accept fact that the knowledge is transformed into factor that structures all areas of social life, it is necessary to consider the possibility of all social actors to generate knowledge aimed at changing and the construction of social reality.

Social technologies in close cooperation with the converging nano-, bio-, info- and especially cognitive technologies in many ways already define life and the development of modern society. These technologies are man-made forms of culture development and inseparable from human activity. Humanitarian reflection and practice must resist the technocratic approach to understanding technology use of social life. Social technologies can be considered as an alternative to the technocratic approach,

expressing itself as a methodology, strategy and tactics of the practical implementation of social intelligence.

Even the most valuable social ideas and technologies can get inadequate materialize if they are placed in the context of a significant another knowledge without the necessary corrections. The use of social technologies requires attention change the meanings of key concepts of social technologies. Knowledge in common level becomes the main condition for the success or failure of specific social technologies. Weak results of two decades of public administration reform is explained with inability to consider divergent cognitive picture of reality of different social and professional groups. Another one of the problems is that people who make decisions and specific administrators often can not perceive the depth of conceptual development plans of social technologies.

Many experts state the fundamental impossibility achieve the strategic goals of "knowledge societies" because of insecurity of appropriate tools. As the "tools" they call a radical improvement of the business climate, competition, technology "e-government", "e-learning", "e-health", eliminating of information inequality of regions, etc. It is not financial, but the intangible resources, expressed mainly with concepts of "intellectual capital", "human capital", "social capital", information, etc. All of these are "knowledge" resources that require special, cognitive technologies.

Thus, cognitive technologies become fundamental and crucially action and determine the impact of social technologies. Without cognitive study any social technology with all its positive view can worsen rather than improve the situation in the external and formal compliance of all the requirements of innovation.

Key words: *"knowledge society", cognitive technologies, social technologies.*

P. 65. *Minasyan L.A.* THE UP-TO-DATE ASPECTS OF KNOWLEDGE METHODOLOGY OF COMPLEX SELF-DEVELOPING SYSTEMS (ON A MATERIAL OF ELEMENTARY PARTICLES MODERN PHYSICS). Post no classical period of science development is strangely linked with the postmodernism philosophy in the works of number of authors. More and more often you can hear about two branches of post no classical period: one of them is given by postmodernism philosophy and the other is linked with the statement of synergetic approaches in the research methodology of different sciences including natural sciences. In the article the attempt to overcome this misunderstanding is made and the aim to determinate the methodology's peculiarities of post no classical scientific rationality type is put. According to the aims three main transcendental philosophy models (classical, no classical, post no classical) are considered by comparison of consecutively changed types of scientific rationality. It is shown that there is not any direct correlation between models of transcendentalism and the same name scientific rationality types. More likely the change of scientific rationality types in searching of scientific problems decision represents the ascension to the classical transcendental philosophy which was the classical natural sciences critic during their triumph. Modern natural sciences development, for example elementary particles physics and cosmology show the post no classical approach with the exit to the value and aim directives that hasn't existed neither in classical no in post classical stages of science development. Again with new strength the question is set up that the Universe is made for a human appearance, that the human is not a chance in the Universe as well as question about thinking as a necessary condition in the self-organization world process. Modern natural sciences in their development is approaching to the problems risen in German classical philosophy while the postmodernism philosophy in many positions represents different breaks with it or replacement of its clue notions. In this research the critic of postmodernism doctrine is done which is expressed in the epistemological anarchism philosophy of Feyerabend. It is pointed out that synergetic doesn't concentrate its attention on the chaos in general but on the determinate chaos and its discussion is made with the use of the notion "entropy production". Principle of the minimal entropy production is the chaos limit in the system of strange attractor regime providing the birth of self-organization process of the higher chaos level. Aspects of knowledge methodology of complex self-developing systems obtains the priority meaning in the researches and in frames of Standard Model of electromagnetic, weak and strong quarks and leptons interactions as it is made now in the Large Hadron Collider and out of Standard Model applicability limits as in Dark energy evolution detailed researches. In the article it is shown that eternal philosophical problems about the place of a Human in the World are closely linked with the problems of the fundamental physics and cosmology. It is offered the methodological conception of Super modern representing the return to the Modern at the higher level. Methodological extension of Super modern consists in transformation to the expanded unified conceptions consolidating to the united system of not only physical field and interaction (for example in the superstring theory) but also in no linear information fields responsible for the self-organization, life and

ratio. The main distinctive lines and adequacy of this methodology of post no classical ideology are analyzed.

Key words: *Post no classical science, transcendental philosophy, self-organization of the World, postmodernism, super modernism.*

P. 73. *Rakhimova M.V.* A MOVE FROM PLURIPOTENCY OF CELL TO PLURIPOTENCY OF MIND AS A BIOETHICAL CHALLENGE OF THE SECOND PROMETHEAN EPOCH. The scientific and technocratic world of today normally takes more than gives back: on the one hand, we've got some determinable standards of culture as a terms of living in modern culture matrix, the notion implies a modern vision of 'musts' and 'shoulds' of an average society member such as the categories of success, career and welfare (material wealth), some huge opportunities in Science; on the other hand, we've lost our spiritual identity - spiritual identity as the way one conceives his/her place and role in the life space one is given, the mission one bears when comes into this world. How could we know what would really be better for us today, what sort of happiness should we get in order to feel ourselves full and calm? It's complicated to know and feel the direction for the development of our inner world. At the same time this development, which, in my view, has no relation to the technocratic progress, is the only means to reach a harmonic state of mind and soul, and is the key to happiness in everyday life of a man.

Like an average automatic machine, a man himself has become a means of the abovementioned technocratic progress; like a cyborg, a man got used to live in a space carefully built for him by this progress, a virtual world full of illusions, lies and blind slavery. Cultural traditions have become a part of this system and turned into a standard giving rules for an average automaton. The Matrix in progress. The White rabbit disappearing. The "White rabbit" here means a Human nature, hardly touchable, almost imperceptible, a bud of energy, actually making a man feel like a human being. If lose this bud, one would become fully automatic. Fully dependant. No one. Nowhere. If though one tries to preserve it, then one would inevitably turn it and the effort itself into a piece of a cultural identity, something that is able to make a man remember what made him differ from others.

The article is devoted to an issue of a bioethical challenge of modern sci-tech epoch evidencing disparity of active rise of scientific discoveries in separate sciences (in e.g. molecular biology) and of philosophical learning and apprehension of the results of such rise. Under analysis stands a philosophy's peril about possible modification of a human conscience, caused in particular by a bioethical revolution and gene engineering. It is suggested that the phenomenon of pluripotency of cell material discovered by science may consequently cause pluripotency of a human mind, which in its turn shall make real a threat of waste by a human being of a need and desire to stay a human being, shall cause degrading of a human need of spiritual growth.

Key words: *pluripotency, bioethical challenge, germ cells, anthropocentrism, Promethean epoch, concept of culture, molecular biology, philosophy's peril.*

P. 79. *Seredkina E.V.* EREIGNIS-ONTOLOGY OF LATE M. HEIDEGGER IN THE CONTEXT OF TECHNOSCIENCE AND EVOLUTIONARY CONSTRUCTIVISM. In this article it is tried to define the outlines of philosophical topology in the context of technoscience and evolutionary constructionism program based on late Heidegger studies and autopoiesis conception of Varela-Maturana. A new way of space comprehension came from physics in a «final form» so often that a philosophical thought somehow became estranged from independent theme interpretation. The time has come for philosophers to reflect over the theory of hypothetical worlds, pre-temporal dynamics and the character of connection between space and time in frames of post-nonclassic type of science.

Key words: *technoscience, evolutionary constructivism, philosophical topology, autopoiesis, Ereignis.*

P. 86. *Sitnikova D.L.* THE ROLE OF A SCIENTIFIC EXPERTISE IN THE COMPLEX SYSTEM DYNAMICS. The history of science is closely connected with the history of the expertise. Scientific expertise prescribes society its laws, rules and regulations. Expert knowledge is seen as a particular structure by means of which they evaluate reality. Government authorities establish an expertise institute to consolidate and to strengthen their action. The expertise institute influences the dynamics of the system "science" and the society itself. Science studies complex systems. The more complex the system is, the greater the number of experts and the expertise. The process of decision-making in society becomes more complex.

The author offers a way to describe the role of scientific expertise in the birth of new knowledge. The method is based on the concept of "replicator", "subject of self-organization" (Poizner Boris). A system of scientific knowledge starts being renewed when an open dynamic system is the most unstable. All replicators have almost equal conditions and opportunities. A chance plays the most crucial role. The quality and activity of a replicator are important. The key factor at this stage is the competition which is defined by experts. They choose the competition participants. Experts estimate replicator qualities in advance.

Experts appointment, expert's opinion are considered as factors defining the choice of a development system at the bifurcation point. It is important to identify the mechanisms of self-organization, self-description and self-cleaning of experts.

Key words: *self-organization, complex systems, expertise, replicator, Post no classical science.*

P. 91. *Chernikova I.V., Chernikova D.V.* COGNITIVE ASPECTS OF THE COMPLEXITY. The paper shows that the term "complexity" fixes not only the characteristic of the object, but also the learning style. Cognitive aspects of the complexity are analyzed and revealed with the special style of thinking – complex thinking. This way of complexity is generated by the reflexive-communicative subject, who perceives himself not only as a part of the cognizable world evolution, but also as a one who constructs this world with his project-communicative activity. In the contemporary science with the self-organization theory in the core the cognition is transformed from the objective description of the world to the projective description. The essence of the cognition is in the object construction in the space of intellectual and cultural human activity. At that subjective in cognition may coincide with the objective. The categories "subject" and "object" are not exclusively epistemological, they include ontological dimension as well. Objective reality as the aim of the cognition is not something external for the thinker; like environment is not external for the autopoietic system. Cognizing subject is not an ability separated from the human, but a human with the cognizing ability determined with his physical, social and communicative nature.

Key words: *subject, cognition, complex thinking, self-development, technoscience, NBIC-convergence.*

P. 99. *Cheshev V.V.* EPISTEMOLOGICAL PECULIARITIES OF THE EMERGENCE OF SYSTEM ONTOLOGY. In the article some peculiarities of the emergence of system ontology, ie a set of abstract objects and abstract patterns that represent systemic whole. The author draws attention to the role of technological practices and practical knowledge in the process. Engineering practice is an area of active action aimed at creating structures with a certain function. These are in fact all the simple and complex technological devices. However, the specific system views are born in the practice of engineering in the making, based on scientific knowledge. The first step in this direction has been made in identifying the role of the physical process is the system start devices such as the steam engine. The principle of operation sets its integrity and in the implementation of this principle is defined morphological structure of the machine. At the same time issued the structural and functional vision of this type of objects and abstract means of representation structures, as the implementation of the principle requires that you specify the functional role of certain morphological units for implementation. The development of knowledge of such occurrence and prepared to use the system view of a general nature. Last begin to form on as the subject of the reaction are objects with multiple functional links to external influences. In the field of engineering practice, this process presents challenges regulation of certain complex devices, even if they are hard and stable relations of elements. One of the first tasks in the technical environment has speed control and power of the steam engine. Generalize the notion of regulation and management system developed not only on the basis of technical expertise, but also in the study of natural systems, more labile and give more material to the system view. It is important that these systems are also beginning to be seen in light of the problems discussed management and optimization. During such studies the idea of self-organization had been emerged and has become a new stage of systems research.

Special attention is paid to the role of mathematical tools for describing complex objects, the use of which has required the transition to the new scheme of their ontological representation. In particular, the mathematical description of the dynamics of nonlinear systems paved the way for the construction of an ontology of complex self-systems. That was the way of building a new ontology of synergy, the first abstraction that is born in the mathematical theory of catastrophes. Universality of mathematical description of complex systems contributes to building generalized ontological structures representing investigate the dynamics of self-organizing systems with different internal maintenance.

Key words: *ontology, integrity, structure, function, mode of operation.*

P. 107. *Feldman V.R.* IDEOLOGY IN THE SOCIAL AND HISTORICAL DYNAMICS. Ideology is a system of values is vitally important for the individual, society and social groups, one of the mechanisms of self-organization and social system. In the process of socio-historical development is a change of ideologies, in terms of content, it is becoming increasingly difficult. Religious form ideology characteristic of traditional society are replaced by non-religious specific historical form of ideology.

Characteristic of the ideology of its multi-level structure, what is expressed in its consistency. In modern industrial society, the complexity of ideology as a system increases significantly. Secular ideology of the modern form of dynamically developing society generally include three levels.

The first level of ideology (as in the religious ideology of the traditional societies) includes views on the duties of the government in relation to the people. Obligations of state power are expressed in various areas of social policy. The second level includes a wide range of ideological values associated with the constitution of the state, political and personal rights, freedoms and duties of citizen. The third level of the ideology of modern democratic society shapes peoples attitude to society, to its fundamental values. It may include the idea of the social ideal. In the new era of the revolutionary process in the twentieth century ideology played a role of a social attractor. On the basis of value of specific historical ideologies create and modify a variety of social systems.

Thus, the ideology in the historical past and in modern life, is an important element of the social dynamics involved in the processes of development, organization and self-organization.

Key words: *the form of social consciousness, ideology, complexity, organization, self-organization.*

Section 2. COGNITIVE FOUNDATIONS OF THE COMPLEXITY: THE ANALYTICAL PHILOSOPHY PROJECTS

P. 114. *Lobovikov V.O.* DISCRETE MATHEMATICAL REPRESENTATION OF EVALUATIVE ASPECT OF COMPOUND SELF-DEVELOPING SYSTEMS (COMPLEXITY, FINITENESS, CONTRADICTION, DEVELOPMENT, AND SELF-DEVELOPMENT AS EVALUATION-FUNCTIONS IN TWO-VALUED ALGEBRA OF METAPHYSICS). The paper demonstrates heuristic potential of construction and investigation of discrete mathematical models as a method of cognition of compound self-developing systems. The subject-matter of the paper – a formal-axiological aspect of the philosophical categories: “complexity” and “simplicity”; “development” and “self-development”; “organization” and “self-organization”; “governing” and “self-governing”. The mentioned philosophical categories are considered as evaluation-functions determined by a finite number of evaluation-variables in two-valued algebra of metaphysics. According to the author’s fundamental hypothesis, *metaphysics is nothing but formal axiology*, in particular, formal ethics and formal jusnaturalism. Starting with this nontrivial hypothesis he investigates “finiteness” and “infiniteness”, “contradiction” and “non-contradiction”, “movement (change)” and “self-movement (self-change)”, “destruction (extermination)” and “conservation”, etc. as *moral-legal evaluation-functions determined by moral-legal evaluation-variables* in proper mathematical meanings of the words “function” and “variable”. The evaluation functions and variables take their values from the set of moral-legal values {g (good), b (bad)} of moral-legal-forms of actions. Elementary moral-legal-action-forms deprived of their contents are nothing but moral-legal variables. Compound moral-legal-action-forms deprived of their contents represent moral-legal evaluation-functions. The functions under investigation are precisely defined by tables. A *formal-axiological equivalence-relation* and the notion “*law of algebra of metaphysics*” are precisely defined as well. By means of the given definitions the author generates a list of equations and a list of laws of two-valued algebra of metaphysics identified with algebra of formal axiology, in particular, with algebra of formal ethics. By means of “computing” relevant evaluation-tables it is demonstrated that “limited self-organization”, “local (regional) self-government” and “complexity of self-developing-systems” are the laws of metaphysics.

Key words: *compound-self-developing-system, self-development, algebra-of-formal-axiology, evaluation-function.*

P. 122. *Utkina M.M.* COMMUNICATIVENESS OF SCIENTIFIC DISCOURSE IN THE KNOWLEDGE SOCIETY. The society, organized by the management of knowledge, dissemination of information technologies and innovation (knowledge society), is no longer a myth but reality, a global communication space. This is a complexly open dissipative system, in which even a small impact on it can cause it to reach a new fundamentally unpredictable and irreversible condition. Modernity is characterized by the coexistence of multiple realities in the image of hyper-reality. The know-

ledge society forms various discourses, which claim to be the truth. All knowledge, including scientific, it is only a plausible interpretation or a version of the event. Scientific knowledge today as a type of argumentative discourse cannot be unique and meet the standard of science developed in the positivist tradition. In the "knowledge society" objectivity of scientific knowledge takes on a new meaning: it does not appear as the only true reflection of reality, the correspondence of knowledge about the object itself, but appears as a "general subjective reality." Scientific discourse can be understood as metadiscourse and intrascientific discourse. Metadiscourse performs the function of demarcation between scientific and non-scientific, acts as a paradigmatic model. It is fundamentally stable, but historically volatile. Between different schools of discrepancies. They can be identified as intrascientific discourses, each of which with respect to its "competitors" will act as something deviant, remaining outside the norm, defined metadiscourse. Dimensional linear interpretation of deviation as a deviation from the norm is the expression of the classical style of scientific thinking, as is only considered a "proper – wrong." The nature of coexistence of intrascientific discourses in a situation of non-linearity of being and thinking is defined as a situation mismatch. The existence of intrascientific discourse is determined by the presence of interactional ties in the scientific "mini-community." Intrascientific discourses are open dissipative systems and are exposed to an impact from the outside. In the scientific environment, one of those ways of acting are all sorts of interactions between scientists. This is a necessary condition for the construction of the order, a new level of self-organization. A striking example of self-organization in a dissipative system of "science" is such an institutional form of scientific communication as a conference. The simultaneous presence of scientists in the situation is a demonstration of the unity born of order, which is not affected even after the event, and restructured into a new level of organization of their knowledge. Metadiscourse aims at understanding, and intrascientific discourses prevent its establishment. Communication is designed to help establish contact between intrascientific discourses, but that does not mean they should be summarized in a single universal theory to explain reality. The agreement, reached in communication, in the context of discourse ethics is regarded as the realization of the principle of morality. In the knowledge society is the most important condition for the existence of a multi-dimensional science.

Key words: *communication, discourse, scientific knowledge, self-organization, knowledge society.*

P. 129. *Chekalov L.L.* THE METHODS OF MAKING DECISIONS IN BIOLOGICAL SYSTEMS, THEIR EVOLUTION AND THE PROBLEM OF DESCRIPTION. The analysis of the notion "matter" (of outside medium, energy, movement, space, time, forms applied to biological systems) is made. The notion "information" is introduced as a link between external and internal space of the system.

The notion "control" is introduced as the control of the object movement (subject) in space and is considered from the point of view of the method of the decision making regarding the movement start (action), including the evaluation of validity.

The thesis on the distinction in kind of two ways of decision-making and its validity evaluation specified by information processing mechanism is introduced.

Key words: *decision-making, control, evolution.*

Section 3. SOCIAL TECHNOLOGIES IN THE KNOWLEDGE SOCIETY: GLOBAL AND REGIONAL ASPECTS

P. 135. *Afanasieva D.O.* PATRIOTIC ATTITUDES OF REGIONAL YOUNG PEOPLE. The research interest to a patriotism among the young people is determined both by applied objectives of the determination of content, structure and mechanisms of regional policy for development of civism and patriotism, and actualization of problems of the structural changes in the public sphere, political and ideological subsystems of society in the scientific community.

Article is focused on the determination of the content of patriotic attitudes in the context of cognitive (visions of homeland and self-identity), emotional (values) and behavioral (wishful practices of patriotic behavior) resources.

Based on data of sociological researches "Civism and patriotism among the young people of Tomsk region" (January, 2012) the author comes to the following conclusions:

1) dominant values of young people allow to characterize it as a group concentrating interests in a small communicative circle;

2) values, which build up the civism and patriotism of young people, take the peripheral positions;

3) WE-self-identity of young people are connected with dominant values, focused on private sphere of life and small communicative circle, which contradict to the foundation principles of patriotic self-consciousness that is propose a high level of collective identity development. A peculiar desocialization in the context of identity is connected, on the one hand, with increasing fragmentation of Russian society, on the other hand, with increase of the asymbolism of public space in the Russia owing to virtualization of sociopolitical sphere;

4) The semantic analysis of the concept "Homeland" shows 3 base dimensions: territorial-formal, emotional-personal and patriotic;

5) The most significant function of the patriotism for young people is ideological. Youth considers forms requiring civil activity as the least significant manifestations of true patriotism.

6) Civil and patriotic self-identification is not connected with neatly defined role prescriptions and models of behavior in modern youth society;

7) The most widespread form of the civil activity of young people is "recreational" (participation in the festive and physical-sport events and activities). The second widespread form is "creative-altruistic" (charity and volunteerism). The least widespread form of civil activity is "politicized" form, which imply the participation in political gatherings, membership in political parties and active journalistic activity in the Internet.

Thus, patriotism in the visualization of regional young people is not claimed as a political practice in the field of rationality. It more likely performs the functions of social control and social cohesion which indicates the transformation or even destruction of public sphere. This position should be taken into account in the field of development of regional policy on patriotic education of young people.

Key words: *patriotism, identity, values, young people.*

P. 143. *Ivanova V.S.* HEALTH CARE REFORMS: EXPECTATIONS OF MEDICAL STAFF. The article is devoted to finding the factors that contribute to the improvement of the health service for the diagnosis, description of the current state assessment, and behavioral aspects of health care professionals and on the approval and trust of the employees of the medical sphere, regarding changes in the healthcare system.

For Russia today to reform the health care system are strictly necessary, the answer to the challenges that are associated with the situation in the economy and other areas of the country. Innovative changes, though touched health care, but is still a lot of problems and contradictions that need attention from researchers not only to study the views of consumers and users of health services, but particularly in relation to the producers and holders of medical services (that is medical institutions and medical personnel). In our opinion, for the implementation of the tasks assigned to the health care system, it is necessary to adequately represent the needs and expectations of those (medical and technical staff of the medical industry) who will implement the ideas of the reformation. This article operates on the results of the study (2010 to 2011years). The results to the following issues: - the identification reactions of employees at corporate changes; - determine the level of understanding (the possibility of dialogue) between managers and staff of the organization; - identifying any factors of social tension in the medical facility, as well as the reasons for their possible dismissal, and finally, the description of the medical staff and social well-being of their expectations.

The data analysis has allowed to identify the main causes of organizational conflict in the medical institutions. They are related to the degree of compliance (or not) normative and social (or behavioral) structures of the organization. There is a relationship between the level of satisfaction and the respondents, on changes in the health system. Overall, the group of those who are not satisfied with the organizational conditions of activity in three to four times more likely to report and insist that existing changes, lead (could lead) to a negative result in the entire system. Thus, the assessment of organizational cuts not only affect the presentation of the staff of the organization, their positive (negative) attitude, but determine their perception of changes in the organization and the health sector.

Key words: *health care reforming, social well-being, the administrative climate.*

P. 152. *Kononenko R.V.* FOLKLORE AS A COLLECTIVE IDENTITY AND WOW-FACTOR: SOCIO-CULTURAL ANALYSIS. The article regards folk culture as a complex phenomenon which becomes a field of power relations. Various social, cultural and political contexts are reviewed, where the revival of folk culture takes place which can be used to integrate or can be a counterargument of social and political identification. Specific to each of the contexts valuable and symbolic and structural

characteristics are analyzed. Aspects of commodification and professionalization of folk artists are considered in the article along with the concepts of sociology of professions and interviews with authentic singers and experts in folklore.

Interest in folk culture dates back to the tradition of Romanticism of early 19th century – a movement of intellectuals against classical thinking and values of the Enlightenment. Representatives of this movement, scholars and writers, had collected a variety of data which showed a rich and integrity content of “folk” culture as important characteristics of life and views of different groups and communities as opposed to the “high” culture. The other and close to the Romanticism source of interest to folklore is nationalism, which arose as an ideology movement in the 18th century and had ambivalent consequences. Efforts of political, intellectual and cultural elites created and implemented new symbols in accordance to which each person had to associate themselves with the nation. Folklore shifted from folk culture and transformed into high. Symbols of national unity acquired market interest. Being a profitable product, they are easily duplicated and sold, thus becoming even more common. In times of acute social situations local languages and folklore were back on the agenda, used by leaders of the movements to improve the cohesion of the group against the dominant system of values.

The popularity of folk music began to grow rapidly in the 1960s in the USA due to the counter-cultural movements preaching values of anti-consumerism as opposed to postwar conformism and values of mass market. With the growth of professionalization of folk music its definition as non-profit and amateur performance was already irrelevant. Methods of resistance to mainstream culture were based on consumption.

In the Soviet times, "folk" was used and controlled, produced by government policy and institutions, while since 1960s and especially 1980s there was raising interest in popular culture "from below" - as a reaction to the dominance of technocracy and authoritarianism. Professionalism of folk artists was based on their interaction with folklorists and the authorities in the Soviet era, and in the post-Soviet period these processes are enhanced. In some cases, more or less successful industry of native folk culture was established with the help of business, and it acquires the features of mass culture howling through the mechanisms of marketization. So it becomes a national symbol, while cultural industries make this symbol a part of commodified media strategy in an effort to attract the mass consumers. Falling into public space, folk artists find a new social role – “media of folklore”, as well as professionalize according to the laws of the cultural policy and cultural industries. They are striving to emphasize the uniqueness, their own or their team, develop an image which is supposed to become a brand. Processes of professionalization and commercialization do not allow the authentic folklore to take a strong position on the market of audience tastes yet. Successful marketing projects of promotion of the folk performers, position authenticity as an exotic and enhanced stylistic eclecticism.

Key words: *folklore, social movements, commercialization, professionalization.*

P. 166. *Kuzheleva-Sagan I.P.* TRANSPECTIVE MODEL OF PROLOGY AS A VARIANT OF THE POST-NON-CLASSIC APPROACH TO THE SCIENTIFIC KNOWLEDGE IN PUBLIC RELATIONS. Public Relations have become an integral part of social life. Certain conditions are important for studying this complicated, ambivalent phenomenon, they are consistency and systemacity of scientific knowledge in PR (PR-studies) which initially are interdisciplinary. However, modern status of PR-studies is characterized by multiple ‘gaps’ and discrepancy. In addition, there are more than fifteen hundred definitions for PR, which are often contradictory. Many researchers consider it as an insuperable obstacle for developing a universal theory of PR. Meanwhile, changing ‘conceptual lenses’ allows us to perceive this variety and inconsistency as the situation of high entropy and chaos near the point of bifurcation. It suggests the choice of attractor and brings scientific knowledge in PR to the new level of system organization. In other words, it is possible for PR-studies not to be stuck from epistemological point of view if one could see the course of its development as part of universal scientific knowledge concept, which has changed from classic to post-non-classic. The question that has to be answered is whether it is proper to apply the post-non-classic, non-linear, synergetic approach to PR-studies as it has such short ‘biography’ and has not fully appeared even in its classic ‘format’. The author believes that at least two arguments make it possible. First, if we consider post-non-classic not only as the stage of science development but also as the *type of scientific thinking* which can be applied in analyzing all kinds of complicated ‘human-dimensional’ objects. Second, if we accept the view of ‘non-linear’ syntheses as ‘combination of structures of different ‘age’ and different levels of development’ instead of thinking of it as of some fixed structures. Thus PR-studies may be represented as open non-linear cognitive system which elements, such as object, methodology, categorical framework, etc., have different levels of development and apprehension.

The author believes that philosophical-methodological complex based on *universal evolutionary* (V.S. Styopin, E. Jantsch, etc.) and *transpective analysis* (V.E. Klochko) can provide PR-studies with post-non-classic projection. Using this methodological complex, PR-studies can be described as open non-linear self-organizing cognitive system which common transpective model represents syntheses of three separate models – ‘classic’, ‘non-classic’, and ‘post-non-classic’. These models may be considered not only as transpective stages of PR-studies, but also as separate projections which allow to represent PR-studies simultaneously from the positions of classic, non-classic, and post-non-classic scientific rationalism for further choosing the one which fully corresponds with the system of thinking and types of problems the subject of knowledge is supposed to solve.

Key words: *PR-ology, post-non-classic methodology, transpective model, self-organizing cognitive structure.*

Section 4. SOCIAL POLICY AS AN INSTRUMENT OF ADMINISTERING THE COMPLEX SYSTEMS

P. 175. *Abramova M.O., Bulatova T.A., Rykun A.Yu., Yuzhaninov K.M.* SOCIAL AND CULTURAL INNOVATION: ON THE POSSIBILITY OF QUANTITATIVE ASSESSMENT. The research is oriented on the depiction of social and cultural specifics of the Tomsk region as the locus of modernization and innovation. That type of analysis is the necessary pre-condition of modernization itself and includes demographic analysis, labour market potential assessment, predominant types of economic activity analysis, stratification patterns evaluation and the possibility of the creative class formation analysis. Hence, the central objective is to assess the possible impact of Tomsk regional social and cultural resources (in both, their quantitative and qualitative aspects) upon the regional modernization and innovation strategy. That type of goal involves complex analysis of regional social issues, an outline of the factors determining the regional demography, stratification, social policy, cultural transformation, forms and means of population adjustment, actual cultural resources and cultural capital and the possible scenarios of innovation. The research outcome includes an outline of the methodology of the assessment of regional social and cultural resources innovative potential, description of the key groups of the population supporting and opposing modernization and innovation, constructing and testing of the research instruments, construction of the indicators of the regional innovative development. The results will be presented in the form of four articles, the research report and will include the recommendations for the regional political and business elite concerning the ways and means of inclusion and mobilization of pro-innovative groups of the regional population.

Key words: *Regional studies, social and cultural resources. Population, social stratification, cultural capital, innovative development.*

P. 197. *Glinskii V.V., Donskikh O.A.* INFORMATIONAL BASIS OF THE MANAGEMENT IN THE SPHERE OF EDUCATION: SOCIOLOGICAL APPROACH. The article with the history of development and modern state of the system of higher professional education of modern Russia. The statements about the need to reduce the number of universities and the overproduction of humanitarians are scrutinized. It is shown that these theses are largely farfetched and related to the ambiguity of the approaches to the analysis of the problems of the sphere of education.

Key words: *High professional education, market economy, profession in humanities, profession in engineering, factors of transformation.*

P. 206. *Ivanova N.A.* PIERRE BOURDIEU ABOUT THE SCIENCE AS THE FIELD OF SYMBOLICAL PRODUCTION AND THE ROLE OF HABITUS IN IT. In the article an attempt is made to consider the interpretation of science as a field of symbolical production. The interpretation is offered by Pierre Bourdieu, within his theory of practice. After Bourdieu the task is set to reveal the conditions of possibility of scientific knowledge for coming into existence and obtaining the recognition. The analysis of works of such foreign authors as *J.Bouveresse, P.Corcuff, L. Boltanski, L. Thevenot*, and also of Russian authors as *N. Shmatko, G. Gutner* and others allowed to put forward the critical arguments relating to the theory of practice developed by Bourdieu, and in particular the interpretation of science as a field of symbolical production, and also to the concept of habitus, revealing their heuristic potential. The conclusion is drawn that for the adequate understanding of the regularities, characterizing fields of practice of a certain type which appear as determined, and at the same time contain the unsteadiness moments, in the form of adaptation, innovation and exception, the concept of habitus is obviously necessary. Habitus points out the unity of practice and will of both a certain individual

and any social group. In this sense habitus represents the integral phenomenon without reduction to any disposition, mobile unity of perception, concept, thinking, action and communication. Being a product of social history, habitus is a mechanism which gives rise to practice. This mechanism is defined as consisting of two indissolubly united parts on the one hand the process of interiorization of external (an individualization of collective schemes) on the other hand the process of exteriorization of internal (an objectivization of subjective). Therefore in habitus innovations are compatible with determination and compulsion. Being an individualization of collective schemes, habitus carries out the function of prediction, and also the functions of distinction and integration of social groups.

Key words: *P. Bourdieu, science as a practice, symbolic production, strategy, dispositions, habitus.*

P. 220. *Ilynykh S.A.* FAMILY VALUES OF YOUTH: TRADITION AND TRANSFORMATION. The author analyzes the family values of the youth. Author conducting a study of values from theoretical and empirical perspectives. Feature of the empirical research is that it is carried out on two sample population - Novosibirsk and Minsk. The author analyzes the respondents' attitudes towards values such as kinship, marriage, reasons for marriage, a strong family, the centrality of the family and the distribution of family responsibilities lessons internalized values as family values.

Key words: *family values, relationship, marriage, reasons for marriage, a strong family, the centrality of the family, sharing of family responsibilities, meaning of life values, mosaic of consciousness, gender stereotypes.*

P. 233. *Rykun A.Yu., Yuzhaninov K.M.* THE INTERNATIONAL COOPERATION OF TOMSK STATE UNIVERSITY AS A FACTOR AND AN INDICATOR OF THE REGIONAL MODERNIZATION. The research that served as a basis of the present article was oriented on the depiction of social and cultural specifics of the Tomsk region as the locus of modernization and innovation. That type of analysis is the necessary pre-condition of modernization itself and includes analysis of the role of the universities and the impact of their involvement into international cooperation.

Key words: *Regional studies, social and cultural resources, higher education, cultural capital, international cooperation.*

P. 240. *Figurvskaya V.M.* SOCIAL DESIGN OF GOAL-SETTING AND GOAL-IMPLEMENTATION. The article deals with the principles, which may be included in the social project to influence the rational and other components of the social and personal worldview, the procedures for selecting, goal-setting and goal-implementation provided that the basis for such social design will be laid by value criteria.

Key words: *values, simulacra, activity, goal-setting, goal-implementation, rational organization, social engineering.*