

“Ministry of education and science of The RF”

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“The SIO "Academy of cognitive natural sciences"”

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**The applied scientific researches directions  
of “The SIO "Academy of cognitive natural sciences"”**

**Collection of scientific reports**

Saint-Petersburg city  
2015 y.

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In collection of scientific reports on the rights of monography presented immediate the applied scientific researches direction of "The SIO "Academy of cognitive natural sciences" (part 1), the applied scientific researches direction of "The SIO "Academy of cognitive natural sciences" (part 2), the applied scientific researches direction of "The SIO "Academy of cognitive natural sciences" (part 3), the applied scientific researches direction of "The SIO "Academy of cognitive natural sciences" (part 4), the applied scientific researches direction of "The SIO "Academy of cognitive natural sciences" (part 1), the applied scientific researches direction of "The SIO "Academy of cognitive natural sciences" (part 2), the applied scientific researches direction of "Cognitive modeling in the geopolitical sciences and researches" ("NSGI") of "The SIO "Academy of cognitive natural sciences", the applied scientific researches direction of "Cognitive modeling in the society steady development of postindustrial country" ("NURS") of "The SIO "Academy of cognitive natural sciences", the applied scientific researches direction of "Cognitive modeling in the social-economical and jurisprudential sciences" ("NSEPP") of "The SIO "Academy of cognitive natural sciences" (part 1), the applied scientific researches direction of "Cognitive modeling in the social-economical and jurisprudential sciences" ("NSEPP") of "The SIO "Academy of cognitive natural sciences" (part 2), the applied scientific researches direction of "Cognitive modeling in the biological and medical sciences" ("NBME") of "The SIO "Academy of cognitive natural sciences", the applied scientific researches direction of "Cognitive modeling in the humanitarian sciences, art and creativity" ("NGNOT") of "The SIO "Academy of cognitive natural sciences" (part 1), the applied scientific researches direction of "Cognitive modeling in the humanitarian sciences, art and creativity" ("NGNOT") of "The SIO "Academy of cognitive natural sciences" (part 2), the applied scientific researches direction of "Cognitive modeling in the physical training and sport" ("NFS") of "The SIO "Academy of cognitive natural sciences" and the applied scientific researches direction of "Cognitive modeling in the military sciences" ("NVN") of "The SIO "Academy of cognitive natural sciences".

Intended for scientists, staff of The SRI, teachers and students of The HEIs, and also qualified specialists-experts on scientific specialties:  
05.13.01 - "The system analysis, control and information processing" (technics),  
05.13.06 - "Automation of technological processes and manufactures" (industry),  
05.13.10 - "Control and computer science in social systems" (technics),  
19.00.02 - "Psycho-physiology of perception" (technics and medicine),  
19.00.03 - "Psychology of work, engineering psychology and ergonomics" (psychology),  
08.00.10 - "Finance, monetary circulation and credit" (economics and finances),  
08.00.12 - "The accounting and statistics" (accounting documents of (credit) organizations),  
08.00.13 - "Mathematical and instrumental methods of economics" (the financial analysis),  
01.02.01 - "Theoretical mechanics" (modeling of hybrid systems with difficult structure),  
02.00.04 - "Physical chemistry" (multi-nucleus chemical elements and nuclear polymers) and 03.00.03 - "Molecular biology" (modeling of desoxyribonucleic acid).

on the rights of monography

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## THE APPLIED SCIENTIFIC RESEARCHES DIRECTION

“COGNITIVE MODELING IN THE NATURAL SCIENCES” (“NEN”)  
OF “THE SIO "ACADEMY OF COGNITIVE NATURAL SCIENCES"” (PART 1)

The developed “The applied scientific researches direction  
"Cognitive modeling in the natural sciences"” (“NEN”)  
treats to the applied scientific researches divisions  
of “The SIO "Academy of cognitive natural sciences"” (“The SIO "ACNS"”)  
as main component of science and education system of the modern country  
for creation, distribution and use of the main and derivative  
scientific results of the cognitive modeling technology (CMT) (www.vetrovan.(spb.)ru)  
[see the applied scientific researches directions and departments of “The SIO "ACNS"”]:

1) it is executed by the principle of “administrative-economy submission”;  
2) works in several main directions, which allow to provide  
development of the applied main and derivative scientific results  
(my second report on SRW from 2006-2008(9) y. was submitted  
to “The SPbSETU "LETI"” and The Government of The RF  
for the translation, carrying out of int. action and receiving of “The Nobel Prize”);

3) includes several various main divisions:  
I. “The applied scientific researches department  
"The applications of the (Cognitive) computer science, cybernetics,  
automatics, computer engineering, data transmission and connection"” (“SIC”) (\*)

*[ the applied scientific researches in area  
“Applications of computer science (theory of information)” –*  
usage of theory of computer science (theory of information),  
usage of theory of information work organization,  
usage of theory of documentary information sources,  
usage of theory of analytical-synthetical processing  
of documentary information sources,  
usage of theory of information search,  
usage of theory of information service,  
usage of theory of technical means of information processes support,  
usage of theory of cognitive modeling technology  
in applications of computer science (theory of information);

*the applied scientific researches in area “Applications of cognitive computer science” (\*)* – usage of theory of modified stratified-step model of perception (psycho-physiology of perception), processing (cognitive psychology) and understanding (cognitive linguistics) of information fragments content, usage of theory of cognitive modeling technology in technical, economical, physical-mathematical and other sciences, usage of theory of parametrical cognitive models block for the system analysis of information-educational environments (cognitive models of subject of training and means of training), usage of theory of parametrical cognitive models block for the financial analysis of (credit) organizations and enterprises (cognitive models for the vertical, horizontal and trend financial analysis of managing subjects of economical system), usage of theory of parametrical cognitive models block for the difficult analysis of difficult objects, processes and phenomena, usage of theory of ways of representation of structure of cognitive models and difficult problem environments: formal classical of the 0<sup>th</sup> generation (logical and production models), nonformal classical of the 0<sup>th</sup> generation (semantic network, frame network and ontology), formal new of the 0<sup>th</sup> generation (calculus of theory of sets and corteges on domains and innovative calculus of theory of sets and graphs), nonformal new of the 0<sup>th</sup> generation (multilevel structural scheme and multilevel encapsulated pyramids combining theory of graphs and theory of sets), flat of the 1<sup>st</sup> generation (cognitive circle and cognitive disc), volumetric of the 1<sup>st</sup> generation (cognitive cylinder, cognitive cone and cognitive sphere), flat and volumetric of the 2<sup>nd</sup> generation (one-, two-, three-, four-, five- and more cognitive circle, cognitive disc, cognitive cylinder, cognitive cone and cognitive sphere), hybrid of the 3<sup>rd</sup> generation (combinations of the existing cognitive models), usage of theory of adaptive automation means of information-educational environment (basic and applied diagnostic module, electronic textbook, laboratory practical work, electronic dean, electronic library and others), usage of theory of technical means of adaptive information interaction support (adaptive representation of sequence of information fragments processor, question-answers structures sequence processing processor, linguistical processor and others processors), usage of theory of technical means of the financial analysis support (automation means of forming of working plan of accounts based on normative-regulated plan of accounts of accounting, automation means of forming of accounting balance and report on profits and losses of (credit) organization, automation means of the vertical, horizontal and trend financial analysis based on analytical coefficients system), usage of theory of technical means of the complex analysis support (automation means of forming and research of cognitive circle, cognitive disc, cognitive cylinder, cognitive cone, cognitive sphere, one-, two-, tree-, fore-, five- and more cognitive sphere and others);

*the applied scientific researches in area "Applications of cybernetics"* – usage of theory of automatic control systems, usage of theory of modeling, usage of theory of cybernetic control systems, usage of theory of information, usage of theory of artificial intelligence, usage of theory of final automatic devices and formal languages, usage of theory of reliability of objects, processes and systems, usage of theory of the system analysis of objects, processes and phenomena, usage of theory of cognitive modeling technology in applications of cybernetics;

*the applied scientific researches in area "Applications of automatics and computer engineering"* – usage of theory of automatic control, usage of theoretical bases of programming, usage of theory of computer engineering, usage of theory of elements, units and devices of automatics and computer engineering, usage of theory of input-output devices, usage of theory of memory devices, usage of theory of technology and equipment for manufacture of means of automatics and computer engineering, usage of theory of keyboard and calculating-tabulating machines, usage of theory of analog computers (APC), usage of theory of digital computers and computer complexes (DPC), usage of theory of analog-digital (hybrid) computers and computer complexes, usage of theory of computer centres (PCC), usage of theory of computer networks (PCN), usage of theory of software of computers, complexes and networks, usage of theory of automatic measurement, regulation and control systems, usage of theory of systems of tele-control and tele-measurement, usage of theory of automated control systems of technological processes (technological stages), usage of theory of automated systems of organizational management, usage of theory of automation of designing and scientific researches, usage of theory of cognitive modeling technology in applications of automatics and computer engineering;

*the applied scientific researches in area "Applications of data transmission and connection"* – usage of theory of data transmission and connection, usage of theory of designing and constructing of connection devices, usage of theory of technology and equipment for assembly and adjustment of connection equipment, systems of data transmission, communication lines, multichannel connection, networks and communication centres, services and services of connection, usage of theory of telegraph (cable) connection and equipment, usage of theory of systems and equipment of data transmission, usage of theory of tele-information services and equipment, usage of theory of tele-communication and equipment, usage of theory of systems of transfer of moving images and sound, usage of theory of facsimile connection and equipment, usage of theory of radio-communication and radio-broadcasting, usage of theory of hyper-optic (LED) connection and equipment, usage of theory of television (TV), usage of theory of optical connection in free space and equipment, usage of theory of post connection, usage of theory of cognitive modeling technology in applications of data transmission and connection].

II. “The applied scientific researches department  
 “The applications of the mathematics, mathematical physics, mechanics,  
 metrology, astronomy, space researches,  
 complex system analysis based on cognitive modeling technology  
 and complex problems of natural sciences” (“SMMF”) (\*)  
*[the applied scientific researches in area  
 “Applications of mathematics”* – usage of theory of mathematical logic and applied bases of mathematics, usage of theory of numbers, usage of theory of algebra, usage of theory of topology, usage of theory of geometry, usage of theory of the mathematical analysis, usage of theory of valid variables functions, usage of theory of complex variables functions, usage of theory of ordinary differential equations, usage of theory of differential equations with private derivatives, usage of theory of integrated equations, usage of theory of mathematical models in natural and technical sciences, usage of theory of mathematical physics equations, usage of theory of variation calculation, usage of mathematical theory of optimum control, usage of theory of the functional analysis, usage of theory of calculating mathematics, usage of theory of probability and mathematical statistics, usage of theory of the combinatory analysis, usage of theory of graphs, usage of theory of mathematical cybernetics, usage of theory of cognitive modeling technology in applications of mathematics;  
*the applied scientific researches in area  
 “Applications of mathematical physics”* (\*) – usage of theory of general problems of mathematical physics, usage of theory of mathematical models of physics of elementary particles, usage of theory of fields (united theory of field), usage of theory of mathematical models of high energy physics, usage of theory of nuclear physics, usage of theory of physics of gases and liquids, usage of theory of mathematical models of thermos-dynamics and statistical physics, usage of theory of physics of firm bodies, usage of theory of physics of plasma, usage of theory of physics of atom and molecule, usage of theory of optics, usage of theory of physics of lasers, usage of theory of radio-physics, usage of theory of mathematical models of physical bases of electronics, usage of theory of acoustics (theory of distribution of waves in environment), usage of theory of cognitive modeling technology in applications of mathematical physics, usage of theory of cognitive models of interaction between elementary particles and firm bodies, fields, liquids and gases, usage of theory of cognitive model of modified volumetric planetary model of atom named after N.H.D. Bor, usage of theory of cognitive models of temperature areas of plasma of atom and molecule, usage of theory of cognitive model of optical environment of eye, usage of theory of cognitive model of acoustical environment of ear, usage of theory of cognitive model of waves distribution in environment;

*the applied scientific researches in area “Applications of mechanics” (\*)* – usage of theory of general tasks and methods of mechanics, usage of theory of mechanics of liquid and gas, usage of theory of mechanics of deformable firm body, usage of theory of complex and special sections of mechanics, usage of theory of cognitive modeling technology in applications of mechanics, usage of theoretical bases of formation of parametrical cognitive models block for the complex system analysis of objects, processes and phenomena of mechanics, usage of theory of ways of representation of structure of cognitive models and difficult problem environments (formal and non-formal classical and new of the 0<sup>th</sup> generation, flat and volumetric of the 1<sup>st</sup> generation and the 2<sup>nd</sup> generation and hybrid of the 3<sup>rd</sup> generation), usage of theory of adaptive automation means of research of objects, processes and phenomena of mechanics, usage of theory of technical means of support of research of objects, processes and phenomena of mechanics, usage of theory of technical means of support of the complex system analysis of difficult objects, processes and phenomena of mechanics (automation means of forming and research based on cognitive circle, cognitive disc, cognitive cylinder, cognitive cone, cognitive sphere, one-, two-, tree-, fore-, five- and more cognitive sphere and others);

*the applied scientific researches in area “Applications of mechatronics (theory of hygroscope engineering)”* – usage of theoretical bases, general tasks and methods of mechatronics, usage of theory of general mechatronics, usage of theory of mechatronics of liquid and gas, usage of theory of mechatronics of deformable firm body, usage of theory of complex and special sections of mechatronics, usage of theory of automation means and devices of mechatronics, usage of theory of cognitive modeling technology in applications of mechatronics (theory of hygroscope engineering);

*the applied scientific researches in area “Applications of metrology (theory of measurement)”* – usage of theory of scientific bases and technical means of metrology and metrological support, usage of theory of state, national and international systems and services of metrology, usage of theory of measurement of separate sizes and characteristics, usage of theory of standard samples of structure and properties of substances and materials, usage of theory of cognitive modeling technology in applications of metrology (theory of measurement);

*the applied scientific researches in area “Applications of astronomy” (\*)* – usage of theory of astronomy, usage of theory of heavenly mechanics, usage of theory of astrometry, usage of theory of astrophysics of The Solar system, The Sun, stars, fogs, interstellar environment and star systems, usage of theory of cosmology, usage of theory of observatories, tools, devices and methods of astronomical supervisions, usage of theory of cognitive modeling technology in applications of astronomy, usage of theory of cognitive models of relative positioning of 1, 2, 3, 4, 5 and more planets and satellites, The Earth, The Sun and others);



*the applied scientific researches in area "Applications of space researches"* – usage of theory of devices and methods of applied scientific researches of space environment, usage of theory of planning and realization of starts of space vehicles and artificial heavenly bodies, usage of theory of uncontrol movement of space vehicles and artificial heavenly bodies, usage of theory of control of movement of space vehicles and artificial heavenly bodies, usage of theory of space technics and technology, usage of theory of space safety and medical-biological problems of space flights, usage of theory of usage space systems for connection and navigation, usage of theory of problems of development of extraterrestrial territories and prospects of astronautics, usage of theory of applied scientific researches of astronomical objects by space means, usage of theory of geo-physical applied scientific researches by space means, usage of theory of research of The Earth from space, usage of theory of cognitive modeling technology in applications of space researches;

*the applied scientific researches in area "Applications of the complex system analysis" (\*)* – usage of theory of tendencies, dependences and laws of the complex system analysis of objects, processes and phenomena, usage of theory of cognitive modeling technology with dynamic cloning, verification and subverification, usage of theory of iterative cycle and technique of use of cognitive modeling technology for the complex system analysis of difficult objects, processes and phenomena, usage of theory of parametrical cognitive models block for the complex system analysis and increase of efficiency of functioning of difficult objects, processes and phenomena, usage of theory of structure of cognitive models of the 0, 1, 2 and 3 generations, usage of theory of ways of representation of structure of cognitive models and difficult problem environments (formal and nonformal classical and new of the 0<sup>th</sup> generation, flat and volumetric of the 1<sup>st</sup> generation and the 2<sup>nd</sup> generation, hybrid of the 3<sup>rd</sup> generation), usage of theory of algorithms of formation of difficult cognitive models of the 0<sup>th</sup>, 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> generations, usage of theory of techniques of research of parameters of difficult cognitive models of the 0<sup>th</sup>, 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> generations, usage of theory of algorithms of a posteriori data processing of the complex system analysis of problem spheres, usage of theory of software for automation of research tasks, usage of theory of statistical substantiation of practical use of received results, usage of theory of factors influencing to efficiency of functioning of difficult objects, processes and phenomena, usage of theory of organization and plan of carrying out of experiment, usage of theory of research of cognitive models parameters, usage of theory of preliminary processing of a posteriori results of diagnostics, usage of theory of choice of methods of the statistical analysis of generated data sets, usage of theory of analysis of dynamics of productivity of training, usage of theory of dispersion, regression, discriminant, cluster analysis, multivariate scaling, factor analysis, bibliographical lists, usage of theory of the applied complex system analysis of basic rocket engine, the first, the second, the third and the fourth rocket engine of the launch vehicle, multivariate coded device, modified model of reduced eye for research of visual acuity, field of vision, color perception and other parameters in space of 2 and 3 coordinates, modified model of reduced ear for research of absolute sensitivity and thresholds of sensitivity in space of 2 and 3 coordinates, chemical element with 1-, 2-, 3-, 4-, 5- and more nucleus, difficult multivariate hurricane.

The applied scientific researches directions and departments of "The SIO "ACNS" allow to develop the main and derivative scientific results of CMT.

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THE APPLIED SCIENTIFIC RESEARCHES DIRECTION

“COGNITIVE MODELING IN THE NATURAL SCIENCES” (“NEN”)  
OF “THE SIO "ACADEMY OF COGNITIVE NATURAL SCIENCES"” (PART 2)

The developed “The applied scientific researches direction “Cognitive modeling in the natural sciences”” (“NEN”) treats to the applied scientific researches divisions of “The SIO "Academy of cognitive natural sciences"” (“The SIO "ACNS"”) as main component of science and education system of the modern country for creation, distribution and use of the main and derivative scientific results of the cognitive modeling technology (CMT) (www.vetrovan.(spb.)ru) [see the applied scientific researches directions and departments of “The SIO "ACNS"”]:

- 1) it is executed by the principle of “administrative-economy submission”;
- 2) works in several main directions, which allow to provide development of the applied main and derivative scientific results (my second report on SRW from 2006-2008(9) y. was submitted to “The SPbSETU "LETI"” and The Government of The RF for the translation, carrying out of int. action and receiving of “The Nobel Prize”);
- 3) includes several various main divisions:

III. “The applied scientific researches department “The applications of the geochemical ecology and preservation of environment”” (“SNOS”)  
*[the applied scientific researches in area “Applications of preservation of environment and ecology”* – usage of theory of methods of studying of preservation of environment of person and animals, usage of theory of ecological bases of use of natural resources, usage of theory of international cooperation, usage of theory of studying of environmental contamination of person and animals, usage of theory of control of pollution and protection of atmosphere, waters of land, seas and oceans, usage of theory of protection of soils and bowels, usage of theory of ecological bases of ability to live of organic individuals, usage of theory of studying of influence of anthropogenous changes of environment on health and activity of organic individuals, on condition of natural ecosystems, populations and organisms of vegetative and generative world, usage of theory of protection of vegetative and generative world of person and animals, usage of theory of studying of anthropogenous influence on landscape, usage of theory of protection and optimization of landscape, usage of theory of nature reserve, usage of theory of protected natural territories and water areas, usage of theory of nature acts and anthropogenous origin accidents, usage of theory of ecological safety, usage of theory of rational use and reproduction of natural resources, usage of theory of preservation of environment and natural resources in separate regions and countries, usage of theory of waste management, usage of theory of small waste and without waste technology, usage of theory of organic individuals protection against noise, vibration, electric and magnetic fields and radiations, usage of theory of cognitive modeling technology in applications of preservation of environment and ecology].

IV. “The applied scientific researches department “The applications of the models of The Earth and The Solar system planets in the geography, geology, geodesy and cartography, astronomy and other sciences”” (“SNZ”) (\*)  
*the applied scientific researches in area*  
**“Applications of geography”** – usage of theory of geography, usage of theory of historical geography, usage of theory of military geography, usage of theory of physical geography, usage of theory of economical and social geography, usage of theory of country (regional) geography, usage of theory of medical geography, usage of theory of toponymics, usage of theory of cognitive modeling technology in applications of geography;  
*the applied scientific researches in area*  
**“Applications of geology”** – usage of theory of lithology, usage of theory of tectonics, usage of theory of geological-geo-physical researches of deep structure of The Earth, usage of theory of regional geology, usage of theory of planetology, usage of theory of stratigraphy, usage of theory of paleontology, usage of theory of geo-chemistry, usage of theory of mineralogy, usage of theory of petrography, usage of theory of experimental and technical mineralogy and petrography, usage of theory of methods of mineralogical-petrographical and geo-chemical laboratory researches, usage of theory of anthropogenic period, usage of theory of neo-tectonics, usage of theory of geo-morphology, usage of theory of geology of ore minerals, usage of theory of geology of nonmetallic minerals, usage of theory of geology of fields of oil, gas and its condensates, usage of theory of geology of deposits of coal, bituminous breeds and peat, usage of theory of methods of search and investigation of deposits of minerals, usage of theory of technics and technology of geological-prospecting works, usage of theory of hydro-geology, usage of theory of engineering geology, usage of theory of frozen condition of ground, usage of theory of cognitive modeling technology in applications of geology;  
*the applied scientific researches in area*  
**“Applications of geodesy and cartography”** – usage of theory of supreme geodesy, usage of theory of geodesy, usage of theory of aerial photograph and photogrametry, usage of theory of topography, usage of theory of photo-topography, usage of theory of cartography, usage of theory of selenodesy, usage of theory of planetodesy, usage of theory of mapping of The Moon and planets, usage of theory of cognitive modeling technology in applications of geodesy and cartography;  
*the applied scientific researches in area*  
**“Applications of astronomy” (\*)** – usage of theory of astronomy, usage of theory of heavenly mechanics, usage of theory of astrometry, usage of theory of astro-physics of The Solar system, The Earth, The Sun, stars, fogs, interstellar environment and star systems, usage of theory of cosmology, usage of theory of observatories, tools, devices and methods of astronomical supervision, usage of theory of cognitive modeling technology in applications of astronomy, usage of theory of cognitive models of gravitational and other interactions between 1, 2, 3, 4, 5 - and more artificial space objects, satellites, planets, The Earth and The Sun, usage of theory of cognitive models of work of basic rocket engine, the first, the second, the third and the fourth rocket engine of the launch vehicle and others].

The applied scientific researches directions and departments of “The SIO “ACNS”” allow to develop the main and derivative scientific results of CMT.

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#### THE APPLIED SCIENTIFIC RESEARCHES DIRECTION

“COGNITIVE MODELING IN THE NATURAL SCIENCES” (“NEN”)  
OF “THE SIO "ACADEMY OF COGNITIVE NATURAL SCIENCES”” (PART 3)

The developed “The applied scientific researches direction  
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treats to the applied scientific researches divisions  
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[see the applied scientific researches directions and departments of “The SIO "ACNS””]:  
1) it is executed by the principle of “administrative-economy submission”;  
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for the translation, carrying out of int. action and receiving of “The Nobel Prize”);  
3) includes several various main divisions:  
V. “The applied scientific researches department  
"The applications of the models, methods and technologies of the geology  
of oil and gas and oil and gas industry”” (“SNG”)  
*[the applied scientific researches in area  
“Applications of geology of oil and gas”* –  
usage of theory of lithology, usage of theory of tectonics,  
usage of theory of geological-geo-physical researches of deep structure of The Earth,  
usage of theory of regional geology of deposits,  
usage of theory of planetology, usage of theory of stratigraphy,  
usage of theory of paleontology, usage of theory of geo-chemistry,  
usage of theory of mineralogy, usage of theory of petrography,  
usage of theory of experimental and technical mineralogy and petrography  
of oil, natural and passing gas,  
usage of theory of methods of laboratory  
of mineral-petrographical and geo-chemical researches,  
usage of theory of antropogen period, usage theory of neo-technics,  
usage of theory of geo-morphology,  
usage of theory of geology of fields of oil, gas and its condensates,  
usage of theory of methods of search and investigation of fields of oil and gas,  
usage of theory of technics and technology of geological-prospecting works,  
usage of theory of hydro-geology, usage of theory of engineering geology of oil and gas,  
usage of theory of frozen condition of ground of deposits,  
usage of theory of cognitive modeling technology  
in applications of geology of oil and gas;

*the applied scientific researches in area  
“Applications of oil and gas industry”* –  
usage of theory of processes and devices of oil and gas technology,  
usage of theory of oil and gas raw material,  
usage of theory of technology of nonorganic substances  
and products of oil, natural and passing gas,  
usage of theory of technology of fertilizers production from oil and gas,  
usage of theory of technology of production of silicate and refractory  
nonmetallic materials from oil and gas,  
usage of theory of industrial organic synthesis,  
usage of theory of industrial synthesis  
of organic dyes and pigments from oil and gas,  
usage of theory of technology of production  
of photographic materials from oil and gas,  
usage of theory of technology of protection against explosions  
and means of chemical protection of oil and gas technology,  
usage of theory of technology of production  
of chemical-pharmaceutical means from oil, natural and passing gas,  
usage of theory of technology of production of fragrant substances from oil and gas,  
usage of theory of technology of production  
of pesticides and disinfectant substances from oil, natural and passing gas,  
usage of theory of technology of refining of oil, natural and passing gases  
and its condensates, its products and analogues,  
motor fuel and lubricants from oil and gas,  
usage of theory of technology of production  
of natural high-molecular compounds from oil, natural and passing gas,  
usage of theory of technology of production  
of synthetic high-molecular compounds from oil and gas,  
usage of theory of technology of production  
of plastics, rubbers and products from oil, natural and passing gas,  
usage of theory of technology of production  
of paint-varnish materials and organic coverings from oil and gas,  
usage of theory of technology of production  
of chemical fibers and strings from oil and gas,  
usage of theory of technology of production  
of chemical reactants and especially clean substances from oil and gas,  
usage of theory of technology of production  
of household chemical goods and auxiliary materials  
from oil, natural and passing gas,  
usage of theory of cognitive modeling technology  
in applications of oil and gas industry].

VI. “The applied scientific researches department “The applications of the system analysis based on cognitive modeling technology, prediction, standardization, unification and complex problems of exact technical sciences”” (“SSAP”) (\*)  
*“the applied scientific researches in area “Applications of the system analysis” (\*)* – usage of theory of tendencies, dependences and laws of the system analysis of objects, processes and phenomena, usage of theory of cognitive modeling technology with dynamic cloning, verification and subverification, usage of theory of iterative cycle and technique of use of cognitive modeling technology, usage of theory of parametrical cognitive models block for the system analysis of information-educational environments and increase of efficiency of functioning of automated training system with properties of adaptation based on cognitive models (cognitive models of subject of training and means of training), usage of theory of ways of representation of structure of cognitive models and difficult problem environments: formal classical of the 0<sup>th</sup> generation (logical and production models), nonformal classical of the 0<sup>th</sup> generation (semantic network, frame network and ontology), formal new of the 0<sup>th</sup> generation (calculus of theory of sets and corteges on domains and innovative calculus of theory of sets and graphs), nonformal new of the 0<sup>th</sup> generation (multilevel structural scheme and multilevel encapsulated pyramids combining theory of graphs and theory of sets), flat of the 1<sup>st</sup> generation (cognitive circle and cognitive disc), volumetric of the 1<sup>st</sup> generation (cognitive cylinder, cognitive cone and cognitive sphere), flat and volumetric of the 2<sup>nd</sup> generation (one-, two-, three-, four-, five- and more cognitive circle, cognitive disc, cognitive cylinder, cognitive cone and cognitive sphere), hybrid of the 3<sup>rd</sup> generation (combinations of the existing cognitive models), usage of theory of algorithm of formation of cognitive model structure, usage of theory of technique of research of cognitive model parameters, usage of theory of algorithm of analysis of a posteriori results of research, usage of theory of adaptive automation means of information-educational environment (basic and applied diagnostic module, electronic textbook, laboratory practical work, electronic dean, electronic library and others), usage of theory of technical means of adaptive information interaction support (adaptive representation of sequence of information fragments processor, question-answers structures sequence processing processor, linguistic processor and other processors), usage of theory of statistical substantiation of practical use of received results, usage of theory of factors influencing to efficiency of knowledge formation in information-educational environment and increase of productivity of functioning of difficult objects, processes and phenomena, usage of theory of organization and plan of carrying out of experiment for research of parameters of parametrical cognitive models block, usage of theory of preliminary processing of a posteriori results of diagnostics, usage of theory of choice of methods of statistical analysis of generated data sets, usage of theory of analysis of dynamics of productivity of training, usage of theory of dispersion, regression, discriminant, cluster analysis, multivariate scaling, factor analysis, bibliographical lists;  
*the applied scientific researches in area “Applications of standardization”* – usage of theory of systems and services of standardization, usage of theory of scientific-methodological support of systems and services of standardization, usage of theory of cognitive modeling technology in applications of standardization”];  
 The applied scientific researches directions and departments of “The SIO “ACNS”” allow to develop the main and derivative scientific results of CMT.

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#### THE APPLIED SCIENTIFIC RESEARCHES DIRECTION

“COGNITIVE MODELING IN THE NATURAL SCIENCES” (“NEN”)  
OF “THE SIO "ACADEMY OF COGNITIVE NATURAL SCIENCES”” (PART 4)

The developed “The applied scientific researches direction  
"Cognitive modeling in the natural sciences"” (“NEN”)  
treats to the applied scientific researches divisions  
of “The SIO "Academy of cognitive natural sciences”” (“The SIO "ACNS””)  
as main component of science and education system of the modern country  
for creation, distribution and use of the main and derivative  
scientific results of the cognitive modeling technology (CMT) (www.vetrovan.(spb.)ru)  
[see the applied scientific researches directions and departments of “The SIO "ACNS””]:

1) it is executed by the principle of “administrative-economy submission”;  
2) works in several main directions, which allow to provide  
development of the applied main and derivative scientific results  
(my second report on SRW from 2006-2008(9) y. was submitted  
to “The SPbSETU "LETI”” and The Government of The RF  
for the translation, carrying out of int. action and receiving of “The Nobel Prize”);  
3) includes several various main divisions:

VII. “The applied scientific researches department  
"The applications of the theoretical and experimental  
physics, geo-physics, power engineering, electrical engineers, electronics and radio engineering,  
nuclear physics, technics and instrument making”” (“SF”) (\*)

*the applied scientific researches in area  
“ Applications of physics ” (\*)* –

usage of theory of general problems of physical experiment,  
usage of theory of physics of elementary particles,  
usage of theory of fields (united theory of field),  
usage of theory of high energy physics, usage of theory of nuclear physics,  
usage of theory of physics of gases and liquids,  
usage of theory of thermos-dynamics and statistical physics,  
usage of theory of physics of firm bodies, usage of theory of physics of plasma,  
usage of theory of physics of atom and molecule,  
usage of theory of optics, usage of theory of laser physics,  
usage of theory of radio-physics,  
usage of theory of physical bases of electronics, usage of theory of acoustics,  
usage of theory of cognitive modeling technology  
in applications of physics,  
usage of theory of cognitive models of interaction between  
elementary particles and firm bodies, fields, liquids and gases,  
usage of theory of cognitive model of modified  
volumetric planetary model of atom named after N.H.D. Bor,  
usage of theory of cognitive models of temperature areas of plasma of atom and molecule,  
usage of theory of cognitive model of optical environment of eye,  
usage of theory of cognitive model of optical environment of ear,  
usage of theory of cognitive model of waves distribution in environment;

*the applied scientific researches in area  
“ Applications of geo-physics ”* –

usage of theory of geo-magnetism in high layers of atmosphere,  
usage of theory of meteorology, usage of theory of climatology,  
usage of theory of oceanography, usage of theory of hydrology of land,  
usage of theory of glaciology, usage of theory of physics of The Earth,  
usage of theory of cognitive modeling technology  
in applications of geo-physics;

*the applied scientific researches in area*  
**"Applications of power engineering"** – usage of theory of power resources, usage of theory of power balance, usage of theory of electrical-power industry, usage of theory of heating-power industry, usage of theory heating engineering, usage of theory of atomic engineering, usage of theory of water-power engineering, usage of theory of gelio-energetics, usage of theory of wind-energetics, usage of theory of direct transformation of energy, usage of theory of cognitive modeling technology in applications of power engineering;

*the applied scientific researches in area*  
**"Applications of electrical engineering"** – usage of theory of electrical-technical engineering, usage of theory of electro-technical materials, usage of theory of electrical machines, usage of theory of electrical devices, usage of theory of transformers, usage of theory of electrical reactors, usage of theory of power electrical condensers, usage of theory of power converting technics, usage of theory of electrical drive, usage of theory of electro-thermics, usage of theory of electrical-welding equipment, usage of theory of wire and cable, usage of theory of electrical isolators, usage of theory of light engineering, usage of theory of electrical-technical equipment of special purpose, usage of theory of cognitive modeling technology in applications of electrical engineering;

*the applied scientific researches in area*  
**"Applications of electronics and radio engineering"** – usage of theoretical bases of electronic technics, usage of theory of radio engineering, usage of theory of materials for electronics and radio engineering, usage of theory of technology and equipment for electronic and radio engineering manufacture, usage of theory of designing and constructing of electronic devices and radio-electronic equipment, usage of theory of electrical-vacuum and discharge devices and units, usage of theory of accelerators of charged particles and plasma, usage of theory of solid-state devices, usage of theory of quantum electronics, usage of theory of holography, usage of theory of crio-electronics, usage of theory of radio-electronical circuits, usage of theory of radio-waves distribution, usage of theory of antennas, usage of theory of wave transports, usage of theory of elements of micro-wave technics, usage of theory of radio-transmission and radio-receiving devices, usage of theory radio-technical systems of sounding, locations and navigation, usage of theory of television technics, usage of theory of record and reproduction of signals, usage of theory of electrical-acoustics (theory of waves distribution in environment), usage of theory of ultra-sonic and infra-sonic technics, usage of theory of infra-red technics, usage of theory of units, details and elements of radio-electronical equipment, usage of theory of devices for radio-technical measurements, usage of theory of systems and units of information display, usage of theory of cognitive modeling technology in applications of electronics and radio engineering;

*the applied scientific researches in area*  
**"Applications of nuclear technics and instrument making" (\*)** – usage of theory of nuclear raw materials and fuel, usage of theory of synthesis of isotopes, usage of theory of isotopes and ionization radiations, usage of theory of nuclear reactors, usage of theory of thermo-nuclear reactors, usage of theory of action of radiations and protection against from them, usage of theory of nuclear explosions, usage of theory of processing of nuclear fuel and waste disposal, usage of theory of cognitive modeling technology in applications of nuclear technics and instrument making, usage of theory of cognitive models of structure of chemical elements with 1, 2, 3, 4, 5 and more nucleus, usage of theory of cognitive model of modified volumetric principle named after W.E. Pauli for studying electronic clouds within limits of power levels, usage of theory of cognitive model of modified planetary model of atom named after N.H.D. Bor and others].



VIII. “The applied scientific researches department “The applications of the (non)organic chemistry, crystallography, mineralogy and chemical industry”” (“SH”) (\*)  
*[the applied scientific researches in area “Applications of chemistry” (\*)* – usage of theory of basic-laboratory chemical equipment and units, usage of theory of physical chemistry, usage of theory of nonorganic chemistry, usage of theory of complex compounds, usage of theory analytical chemistry, usage of theory of organic chemistry, usage of theory of bio-organic chemistry, usage of theory of natural organic compounds and their synthetic analogues, usage of theory of chemistry of high-molecular compounds, usage of theory of biological chemistry, usage of theory of cognitive modeling technology in applications of chemistry, usage of theory of modeling of structure of (non)organic chemical elements and chemical elements with 1-, 2-, 3-, 4-, 5- and more nucleus, usage of theory of research of molecular structure of (non)organic compounds;  
*the applied scientific researches in area “Applications of chemical technology and chemical industry”* – usage of theory of processes and devices of chemical technology, usage of theory of chemical raw material, usage of theory of technology of production of nonorganic substances and products, usage of theory of fertilizers manufacture, usage of theory of technology of production of silicate and refractory nonmetallic materials, usage of theory of industrial organic synthesis, usage of theory of industrial synthesis of organic dyes and pigments, usage of theory of technology of production of photographic materials, usage of theory of technology of production of explosive substances and means of chemical protection, usage of theory of storage and destruction of chemical weapon, usage of theory of technology of production of chemical-pharmaceutical means, usage of theory of technology of production of fragrant substances, usage of theory of technology of production of pesticides and disinfectant substances, usage of theory of processing of natural gases, oil, gas condensate, their products and analogues, motor fuel and lubricants, usage of theory of technology of processing of firm combustible minerals, usage of theory of forestry-chemical manufactures, usage of theory of technology of production of natural high-molecular compounds, usage of theory of technology of production of synthetic high-molecular compounds, usage of theory of technology of production of plastic, usage of theory of technology of production of rubbers and products from them, usage of theory of technology of production of paint-varnish materials and organic coverings, usage of theory of production of technology of chemical fibers and strings, usage of theory of technology of production of chemical reactants and especially clean substances, usage of theory of technology of production of household chemical goods products, usage of theory of technology of production of auxiliary materials, usage of theory of cognitive modeling technology in applications of chemical technology and chemical industry].

The applied scientific researches directions and departments of “The SIO “ACNS”” allow to develop the main and derivative scientific results of CMT.

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THE APPLIED SCIENTIFIC RESEARCHES DIRECTION  
“COGNITIVE MODELING IN THE APPLIED  
TECHNICAL SCIENCES AND TECHNOLOGIES” (“NNT”)  
OF “THE SIO "ACADEMY OF COGNITIVE NATURAL SCIENCES”” (PART 1)

The developed “The applied scientific researches direction “Cognitive modeling in the applied technical sciences and technologies”” (“NNT”) treats to the applied scientific researches divisions of “The SIO "Academy of cognitive natural sciences”” (“The SIO "ACNS””) as main component of science and education system of the modern country for creation, distribution and use of the main and derivative scientific results of the cognitive modeling technology (CMT) (www.vetrovan.(spb.)ru [see the applied scientific researches directions and departments of “The SIO "ACNS””]:

- 1) it is executed by the principle of “administrative-economy submission”;
- 2) works in several main directions, which allow to provide development of the applied main and derivative scientific results (my second report on SRW from 2006-2008(9) y. was submitted to “The SPbSETU "LETI”” and The Government of The RF for the translation, carrying out of int. action and receiving of “The Nobel Prize”);
- 3) includes several various main divisions:

- I. “The applied scientific researches department “The applications of the mining and metallurgy”” (“SGM”)  
*[the applied scientific researches in area “Applications of mining” – usage of theory of technics and technology of development of deposits of firm minerals, usage of theory of development of deposits of ores and ferrous metals, usage of theory of development of deposits of ores and looses of color and rare metals and diamonds, usage of theory of development of deposits of coal and combustible slates, usage of theory of development of deposits of peat, usage of theory of development of deposits of building and road materials, fire-resistant, ceramic, glass and mineral technical raw material, usage of theory of development of deposits of chemical and agricultural-chemical raw material and salts, usage of theory of development of deposits of precious and ornamental stones, usage of theory of enrichment of minerals, usage of theory of development of oil and gas deposits, usage of theory of cognitive modeling technology in applications of mining; the applied scientific researches in area “Applications of metallurgy” – usage of theory of metallurgical processes, usage of theory of metallurgical heating engineering, usage of theory of ferrous metals and alloys manufacture, usage of theory of nonferrous metals and alloys manufacture, usage of theory of powder metallurgy, usage of theory of semiconductors metallurgy, usage of theory of rolling manufacture, usage of theory of drawing and hardware manufacture, usage of theory of pipes manufacture, usage of theory of metallurgical science, usage of theory of the technical analysis in metallurgy, usage of theory of cognitive modeling technology in applications of metallurgy]*.

II. “The applied scientific researches department  
“The applications of the sciences about forestry and wood processing” (“SNL”)  
*[the applied scientific researches in area*  
*“Applications of forestry and wood processing industry”* – usage of theory of wood science, usage of theory of forestry-cutting works, usage of theory of wood transportation, usage of theory of forestry-timber works, usage of theory of technology and equipment for wood processing, usage of theory of technology of forestry sawmill manufacture, usage of theory of technology of manufacture of joiner-building products, usage of theory of technology of manufacture of plywood and plates, usage of theory of technology of manufacture of blocks, usage of theory of technology of manufacture of furniture, usage of theory of technology of manufacture of matches, usage of theory of technology of manufacture of wooden container, usage of theory of technology of special wood processing manufactures, usage of theory of technology of pulp-paper industry, usage of theory of cognitive modeling technology in applications of forestry and wood processing industry;  
*the applied scientific researches in area*  
*“Applications of forestry economy”* – usage of theory of wood-economy biology, usage of theory of soil science, usage of theory of agriculture, usage of theory of wood-economy melioration, usage of theory of agro-chemistry, usage of theory of plant science, usage of theory of wood-economy plants protection, usage of theory of animal industry, usage of theory of veterinary science, usage of theory of preparation of wood economy production, usage of theory of hunting and hunting economy, usage of theory of forestry economy, usage of theory of economics and organization of wood economy, usage of theory of mechanization and electrification of wood economy, usage of theory of cognitive modeling technology in applications of forestry economy ] .

The applied scientific researches directions and departments of “The SIO “ACNS”” allow to develop the main and derivative scientific results of CMT.

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THE APPLIED SCIENTIFIC RESEARCHES DIRECTION  
“COGNITIVE MODELING IN THE APPLIED  
TECHNICAL SCIENCES AND TECHNOLOGIES” (“NNT”)  
OF “THE SIO "ACADEMY OF COGNITIVE NATURAL SCIENCES”” (PART 2)  
The developed “The applied scientific researches direction  
“Cognitive modeling in the applied technical sciences and technologies”” (“NNT”)  
treats to the applied scientific researches divisions  
of “The SIO "Academy of cognitive natural sciences”” (“The SIO "ACNS””)  
as main component of science and education system of the modern country  
for creation, distribution and use of the main and derivative  
scientific results of the cognitive modeling technology (CMT) (www.vetrovan.(spb.)ru)  
[see the applied scientific researches directions and departments of “The SIO "ACNS””]:  
1) it is executed by the principle of “administrative-economy submission”;  
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to “The SPbSETU "LETI”” and The Government of The RF  
for the translation, carrying out of int. action and receiving of “The Nobel Prize”);  
3) includes several various main divisions:  
III. “The applied scientific researches department  
“The applications of the noo-sphere knowledge and technologies:  
the (heavy) mechanical engineering, instrument making, polygraphy,  
reprography and foto-cinema-technics, easy and food-processing industry,  
transport, architecture, construction and other branches”” (“SNZI”) (\*)  
*[the applied scientific researches in area  
“Applications of mechanical engineering”* –  
usage of theory of machine engineering science and details of machines,  
usage of theory of mechanical engineering materials,  
usage of theory of technology of mechanical engineering,  
usage of theory of foundry production,  
usage of theory of forge-stamp manufacture,  
usage of theory of assembly manufacture, usage of theory of cutting of materials,  
usage of theory of electrical-physical-chemistry processing,  
usage of theory of thermal and strengthening powder materials,  
usage of theory of manufacture of nonmetallic products,  
usage of theory of machine-tool construction, usage of theory of robotics,  
usage of theory of tool manufacture,  
usage of theory of mining mechanical engineering,  
usage of theory of metallurgical mechanical engineering,  
usage of theory of reactor construction, usage of theory of turbine construction,  
usage of theory of special power installations,  
usage of theory of chemical and oil mechanical engineering,  
usage of theory of locomotive construction and carriage building,  
usage of theory of engine construction, usage of theory of motor car industry,  
usage of theory of shipbuilding, usage of theory of aircraft construction,  
usage of theory of space technics and rocket production,  
usage of theory of hoisting-transport mechanical engineering,  
usage of theory of building and road mechanical engineering,  
usage of theory of municipal mechanical engineering,  
usage of theory of tractor and agricultural mechanical engineering,  
usage of theory of mechanical engineering for light industry,  
usage of theory of polygraphic mechanical engineering,  
usage of theory of mechanical engineering for food-processing industry,  
usage of theory of mechanical engineering for trade and public catering,  
usage of theory of household machines and devices, usage of theory of manufacture of weapon,  
usage of theoretical bases of other mechanical engineering branches,  
usage of theory of cognitive modeling technology  
in applications of mechanical engineering;

*the applied scientific researches in area "Applications of instrument making"* – usage of theoretical bases of instrument making, usage of theory of general technology of production and equipment in instrument making, usage of theory of designing and constructing of devices, usage of theory of devices for measurement of electric and magnetic sizes, usage of theory of devices for measurement of mechanical sizes, usage of theory of devices for measurement of time and frequency, usage of theory of devices for measurement of structure and physical-chemical properties of substances and materials, usage of theory of devices for thermal-technical and thermal-physical measurements, usage of theory of devices for measurement of acoustic sizes and characteristics, usage of theory of devices for measurement of optical and lighting sizes and characteristics, usage of theory of devices for measurement of ionization radiations, usage of theory of devices of not destroying control of products and materials, usage of theoretical bases of general structural elements, units of measuring devices and systems, organizer means, usage of theory of cognitive modeling technology in applications of instrument making;

*the applied scientific researches in area "Applications of polygraphy, reprography and photo-cinema-technics"* – usage of theory of polygraphy, reprography and photo-cinema-technics, usage of theory of cognitive modeling technology in applications of polygraphy, reprography and photo-cinema-technics;

*the applied scientific researches in area "Applications of light industry"* – usage of theory of textile industry, usage of theory of knitted industry, usage of theory of clothing industry, usage of theory of tanning industry, usage of theory of fur industry, usage of theory of industry of artificial leather and film materials, usage of theory of shoe industry, usage of theory of leather-haberdashery industry, usage of theory of bristle-brush manufacture, usage of theory of accessories manufacture, usage of theory of cognitive modeling technology in applications of light industry;

*the applied scientific researches in area "Applications of food-processing industry"* – usage of theory of food raw material and auxiliary materials, usage of theory of processes and devices of food manufactures, usage of theory of elevator and flour-grinding industry, usage of theory of mixed-fodder industry, usage of theory of baking and macaroni industry, usage of theory of confectionery industry, usage of theory of sugar industry, usage of theory of starched industry, usage of theory of barmy industry, usage of theory of brewing industry, usage of theory of spirituous industry, usage of theory of high-alcohol drinks industry, usage of theory of vinous industry, usage of theory of soft drinks industry, usage of theory of canning, vegetable drying and food-concentrate industry, usage of theory of food-gustatory industry, usage of theory of tobacco industry, usage of theory of meat and bird fancier industry, usage of theory of manufacture of eggs and egg products, usage of theory of dairy industry, usage of theory of creamery industry, usage of theory of cognitive modeling technology in applications of food-processing industry;

*the applied scientific researches in area "Applications of architecture and construction" (\*)* – usage of engineering-theoretical bases of architecture and construction, usage of theory of building materials and products, usage of theory of building constructions, usage of theory of technology of building-installation works, usage of theory of technology of production of building materials and products, machines, mechanisms, equipment and tools, used in construction and industry of building materials, usage of theory of engineering researches in construction, usage of theory of architectural-building designing, usage of theory of regional lay-out, usage of theory of town-planning, usage of theory of objects of construction and engineering support of construction objects, usage of theory of tendencies, dependences and laws in architecture and construction, usage of theory of cognitive modeling technology with dynamic cloning, verification and subverification, usage of theory of iterative cycle and technique of use of cognitive modeling technology, usage of theory of parametrical cognitive models block for architecture and construction (buildings and constructions based on cognitive circle, cognitive disc, cognitive cylinder, cognitive cone and cognitive sphere), usage of theory of ways of representation of structure of cognitive models and difficult problem environments: formal classical of the 0<sup>th</sup> generation (logical and production models), nonformal classical of the 0<sup>th</sup> generation (semantic network, frame network and ontology), formal new of the 0<sup>th</sup> generation (calculus of theory of sets and corteges on domains and innovative calculus of theory of sets and graphs), nonformal new of the 0<sup>th</sup> generation (multilevel structural scheme and multilevel encapsulated pyramids combining theory of graphs and theory of sets), flat of the 1<sup>st</sup> generation (cognitive circle and cognitive disc), volumetric of the 1<sup>st</sup> generation (cognitive cylinder, cognitive cone and cognitive sphere), flat and volumetric of the 2<sup>nd</sup> generation (one-, two-, three-, four-, five- and more cognitive circle, cognitive disc, cognitive cylinder, cognitive cone and cognitive sphere), hybrid of the 3<sup>rd</sup> generation (combinations of the existing cognitive models), usage of theory of algorithm of formation of cognitive model structure, usage of theory of technique of research of cognitive model parameters, usage of theory of algorithm of analysis of a posteriori results of research, usage of theory of adaptive automation means of architecture and construction (automation means of forming and research based on cognitive circle, cognitive disc, cognitive cylinder, cognitive cone, cognitive sphere, one-, two-, three-, four-, five- and more cognitive sphere and others), usage of theory of statistical substantiation of practical use of received results, usage of theory of factors influencing to efficiency of building of buildings and constructions, usage of theory of organization and plan of carrying out of experiment, usage of theory of research of parameters of parametrical cognitive models block, usage of theory of preliminary processing of a posteriori results of diagnostics, usage of theory of choice of statistical analysis methods of generated data sets, usage of theory of analysis of productivity dynamics of construction, usage of theory of dispersion, regression, discriminant, cluster analysis, multivariate scale analysis, factor analysis, bibliographical lists;

*the applied scientific researches in area "Applications of transport"* – usage of theory of railway transport, usage of theory of motor transport, usage of theory of sea transport, usage of theory of air transport, usage of theory of pipeline transport, usage of theory of industrial transport, usage of theory of municipal transport, usage of theory of interaction of different types of transport, usage of theory of mixed transportations, usage of theory of other types of transport, usage of theory of cognitive modeling technology in applications of transport].

IV. “The applied scientific researches department “The applications of the scientific problems of agro-industrial complex”” (“SNPAK”)  
 [*the applied scientific researches in area “Applications of agriculture and hunting economy – usage of theory of agricultural biology, usage of theory of soil science, usage of theory of agriculture, usage of theory of agricultural land improvement, usage of theory of agro-chemistry, usage of theory of plant-growing, usage of theory of agricultural plants protection, usage of theory of animal industries, usage of theory of veterinary science, usage of theory of preparation of production of agriculture, usage of theory of hunting and hunting economy, usage of theory of forestry economy, usage of theory of economics and organization of agriculture, usage of theory of mechanization and electrification of agriculture, usage of theory of cognitive modeling technology in applications of agriculture and hunting economy; the applied scientific researches in area “Applications of fish economy and aqua-culture” – usage of theory of biological resources of The World ocean and internal reservoirs, usage of theory of aqua-culture, usage of theory of fish breeding, usage of theory of industrial fishery, usage of theory of technical operation of fleet of fishing industry, usage of theory of technical operation of fish seaports, usage of theory of technology of processing of raw material of water origin, usage of theory of equipment for fish-processing industry, usage of theory of cognitive modeling technology in applications of fish economy and aqua-culture; the applied scientific researches in area “Applications of water economy” – usage of theory of scientific bases of water economy, usage of theory of water-economy construction, usage of theory of hydraulic engineering and hydro-ameliorative constructions, usage of theory of irrigating and water supply, usage of theory of irrigating systems, usage of theory of drying systems, usage of theory of sewage water, their clearing and use, usage of theory of quality of water, usage of theory of test, measurement, control in water economy, usage of theory of mechanization and automation in water economy, usage of theory of complex use of water resources, usage of theory of cognitive modeling technology in applications of water economy*].

The applied scientific researches directions and departments of “The SIO “ACNS”” allow to develop the main and derivative scientific results of CMT.

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THE APPLIED SCIENTIFIC RESEARCHES DIRECTION  
“COGNITIVE MODELING IN THE GEOPOLITICAL  
SCIENCES AND RESEARCHES” (“NSGI”)

OF “THE SIO "ACADEMY OF COGNITIVE NATURAL SCIENCES””

The developed “The applied scientific researches direction  
“Cognitive modeling in the geopolitical sciences and researches”” (“NSGI”)  
treats to the applied scientific researches divisions  
of “The SIO "Academy of cognitive natural sciences”” (“The SIO "ACNS””)  
as main component of science and education system of the modern country  
for creation, distribution and use of the main and derivative  
scientific results of the cognitive modeling technology (CMT) (www.vetrovan.(spb.)ru)  
[see the applied scientific researches directions and departments of “The SIO "ACNS””]:  
1) it is executed by the principle of “administrative-economy submission”;  
2) works in several main directions, which allow to provide  
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(my second report on SRW from 2006-2008(9) y. was submitted  
to “The SPbSETU "LETI”” and The Government of The RF  
for the translation, carrying out of int. action and receiving of “The Nobel Prize”);  
3) includes several various main divisions:  
I. “The applied scientific researches department  
“The applications of the geo-politics and safety”” (“SGB”)  
*[the applied scientific researches in area  
“ Applications of demography ” –*  
usage of theory and methodology of demographical science,  
usage of theory of general problems of national population,  
usage of theory of statistics of population, usage of theory of history of population,  
usage of theory of historical demography,  
usage of theory of moving of population,  
usage of theory of geographical demography, usage of theory of population of The World,  
usage of theory of cognitive modeling technology  
in applications of demography;  
*the applied scientific researches in area  
“Applications of politics and political sciences” –*  
usage of theory and methodology of political researches,  
usage of theory of history of political doctrines,  
usage of theory of political systems, usage of theory of internal policy,  
usage of theory of international relations,  
usage of theory of foreign (external) politics and diplomacy,  
usage of theory of cognitive modeling technology  
in applications of politics and political sciences;



*the applied scientific researches in area*  
*“Applications of complex studying of separate countries and regions”* – usage of theory of researches of The RF as a particular and The RF as a whole, usage of theory of The North-Western federal district of The RF, usage of theory of The Central federal district of The RF, usage of theory of The Privolgsky federal district of The RF, usage of theory of The Southern federal district of The RF, usage of theory of The Uralian federal district of The RF, usage of theory of The Siberian federal district of The RF, usage of theory of The Far-Eastern federal district of The RF, usage of theory of areas and territories of The former USSR, usage of theory of Baltic countries and Baltic, usage of theory of countries of The CIS of Eastern Europe, usage of theory of countries of The CIS of Zacaucasia, usage of theory of countries of The CIS of Central Asia, usage of theory of Europe as a whole, usage of theory of Western Europe, usage of theory of Southern Europe, usage of theory of Central Europe, usage of theory of Eastern Europe as a whole, usage of theory of Scandinavia and Scandinavian countries, usage of theory of Asia as a whole, usage of theory of Forward Asia, usage of theory of Eastern Asia, usage of theory of Southern Asia, usage of theory of South-Eastern Asia, usage of theory of Central Asia, usage of theory of Near and Middle East, usage of theory of Africa as a whole, usage of theory of Northern Africa, usage of theory of Eastern Africa, usage of theory of Central Africa, usage of theory of Western Africa, usage of theory of Southern Africa, usage of theory of America as a whole, usage of theory of The USA and Canada, usage of theory of Central America, usage of theory of Southern America, usage of theory of Australia and countries of Oceania, usage of theory of polar areas – Arctic and Antarctic areas, usage of theory of surface of The Earth and land, oceans, seas and internal waters, usage of theory of other physical-geographical features of The Earth, usage of theory of cognitive modeling technology in applications of complex studying of separate countries and regions;  
*the applied scientific researches in area*  
*“Applications of problems of space flights”* – usage of theory of use of space systems for connection and navigation, usage of theory of studying of extraterrestrial territories and prospects of astronautics, usage of theory of research of The Earth and astronomical objects by space automation means from space, usage of theory of cognitive modeling technology in applications of problems of space flights].

II. “The applied scientific researches department “The applications of the classical and military history”” (“SVIT”)  
*[the applied scientific researches in area “ Applications of history ” –*  
 usage of theory of general history, usage of theory of history of Azerbaijan,  
 usage of theory of history of Armenia, usage of theory of history of Belorussia,  
 usage of theory of history of Georgia, usage of theory of history of Kazakhstan,  
 usage of theory of history of Kirghizia, usage of theory of history of Moldova,  
 usage of theory of history of The RF, usage of theory of history of Tajikistan,  
 usage of theory of history of Turkmenia, usage of theory of history of Uzbekistan,  
 usage of theory of history of Ukraine,  
 usage of theory of history of separate  
 processes, parties and phenomena of human activity,  
 usage of theory of cognitive modeling technology  
 in applications of history of The RF and countries of near abroad;  
*the applied scientific researches in area*  
***“Applications of history of Ancient world, Ancient Greece and Ancient Rome,  
 history of Medieval Europe, history of The USA, Australia and Oceania,  
 history of Arctic region and Antarctic region, history of The RF, modern history of The USSR,  
 newest history of The RF, history of The Solar system and planets”*** –  
 usage of theory of history of Ancient world, Ancient Greece and Ancient Rome,  
 usage of theory of history of Medieval Europe,  
 usage of theory of history of The USA, Australia and Oceania,  
 usage of theory of history of Arctic region and Antarctic region, usage of theory of history of The RF,  
 usage of theory of modern history of The USSR, usage of theory of newest history of The RF,  
 usage of theory of history of The Solar system and planets,  
 usage of theory of cognitive modeling technology  
 in applications of history of The RF and countries of far abroad].

The applied scientific researches directions and departments of “The SIO “ACNS””  
 allow to develop the main and derivative scientific results of CMT.

Vetrov Anatoly Nikolaevich, author of the unique cognitive modeling technology  
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## THE APPLIED SCIENTIFIC RESEARCHES DIRECTION

### “COGNITIVE MODELING IN THE SOCIETY STEADY DEVELOPMENT OF POSTINDUSTRIAL COUNTRY” (“NURS”)

#### OF “THE SIO "ACADEMY OF COGNITIVE NATURAL SCIENCES””

The developed “The applied scientific researches direction  
“Cognitive modeling in the society steady development  
of postindustrial country”” (“NURS”)  
treats to the applied scientific researches divisions  
of “The SIO "Academy of cognitive natural sciences”” (“The SIO "ACNS””)  
as main component of science and education system of the modern country  
for creation, distribution and use of the main and derivative  
scientific results of the cognitive modeling technology (CMT) (www.vetrovan.(spb.)ru)  
[see the applied scientific researches directions and departments of “The SIO "ACNS””]:  
1) it is executed by the principle of “administrative-economy submission”;  
2) works in several main directions, which allow to provide  
development of the applied main and derivative scientific results  
(my second report on SRW from 2006-2008(9) y. was submitted  
to “The SPbSETU "LETI”” and The Government of The RF  
for the translation, carrying out of int. action and receiving of “The Nobel Prize”);  
3) includes several various main divisions:  
I. “The applied scientific researches department  
“The applications of the complex problems of country development” (“SPUR”) (\*)  
*[the applied scientific researches in area  
“Applications of economical problems of national economy management”* –  
usage of theory of self-financing, usage of theory provision of economical incentives,  
usage of theory of manpower resources,  
usage of theory of cognitive modeling technology  
in applications of economical problems of national economy management;

*the applied scientific researches in area*  
***“Applications of the global philosophical problems, philosophical and methodological problems of sciences and scientific knowledge as a whole” (\*)*** – usage of theory of modern philosophy, usage of theory of dialectical logic, usage of theory of social sciences, usage of theory of modern social philosophy, usage of theory of modern sociology, usage of theory of demography and people population, usage of theory of The World economy and economics, usage of theory of grammar and applied science of language, usage of theory of art and art science, usage of theory of artificial intelligence, usage of theory of biological chemistry, usage of theory of regional geography, usage of theory of economical and social geography, usage of theory of toponymics, usage of theory of astro-physics, usage of theory of pharmacology and chemo-therapy, usage of theory of normal and pathological physiology, usage of theory of genetic engineering, usage of theory of bio-technology, usage of theory of agriculture, usage of theory of medicine and public health services, usage of theory of technical industrial art and ergonomics, usage of theory of preservation of environment, usage of theory of global-ethic and global-esthetic categories and problems, usage of theory of social activity and social problems, usage of theory of sociological problems of printing, TV and radio-broadcasting, usage of theory of influences of anthropogenous changes of environment on health and social-labor potential of population, usage of theory of The World economical development, usage of theory of activity of international economical organizations and associations, usage of theory of economical development and growth, usage of theory of prediction and planning of economics, usage of theory of economical cycles and crises, usage of theory of social and economical problems of development of advanced and less developed countries, usage of theory of economical problems of organization and management of country economy, usage of theory of problems of functioning of market economy and social-economical problems of work, usage of theory of legal problems of environment preservation and ecological law, usage of theory of economical problems of politics, usage of theory of general problems of political systems at socialism in advanced and less developed countries and foreign(external)-political aspects of global problems, usage of theory of problems of war and peace, usage of theory of means of sanction of international conflicts, usage of theory of problems of disarmament and anti-war movement, usage of theory of movement of non-alignment, usage of theory of international, federal, regional and local problems, usage of theory of international terrorism, usage of theory of separate philosophical-theoretical problems of culture, usage of theory of sociological problems of motion picture art, usage of theory of religious consciousness, usage of theory of relation of church and philosophical-theological schools to war and peace problem, usage of theory of philosophy of mutual relations of religion and army, usage of theory of relation of religions and churches to national-liberation movement, national and racial problems,

usage of theory of general problems of physical experiment,  
usage of theory of physical problems of mechanics,  
usage of theory of bio-chemical problems,  
usage of theory of safety problems of biological experiment,  
usage of theory of micro-molecular associations  
and recognition problems in molecular biology,  
usage of theory of general problems of anthropogenesis in paleo-anthropology and archeology,  
usage of theory of general problems of researches of The Sun, The Earth,  
stars, fogs and interstellar environment,  
atmosphere, chromosphere, crown, near stars environments,  
usage of theory of problems of loss of weight of stars and star wind,  
usage of theory of general problems of researches of stars,  
usage of theory of problematic rests,  
usage of theory and problematics of programming for computer networks,  
usage of theory of general problems of automation of designing,  
usage of theory of general problems of researches,  
calculations and designing in mining mechanical engineering,  
usage of theory of general problems of household radio-electronic equipment,  
usage of theory of genetic engineering for decision of bio-degradation problem,  
usage of theory of sociological, demographical  
and psychological problems in construction,  
usage of theory of general problems of land improvement of agricultural grounds,  
usage of theory of social-economical problems in countryside,  
usage of theory of medical problems of space flights,  
usage of theory of political problems of sports and sports single-kinds combats,  
game kinds of sport, kinds of speed-involving-strength sport,  
kinds of complicated-coordinated sport,  
technical kinds of sport and cyclical kinds of sport,  
usage of theory of general problems of war,  
usage of theory of training of staff,  
usage of theory of problems of material interest of workers,  
usage of theory of problems of material-technical supply,  
usage of theory of problems of fire safety,  
usage of theory of information about centres on studying problems of management,  
usage of theory of general problems of prediction,  
usage of theory of role of separate areas of knowledge in decision of problems  
of environment and use of natural resources,  
usage of theory of general problems of international cooperation,  
usage of theory of problems of sorption and auto-purification of waters,  
usage of theory of complex and regional problems  
of protection of waters, bowels, landscape and waste management,  
usage of theory of materials describing research  
of space environment as a whole  
and interrelation of this problem with other sciences and spheres of activity,  
usage of theory of general problems and prospects of development  
of space researches methods, safety  
and medical-biological problems of space flights,  
usage of theory of general problems and principles of work of space connection systems,  
usage of theory of problems of development  
of extraterrestrial territories and prospects of astronautics,  
usage of theory of nonconventional problems of space environment researches,  
usage of theory of cognitive modeling technology  
in applications of global-philosophical problems, philosophical  
and methodological problems of science and scientific knowledge as a whole;

*the applied scientific researches in area “Applications of complex problems of social sciences”* – usage of theory of social-political idea, usage of theory of global problems and work, usage of theory of cognitive modeling technology in applications of complex problems of social sciences;

*the applied scientific researches in area “Applications of general and complex problems of technical and applied sciences and national economy branches”* – usage of theory of materiology (materials science), usage of theory of general technology of production, usage of theory of designing, usage of theory of construction, usage of theory of flexible industrial systems, usage of theory of vacuum technics, usage of theory of cryogenic technics, usage of theory of corrosion and protection against corrosion, usage of theory of welding, usage of theory of optical manufacture, usage of theory of staff, usage of theory of control and management of quality, usage of theory of installation, operation and repair of industrial equipment, usage of theory of material-technical supply, usage of theory of logistics, usage of theory of warehouse economy, usage of theory of container and packing, usage of theory of secondary raw material, usage of theory of fire safety, usage of theory of safety, usage of theory of salvage-rescue services, usage of theory of technical industrial art and ergonomics, usage of theory of protection of information, usage of theory of cognitive modeling technology in applications of general and complex problems of technical and applied sciences and national economy branches;

*the applied scientific researches in area “Applications of general and complex problems of natural and exact sciences”* – usage of theory of materials of general character, usage of theory of scientific and technical societies, conventions, congresses, conferences, symposiums, seminars and exhibitions, usage of theory of classical and modern terminology, usage of theory of reference books and educational literature, usage of theory of cognitive modeling technology in applications of general and complex problems of natural and exact sciences].

The applied scientific researches directions and departments of “The SIO "ACNS"” allow to develop the main and derivative scientific results of CMT.

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THE APPLIED SCIENTIFIC RESEARCHES DIRECTION

“COGNITIVE MODELING IN THE SOCIAL-

ECONOMICAL AND JURISPRUDENTIAL SCIENCES” (“NSEPP”)

OF “THE SIO "ACADEMY OF COGNITIVE NATURAL SCIENCES"” (PART 1)

The developed “The applied scientific researches direction  
" C o g n i t i v e m o d e l i n g i n t h e s o c i a l -  
e c o n o m i c a l a n d j u r i s p r u d e n t i a l s c i e n c e s " ” (“NSEPP”)  
treats to the applied scientific researches divisions  
of “The SIO "Academy of cognitive natural sciences"” (“The SIO "ACNS"”)  
as main component of science and education system of the modern country  
for creation, distribution and use of the main and derivative  
scientific results of the cognitive modeling technology (CMT) (www.vetrovan.(spb.)ru)  
[see the applied scientific researches directions and departments of “The SIO "ACNS"”]:  
1) it is executed by the principle of “administrative-economy submission”;  
2) works in several main directions, which allow to provide  
development of the applied main and derivative scientific results  
(my second report on SRW from 2006-2008(9) y. was submitted  
to “The SPbSETU "LETI"” and The Government of The RF  
for the translation, carrying out of int. action and receiving of “The Nobel Prize”);  
3) includes several various main divisions:  
I. “The applied scientific researches department  
"The applications of the interbranch jurisprudential and economical  
system researches of society and country"” (“SMEESI”)  
*[the applied scientific researches in area  
“Applications of state, law and jurisprudence sciences” –*  
usage of theory of state and law,  
usage of theory of history of state and law,  
usage of theory of history of political and law doctrines,  
usage of theory of constitutional (state) law,  
usage of theory of municipal law, usage of theory of administrative law,  
usage of theory of information law, usage of theory of financial law,  
usage of theory of enterprise law, usage of theory of civil law,  
usage of theory of civil-procedural law (civil process),  
usage of theory of arbitration-procedural law (arbitration process),  
usage of theory of patent law,  
usage of theory of industrial property law,  
usage of theory of copyright and adjacent rights,  
usage of theory of succession law, usage of theory of family law,

usage of theory of agrarian law, usage of theory of law problems of environment preservation, usage of theory of ecological law, usage of theory of ground law, usage of theory of forestry law, usage of theory of water law, usage of theory of aerial protection law, usage of theory of legislations about bowels, usage of theory of legislations about fauna, usage of theory of labor law, usage of theory of social support law, usage of theory of law institutions, usage of theory of criminal law, usage of theory of criminal-procedural law (criminal process), usage of theory of criminology, usage of theory of criminal-executive law, usage of theory of penitentiary, usage of theory of criminalistics, usage of theory of judicial statistics, usage of theory of international law, usage of theory of international private law, usage of theory of state and law of separate countries, usage of theory of cognitive modeling technology in applications of state, law and jurisprudence sciences; *the applied scientific researches in area "Applications of patent business, invention and rationalization work"* – usage of theory of patent-information work, usage of theory of invention and rationalization activity, usage of theory of patent-license work, usage of theory of technical-economical analysis on patent materials, usage of theory of invention law, usage of theory of cognitive modeling technology in applications of patent business, invention and rationalization work; *the applied scientific researches in area "Applications of international economical relations"* – usage of theory of prediction and planning, usage of theory of economical cycles and crises, usage of theory of productive forces and social-economical structure, usage of theory of reproductive structure of economics, usage of theory of accumulation and consumption, usage of theory of well-being, usage of theory of territorial (local), regional (subject of federation), state (federal) and branch structure of economics, usage of theory of cognitive modeling technology in applications of international economical relations].



II. "The applied scientific researches department  
"The applications of the complex problems of micro-(macro-)economics,  
social sphere and market economy of the country" ("SPMSRH")  
*the applied scientific researches in area*  
*"Applications of internal trade and tourist-excursion service"* –  
usage of theory of wholesale trade and retail trade,  
usage of theory of public catering, usage of theory of hotel economy,  
usage of theory of tourist-excursion service,  
usage of theory of cognitive modeling technology  
in applications of internal trade and tourist-excursion service;  
*the applied scientific researches in area*  
*"Applications of external trade"* –  
usage of theory of communication of external trade with manufacture,  
usage of theory of general questions of external trade,  
usage of theory of external trade politics,  
usage of theory of kinds of external trade,  
usage of theory of external trade structure,  
usage of theory of calculations on external trade operations,  
usage of theory of external trade transportations,  
usage of theory of The World commodity markets,  
usage of theory of international agreements about trade,  
usage of theory of international contracts,  
usage of theory of international trading organizations,  
usage of theory of commodity agreements,  
usage of theory of organization and management of external trade,  
usage of theory of cognitive modeling technology  
in applications of external trade;  
*the applied scientific researches in area*  
*"Applications of housing-communal economy,*  
*housekeeping and consumer services"* –  
usage of theory of housing economy,  
usage of theory of communal economy,  
usage of theory of consumer services, usage of theory of housekeeping,  
usage of theory of cognitive modeling technology  
in applications of housing-communal economy,  
housekeeping and consumer services;  
*the applied scientific researches in area*  
*"Applications of insurance"* –  
usage of theory of state social insurance,  
funds of social support and social insurance,  
usage of theory of external trade insurance,  
usage of theory of statistics of social insurance,  
usage of theory of cognitive modeling technology  
in applications of insurance;  
*the applied scientific researches in area*  
*"Applications of investment and investment projects"* –  
usage of theory of concentration of capital,  
usage of theory of financial-industrial groups,  
usage of theory of investment institutes,  
usage of theory of legal bases of investment activity,  
usage of theory of cognitive modeling technology  
in applications of investment and investment projects;  
*the applied scientific researches in area*  
*"Applications of social transport"* –  
usage of theory of social railway transport,  
usage of theory of social motor transport,  
usage of theory of social water transport,  
usage of theory of social air transport,  
usage of theory of social pipeline transport,  
usage of theory of social industrial transport,  
usage of theory of social municipal transport,  
usage of theory of interactions of different kinds of social transport,  
usage of theory of mixed social transportations,  
usage of theory of other kinds of social transport,  
usage of theory of cognitive modeling technology  
in applications of social transport I;  
The applied scientific researches directions and departments of "The SIO "ACNS"  
allow to develop the main and derivative scientific results of CMT.

Vetrov Anatoly Nikolaevich, author of the unique cognitive modeling technology  
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THE APPLIED SCIENTIFIC RESEARCHES DIRECTION  
“COGNITIVE MODELING IN THE SOCIAL-

ECONOMICAL AND JURISPRUDENTIAL SCIENCES” (“NSEPP”)  
OF “THE SIO "ACADEMY OF COGNITIVE NATURAL SCIENCES”” (PART 2)

The developed “The applied scientific researches direction  
“Cognitive modeling in the social-  
economical and jurisprudential sciences”” (“NSEPP”)  
treats to the applied scientific researches divisions  
of “The SIO "Academy of cognitive natural sciences”” (“The SIO "ACNS””)  
as main component of science and education system of the modern country  
for creation, distribution and use of the main and derivative  
scientific results of the cognitive modeling technology (CMT) (www.vetrovan.(spb.)ru)  
[see the applied scientific researches directions and departments of “The SIO "ACNS””]:  
1) it is executed by the principle of “administrative-economy submission”;  
2) works in several main directions, which allow to provide  
development of the applied main and derivative scientific results  
(my second report on SRW from 2006-2008(9) y. was submitted  
to “The SPbSETU "LETI”” and The Government of The RF  
for the translation, carrying out of int. action and receiving of “The Nobel Prize”);  
3) includes several various main divisions:  
III. “The applied scientific researches department  
“The applications of the economics, management,  
sociology, statistics and their other branches”” (“SES”)  
*[the applied scientific researches in area  
“Applications of economics and economical sciences”* –  
usage of economical theory, usage of theory of history of economical idea,  
usage of theory of accounting-economical sciences,  
usage of theory of sciences of management of economics,  
usage of theory of economical history,  
usage of theory of The World economy,  
usage of theory of international economical relations,  
usage of theory of economical development and growth,  
usage of theory of prediction and planning of economics,  
usage of theory of economical cycles and crises,  
usage of theory of productive forces and scientific-technical progress,  
usage of theory of social-economical structure,  
usage of theory of reproductive structure of economics,  
usage of theory of accumulation and consumption, usage of theory of well-being,  
usage of theory of territorial structure of economics,  
usage of theory of regional and municipal economics,  
usage of theory of branch structure of economics,  
usage of theory of financial science, usage of theory of money and tax theories,  
usage of theory of credit-financial institutes (institutional intermediaries),  
usage of theory of economics problems  
of organization and management of country economy,  
usage of theory of self-financing, usage of theory of economical incentives provision,  
usage of theory of economics of labor, usage of theory of manpower resources,  
usage of theory of economics and organization of enterprise,  
usage of theory of management of enterprise,  
usage of theory of cognitive modeling technology  
in applications of economics and economical sciences;

*the applied scientific researches in area "Applications of organization and management"* – usage of theory and methodology of management, usage of theory of state and administrative management, usage of theory of organization of economics management, usage of theory of social management, usage of theory of prediction, usage of theory of futurology, usage of theory of strategical management, usage of theory of strategical planning, usage of theory of cognitive modeling technology in applications of organization and management;

*the applied scientific researches in area "Applications of other branches of economics"* – usage of theory of musical instruments manufacture, usage of theory of fine art products manufacture, usage of theory of jeweler industry, usage of theory of toys manufacture, usage of theory of sports products manufacture, usage of theory of writing goods manufacture, usage of theory of cognitive modeling technology in applications of other branches of economics;

*the applied scientific researches in area "Applications of sociology"* – usage of theory of general problems of modern sociology, usage of theory of methodology of sociology, usage of theory of technique and technics of sociological researches, usage of theory of society as system, usage of theory of social relations and processes, usage of theory of social classes, usage of theory of communities and groups, usage of theory of sociology of social life spheres, usage of theory of social phenomena and institutes, usage of theory of sociology of person and behavior, usage of theory of historical and regional sociology, usage of theory of (applied) sociology, usage of theory of history of sociology, usage of theory of cognitive modeling technology in applications of sociology;

*the applied scientific researches in area "Applications of statistics"* – usage of theory of general statistics, usage of theory of economical statistics, usage of theory of branch statistics, usage of theory of social statistics, usage of theory of international statistics, usage of theory of statistics of separate countries and social-economical systems, usage of theory of organization and management of statistics, usage of theory of methods and technical means of gathering, processing and analysis of statistical information, usage of theory of cognitive modeling technology in applications of statistics].

IV. “The applied scientific researches department  
 ” The applications of the financial analysis,  
 accounting and audit of (credit) organization  
 based on cognitive modeling technology” (“SFABUA”) (\*)  
*[the applied scientific researches in area  
 “Applications of the financial analysis, accounting and audit”* (\*) –  
 usage of theory of general questions of the financial analysis, accounting and audit,  
 usage of theory of tendencies, dependences and laws  
 of the financial analysis of objects, processes and phenomena,  
 usage of theory of system, information and cognitive approaches in economics,  
 usage of theory of structure and dynamics of functioning  
 of financial market of economical system of the country,  
 usage of theory of global purposes of standardization of accounting  
 and problems of unification of accounting documents (primary registers),  
 usage of theory of institutional subjects regulating  
 of creation, distribution and use of international standards,  
 usage of theory of principles of creation, distribution and use  
 of international standards of financial and accounting documents,  
 usage of theory of basic methods of transformation of financial documents  
 prepared under national standards into documents under international standards,  
 usage of theory of formation of accounting balance  
 under international standards of financial documents,  
 usage of theory of qualifying tests of professional participants  
 of financial system of the country,  
 usage of theory of administrative-legal forms of existence of managing subject,  
 usage of theory of features of procedure of the financial analysis of managing subject,  
 usage of theory of enterprise organizational structure and its features  
 (educational establishment of education system and information-educational environment),  
 usage of theory of inflationary depreciation,  
 usage of theory of discounting and compounding  
 of money streams in economical system of the country,  
 usage of theory of indexes of dynamics of financial market and tools,  
 usage of theory of dynamics and communications of managing subjects,  
 usage of theory of investment and innovative politics  
 of managing subject in financial system of the country,  
 usage of theory of organizational, technological, scientific, methodical,  
 normative-legal, information, hardware, software, brainware,  
 raw, warehouse, personnel and economical preparations of manufacture  
 and bases of the financial analysis and quality estimation of activity  
 of credit and other organization,  
 usage of theory of requirements and structure of financial documents  
 of (non)industrial organizational structures,  
 usage of theory of additional elements of accounting  
 and financial documents of credit organization,  
 usage of theory of consumers of financial documents,  
 usage of theory of elements of financial documents connected  
 with changes of financial and economical activity,  
 usage of theory of simple and consolidated accounting and financial documents,  
 usage of theory of methods of the financial analysis of different forms of documents,  
 usage of theory of structure of accounts of the accounting and financial analysis,  
 usage of theory of the vertical, horizontal and trend  
 financial analysis based on analytical coefficients system,  
 usage of theory of circuit of carrying out of auditor check, the financial analysis and audit,  
 usage of theory of external and internal control of activity of different organizations,

usage of theory of kinds of bank operations,  
usage of theory of structure of accounting balance (form №1),  
usage of theory of structure of explanatory note to accounting balance,  
usage of theory of structure of report on profits and losses (form №2),  
usage of theory of structure of explanatory note to report on profits and losses,  
usage of theory of structure of report on change of capital (form №3),  
usage of theory of structure of report on movement of money resources under accounts (form №4),  
usage of theory of structure of explanatory note to report on movement of means,  
usage of theory of structure of appendices to accounting balance (form №5),  
usage of theory of structure of report on target use of received means (form №6),  
usage of theory of structure of auditor conclusion about results of activity of enterprise, (credit) organization, organization of The Federal reserve system The USA,  
usage of theory of analysis of stability of credit organization and commercial bank,  
usage of theory of basic analytical coefficients of the financial analysis,  
usage of theory of structure of accounting balance and report on profits and losses of enterprise for introduction of analytical coefficients system,  
usage of theory of cognitive modeling technology with dynamic cloning, verification and subverification,  
usage of theory of iterative cycle and technique of use of cognitive modeling technology,  
usage of theory of technique of formation of normative-legal and information basis for the financial analysis of organization,  
usage of theory of technique of additional check of information basis of the financial analysis,  
usage of theory of technique of creation and updating of working plan of accounts and model of accounting,  
usage of theory technique of carrying out of the financial analysis of organization condition,  
usage of theory of parametrical cognitive models block for the financial analysis and increases of efficiency of functioning of objects, processes and phenomena,  
usage of theory of cognitive models structure for the vertical, horizontal and trend financial analysis of (credit) organization and enterprise,  
usage of theory of ways of representation of structure of cognitive models and difficult problem environments: formal classical of the 0<sup>th</sup> generation (logical and production models), nonformal classical of the 0<sup>th</sup> generation (semantic network, frame network and ontology), formal new of the 0<sup>th</sup> generation (calculus of theory of sets and corteges on domains and innovative calculus of theory of sets and graphs), nonformal new of the 0<sup>th</sup> generation (multilevel structural scheme and multilevel encapsulated pyramids combining theory of graphs and theory of sets), flat of the 1<sup>st</sup> generation (cognitive circle and cognitive disc), volumetric of the 1<sup>st</sup> generation (cognitive cylinder, cognitive cone and cognitive sphere), flat and volumetric of the 2<sup>nd</sup> generation (one-, two-, three-, four-, five- and more cognitive circle, cognitive disc, cognitive cylinder, cognitive cone and cognitive sphere), hybrid of the 3<sup>rd</sup> generation (combinations of the existing cognitive models),  
usage of theory of algorithm of formation of cognitive model structure,  
usage of technique of research of cognitive models parameters,  
usage of theory of algorithm of analysis of a posteriori results of research,  
usage of theory of formation and accounting of units of accounting balance of industrial and non-productive organization,  
usage of theory of calculation of cognitive models parameters for the vertical, horizontal and trend static and dynamic financial analysis of (credit) organization in conditions of definiteness and uncertainty,  
usage of theory of software for automation of research tasks,  
usage of theory of statistical substantiation of practical use of received results,  
usage of theory of factors influencing to efficiency of functioning of (credit) organization in economical system,  
usage of theory of organization and plan of carrying out of experiment,  
usage of theory of research of cognitive models parameters for the vertical, horizontal and trend financial analysis,  
usage of theory of preliminary processing of a posteriori results of diagnostics,  
usage of theory of choice of statistical analysis methods of generated data sets,  
usage of theory of the financial analysis of dynamics of productivity of financial-economy activity of (credit) organization,  
usage of theory of dispersion, regression, discriminant, cluster analysis, multivariate scaling, factor analysis and bibliographical lists].  
The applied scientific researches directions and departments of "The SIO "ACNS" allow to develop the main and derivative scientific results of CMT.

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THE APPLIED SCIENTIFIC RESEARCHES DIRECTION  
“COGNITIVE MODELING IN THE BIOLOGICAL  
AND MEDICAL SCIENCES” (“NBME”)

OF “THE SIO "ACADEMY OF COGNITIVE NATURAL SCIENCES””

The developed “The applied scientific researches direction  
"Cognitive modeling in the biological and medical sciences”” (“NBME”)  
treats to the applied scientific researches divisions  
of “The SIO "Academy of cognitive natural sciences”” (“The SIO "ACNS””)  
as main component of science and education system of the modern country  
for creation, distribution and use of the main and derivative  
scientific results of the cognitive modeling technology (CMT) (www.vetrovan.(spb.)ru)  
[see the applied scientific researches directions and departments of “The SIO "ACNS””]:

1) it is executed by the principle of “administrative-economy submission”;  
2) works in several main directions, which allow to provide  
development of the applied main and derivative scientific results  
(my second report on SRW from 2006-2008(9) y. was submitted  
to “The SPbSETU "LETI”” and The Government of The RF  
for the translation, carrying out of int. action and receiving of “The Nobel Prize”);

3) includes several various main divisions:  
I. “The applied scientific researches department  
"The applications of the biology, ecology and physiology of plants”” (“SBE”)

*[the applied scientific researches in area  
“ Applications of biology ” –*  
usage of theory of methods and equipment of biological researches,  
usage of theory of plants biology,  
usage of theory of molecular plants biology,  
usage of theory of plants bio-physics, usage of theory of plants cytology,  
usage of theory of plants embryology, usage of theory of plants genetics,  
usage of theory of plants virology, usage of theory of plants micro-biology,  
usage of theory of plants botany, usage of theory of plants physiology,  
usage of theory of plants zoology, usage of theory of plants ecology,  
usage of theory of plants anthropology,  
usage of theory of communication of physiology of plants, person and animals,  
usage of theory of communication of morphology of plants, persons and animals,  
usage of theory of plants immunology,  
usage of theory of plants pharmacology, usage of theory of plants toxicology,  
usage of theory of plants radiation biology,  
usage of theory of plants space biology,  
usage of theory of plants bionics, usage of theory of plants bio-cybernetics,  
usage of theory of plants bio-engineering,  
usage of theory of cognitive modeling technology  
in applications of biology ;

*the applied scientific researches in area  
“Applications of environment preservation and ecology of plants”* –

usage of theory and methods of studying of environment preservation, usage of theory of ecological bases of use of natural resources, usage of theory of international cooperation, usage of theory of environmental contamination, usage of theory of pollution control, usage of theory of pollution and protection of atmosphere, usage of theory of pollution, usage of theory of protection of land waters, seas and oceans, usage of theory of soils protection, usage of theory of bowels protection, usage of theory of ecological bases of plants live ability, usage of theory of influence of anthropogenous changes of environment on health and vegetative potential of plants, on natural ecosystems condition, populations and organisms of flora, usage of theory of flora protection, usage of theory of anthropogenous influence on landscape, usage of theory of protection and optimization of landscape, usage of theory of reserved affair, usage of theory of protected natural territories and water areas, usage of theory of acts of nature and accidents of anthropogenous origin, usage of theory of ecological safety, usage of theory of rational use of natural resources, usage of theory of natural resources reproduction, usage of theory of preservation of environment and natural resources in separate regions and countries, usage of theory of waste management, usage of theory of small waste and without waste technology, usage of theory of protection against from noise, vibration, electrical and magnetical fields and radiations, usage of theory of cognitive modeling technology in applications of preservation of environment and ecology of plants;

*the applied scientific researches in area  
“Applications of medicine and public health services”* –

usage of theory of medical-biological disciplines, usage of theory of medical materials, means and products, usage of theory of medical technics, usage of theory of clinical medicine, usage of theory of pharmacology, usage of theory of hygiene, usage of theory epidemiology, usage of theory of other branches of medicine and public health services, usage of theory of social hygiene, usage of theory of organization and management of public health services, usage of theory of cognitive modeling technology in applications of medicine and public health services].

II. “The applied scientific researches department “The applications of the bio-technology, bio-medicine, ergonomics and labor safety of organic individuals”” (“SB”)(\*)  
“the applied scientific researches in area “Applications of bio-technology” (\*) – usage of theory of raw material and products for bio-technological manufacture, usage of theory of bio-technological processes and devices, usage of theory of cellular engineering, usage of theory of technological bio-energetics, usage of theory of genetic engineering, usage of theory of enzymology engineering, usage of theory of immuno-bio-technological methods of analysis, usage of theory of other problems of bio-technology, usage of theory of cognitive modeling technology in applications of physical-chemical bio-technology and genetic engineering, usage of theory of modeling of desoxyribonucleic acid structure based on multilevel cognitive cylinder;  
“the applied scientific researches in area “Applications of bio-medicine and public health services” (\*) – usage of theory of medico-biological disciplines, usage of theory of bio-medical materials, means and products, usage of theory of bio-medical technics, usage of theory of clinical bio-medicine, usage of theory of bio-pharmacology, usage of theory of bio-hygiene and bio-epidemiology, usage of theory of other branches of bio-medicine and public health services, usage of theory of social bio-hygiene, usage of theory of organization and management of public health services, usage of theory of modified model of reduced eye, usage of theory of modified model of reduced ear, usage of theory of software for automation of research tasks of physiological, psychological and linguistic parameters of parametrical cognitive models block, usage of theory of statistical substantiation of practical use of received results, usage of theory of physiological, psychological and linguistic factors influencing to efficiency of functioning of information-educational environment and increase of productivity of automated training system with properties of adaptation based on cognitive models, usage of theory of organization and plan of carrying out of experiment, usage of theory of research of physiological, psychological and linguistic parameters of cognitive models of subject of training and means of training, usage of theory of preliminary processing of a posteriori results of diagnostics, usage of theory of choice of statistical analysis methods of generated data sets, usage of theory of analysis of dynamics of productivity of bio-medicine and public health services, usage of theory of dispersion, regression, discriminant, cluster analysis, multivariate scaling, factor analysis, bibliographical lists, usage of theory of the complex analysis of modified model of reduced eye for research of visual acuity, field of vision, color perception and other parameters in Descartes space of the 2 and 3 coordinates; usage of theory of the complex analysis of modified model of reduced ear for research of absolute sensitivity and thresholds of sensitivity in Descartes space of the 2 and 3 coordinates;  
“the applied scientific researches in area “Applications of labor safety” – usage of theory of organization and management of labor safety and working conditions, usage of theory of industrial sphere, usage of theory of safety precaution, usage of theory of professional illnesses and their preventive support, usage of theory of accidents on manufacture and their prevention, usage of theory of work capacity, usage of theory of work capacity examination, usage of theory of labor safety on workers categories, usage of theory of work safety on manufactures of increased danger, usage of theory of cognitive modeling technology in applications of labor safety I”;  
 The applied scientific researches directions and departments of “The SIO “ACNS”” allow to develop the main and derivative scientific results of CMT.



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THE APPLIED SCIENTIFIC RESEARCHES DIRECTION  
“COGNITIVE MODELING IN THE HUMANITARIAN SCIENCES,  
ART AND CREATIVITY” (“NGNOT”)  
OF “THE SIO “ACADEMY OF COGNITIVE NATURAL SCIENCES”” (PART 1)  
The developed “The applied scientific researches direction  
“Cognitive modeling in the humanitarian sciences,  
art and creativity.”” (“NGNOT”)  
treats to the applied scientific researches divisions  
of “The SIO “Academy of cognitive natural sciences”” (“The SIO “ACNS””)  
as main component of science and education system of the modern country  
for creation, distribution and use of the main and derivative  
scientific results of the cognitive modeling technology (CMT) (www.vetrovan.spb.ru)  
[see the applied scientific researches directions and departments of “The SIO “ACNS””]:  
1) it is executed by the principle of “administrative-economy submission”;  
2) works in several main directions, which allow to provide  
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(my second report on SRW from 2006-2008(9) y. was submitted  
to “The SPbSETU “LETI”” and The Government of The RF  
for the translation, carrying out of int. action and receiving of “The Nobel Prize”);  
3) includes several various main divisions:  
1. “The applied scientific researches department  
“The applications of the (cognitive) linguistics,  
(national) creativity, culture, art and religion”” (“SGNI”) (\*)  
*the applied scientific researches in area  
“Applications of science of language”* –  
usage of theory of general science of language,  
usage of theory of applied science of language, usage of theory of The World languages,  
usage of theory of cognitive modeling technology  
in applications of science of language;  
*the applied scientific researches in area  
“Applications of (cognitive) linguistics”* (\*) –  
usage of theory of general questions of languages,  
usage of theory of (cognitive) linguistics,  
usage of theory of applied linguistics,  
usage of theory of cognitive modeling technology  
in applications of (cognitive) linguistics,  
usage of theory of modified of stratified-step model  
of understanding (cognitive linguistics) of information fragments content,  
usage of theoretical bases of (cognitive) linguistics  
and cognitive modeling technology  
in technical, economical, physical-mathematical and other sciences,  
usage of theoretical bases of parametrical cognitive models block  
for the system analysis of information-educational environments  
(cognitive models of subject of training and means of training),  
usage of theory of ways of representation of structure  
of cognitive models and difficult problem environments:  
formal classical of the 0<sup>th</sup> generation (logical and production models),  
nonformal classical of the 0<sup>th</sup> generation (semantic network, frame network and ontology),  
formal new of the 0<sup>th</sup> generation (calculus of theory of sets and corteges on domains  
and innovative calculus of theory of sets and graphs),  
nonformal new of the 0<sup>th</sup> generation (multilevel structural scheme  
and multilevel encapsulated pyramids combining theory of graphs and theory of sets),  
flat of the 1<sup>st</sup> generation (cognitive circle and cognitive disc),  
volumetric of the 1<sup>st</sup> generation (cognitive cylinder, cognitive cone and cognitive sphere),  
flat and volumetric of the 2<sup>nd</sup> generation (one-, two-, three-, four-, five- and more cognitive circle,  
cognitive disc, cognitive cylinder, cognitive cone and cognitive sphere),  
hybrid of the 3<sup>rd</sup> generation (combinations of the existing cognitive models),  
usage of theory of adaptive automation means of information-educational environment  
(basic and applied diagnostic module, electronic textbook,  
laboratory practical work, electronic dean, electronic library and others),  
usage of theory of technical means of adaptive information interaction support  
(adaptive representation of sequence of information fragments processor,  
question-answers structures sequence processing processor,  
linguistical processor and others processors);

*the applied scientific researches in area “Applications of culture and cultural science”* – usage of theory, methodology and philosophy of culture, usage of theory of history of culture, usage of theory of history of study of culture, usage of theory of culture in the modern World, usage of theory of organization and management in field of culture, usage of theory of international cooperation in field of culture, usage of theory of hardware of culture establishments, usage of theory of social-cultural activity in sphere of leisure, usage of theory of library affair, usage of theory of library science, usage of theory of bibliography, usage of theory of library-graphy science, usage of theory of museum affair, usage of theory of museology, usage of theory of protection of monuments of history and culture, usage of theory of archival affair, usage of theory of archival science, usage of theory of culture and cultural science of separate countries and peoples, usage of theory of cognitive modeling technology in applications of culture and cultural science;

*the applied scientific researches in area “Applications of art and study of art”* – usage of theory and methodology of art, usage of theory of problems of study of art, usage of theory of history and modern condition of art, usage of theory of study of art and art critic, usage of theory of art in the modern World, usage of theory of organization and management in field of art, usage of theory of international cooperation in field of art, usage of theory of fine art, usage of theory of music, usage of theory of musicology, usage of theory of theatre, usage of theory of theater science, usage of theory of mass shows and theatrical holidays, usage of theory of dance, usage of theory of choreography, usage of theory of circus, usage of theory of platform, usage of theory of cinema, usage of theory of motion picture art, usage of theory of national folk art, usage of theory of art of separate countries and peoples, usage of theory of cognitive modeling technology in applications of art and study of art;

*the applied scientific researches in area “Applications of religion and atheism”* – usage of theory of atheism and free-thinking, usage of theory of separate religions, usage of theory of church, usage of theory of cults, usage of theory of problems of religious consciousness, usage of theory of philosophy and religion, usage of theory of religion, usage of theory of church and society, usage of theory of organizational-practical activity of churches, usage of theory of history of atheism, usage of theory of religions and churches, usage of theory of cognitive modeling technology in applications of religion and atheism].

II. “The applied scientific researches department  
“The applications of the literature, science of science, philosophy,  
journalism and mass communication means”” (“SLPZ”)  
*[the applied scientific researches in area*  
*“Applications of literature, study of literature*  
*and oral national creativity”* –  
 usage of theory of literature, usage of theory of history of literature,  
 usage of theory of national creativity,  
 usage of theory of auxiliary study of literature disciplines,  
 usage of theory of fiction literature products,  
 usage of theory of cognitive modeling technology  
 in applications of literature, study of literature  
 and oral national creativity;  
*the applied scientific researches in area*  
*“Applications of science of science”* –  
 usage of theory of general questions of science of science,  
 usage of theory of science development, usage of theory of science and society,  
 usage of theory of sociology of science, usage of theory of scientific work,  
 usage of theory of scientific creativity, usage of theory of science organization,  
 usage of theory of politics in field of science,  
 usage of theory of technique and technics of research work,  
 usage of theory of economics of science, usage of theory of scientific staff,  
 usage of theory of international cooperation in science,  
 usage of theory of science and scientific-research work in separate countries,  
 usage of theory of cognitive modeling technology  
 in applications of science of science;  
*the applied scientific researches in area*  
*“Applications of mass communication,*  
*journalism and mass media means”* –  
 usage of theory of mass communication means,  
 usage of theory of open network information resources (Internet and WWW),  
 usage of theory of journalism, usage of theory of mass media means,  
 usage of theory of printing, usage of theory of TV, usage of theory of radio,  
 usage of theory of use of technical means for mass communication,  
 usage of theory of cognitive modeling technology  
 in applications of mass communication means].

The applied scientific researches directions and departments of “The SIO “ACNS””  
 allow to develop the main and derivative scientific results of CMT.

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THE APPLIED SCIENTIFIC RESEARCHES DIRECTION  
“COGNITIVE MODELING IN THE HUMANITARIAN SCIENCES,  
ART AND CREATIVITY” (“NGNOT”)  
OF “THE SIO "ACADEMY OF COGNITIVE NATURAL SCIENCES"” (PART 2)

The developed “The applied scientific researches direction  
“Cognitive modeling in the humanitarian sciences,  
art and creativity”” (“NGNOT”)  
treats to the applied scientific researches divisions  
of “The SIO "Academy of cognitive natural sciences"” (“The SIO "ACNS"”)  
as main component of science and education system of the modern country  
for creation, distribution and use of the main and derivative  
scientific results of the cognitive modeling technology (CMT) (www.vetrovan.(spb.)ru)  
[see the applied scientific researches directions and departments of “The SIO "ACNS"”]:  
1) it is executed by the principle of “administrative-economy submission”;  
2) works in several main directions, which allow to provide  
development of the applied main and derivative scientific results  
(my second report on SRW from 2006-2008(9) y. was submitted  
to “The SPbSETU "LETI"” and The Government of The RF  
for the translation, carrying out of int. action and receiving of “The Nobel Prize”);  
3) includes several various main divisions:  
III. “The applied scientific researches department  
“The applications of the problems of (cognitive) psychology,  
education, science and supports of young scientists  
(the grants programs and others)”” (“SPOPMPU”) (\*)  
*[the applied scientific researches in area  
“Applications of national education and pedagogics”* –  
usage of theory of general pedagogics,  
usage of theory of history of education and pedagogics,  
usage of theory of personnels, usage of theory of education systems,  
usage of theory of preschool education,  
usage of theory of preschool pedagogics,  
usage of theory of comprehensive school,  
usage of theory of pedagogics of comprehensive school,  
usage of theory of out-of-school (additional) education and training,  
usage of theory of out-of-school pedagogics,  
usage of theory of special (correctional) schools,  
usage of theory of defectology,  
usage of theory of initial vocational-technical education,  
usage of theory of pedagogics of professional school,  
usage of theory of average vocational education,  
usage of theory of average vocational education pedagogics,  
usage of theory of supreme vocational education,  
usage of theory of supreme professional school pedagogics,  
usage of theory of education of adults, usage of theory of improvement of professional skill,  
usage of theory of self-education,  
usage of theory of family training, usage of theory of family pedagogics,  
usage of theory of specialized branches of pedagogics,  
usage of theory of technical means of training and educational equipment,  
usage of theory of national education and pedagogics in separate countries,  
usage of theory of cognitive modeling technology  
in applications of national education and pedagogics;

*the applied scientific researches in area "Applications of (cognitive) psychology" (\*)* – usage of theory of general psychology, usage of theory of development psychology, usage of theory of age psychology, usage of theory of comparative psychology, usage of theory of social psychology, usage of theory of cognitive psychology, usage of theory of applied psychology, usage of theory of cognitive modeling technology in applications of (cognitive) psychology, usage of theory of modified of stratified-step model of processing (cognitive psychology) of information fragments content, usage of theoretical bases of cognitive psychology and cognitive modeling technology, usage of theoretical bases of parametrical cognitive models block for the system analysis of information-educational environments (cognitive models of subject of training and means of training), usage of theory of ways of representation of structure of cognitive models and difficult problem environments: formal classical of the 0<sup>th</sup> generation (logical and production models), nonformal classical of the 0<sup>th</sup> generation (semantic network, frame network and ontology), formal new of the 0<sup>th</sup> generation (calculus of theory of sets and corteges on domains and innovative calculus of theory of sets and graphs), nonformal new of the 0<sup>th</sup> generation (multilevel structural scheme and multilevel encapsulated pyramids combining theory of graphs and theory of sets), flat of the 1<sup>st</sup> generation (cognitive circle and cognitive disc), volumetric of the 1<sup>st</sup> generation (cognitive cylinder, cognitive cone and cognitive sphere), flat and volumetric of the 2<sup>nd</sup> generation (one-, two-, three-, four-, five- and more cognitive circle, cognitive disc, cognitive cylinder, cognitive cone and cognitive sphere), hybrid of the 3<sup>rd</sup> generation (combinations of the existing cognitive models), usage of theory of adaptive automation means of information-educational environment (basic and applied diagnostic module, electronic textbook, laboratory practical work, electronic dean, electronic library and others), usage of theory of technical means of support of adaptive information interaction (adaptive representation of sequence of information fragments processor, question-answers structures sequence processing processor, linguistic processor and others processors), usage of theory of technical means of the complex analysis support (automation means of formation and research of psychological parameters of cognitive model as cognitive circle, cognitive disc, cognitive cylinder, cognitive cone, cognitive sphere, one-, two-, three-, four-, five- and more cognitive sphere and others); *the applied scientific researches in area "Applications of grants of "The RFBR", "The RHSF" and other organizations"* – usage of theory of general data of grants of "The Russian fund of basic researches", "The Russian humanitarian scientific fund" and other organizations, usage of theoretical-methodological basis of grants, usage of theory of reception, distribution and use of grants of "The RFBR", "The RHSF" and other grant-formation organizations, usage of theory of cognitive modeling technology in applications of grants of "The RFBR", "The RHSF" and other organizations].

IV. “The applied scientific researches department  
“The applications of the innovations of project “The Russian encyclopedias”  
philosophy of science, technics and technology on branches of knowledge” (“SRE”)  
*the applied scientific researches in area*  
**“Applications of encyclopedias on natural and exact sciences”** –  
 usage of theory of encyclopedias on mathematics, cybernetics, physics, mechanics,  
 chemistry, biology, geodesy and cartography, geo-physics, geology, geography, astronomy,  
 usage of theory of general and complex problems of natural and exact sciences,  
 usage of theory of cognitive modeling technology  
 in applications of encyclopedias on natural and exact sciences;  
*the applied scientific researches in area*  
**“Applications of encyclopedias on social sciences”** –  
 usage of theory of encyclopedias on social sciences as a whole,  
 usage of theory of encyclopedias on philosophy, history and historical sciences,  
 sociology, demography, economics and economical sciences,  
 state, law and jurisprudence sciences, politics and political sciences,  
 science of science, culture and cultural sciences, national education and pedagogics,  
 psychology, science of language, literature and study of literature,  
 oral national creativity, art and study of art,  
 mass communication and journalism, mass media means,  
 Computer science, religion and atheism,  
 complex studying of separate countries and regions,  
 complex problems of social sciences,  
 usage of theory of cognitive modeling technology  
 in applications of encyclopedias on social sciences;  
*the applied scientific researches in area*  
**“Applications of encyclopedias on technical, applied and economical sciences”** –  
 usage of theory of encyclopedias on power engineering, the electrical engineering,  
 electronics, the radio engineering, connection, automatics, computer engineering,  
 mining, metallurgy, mechanical engineering, nuclear technics, instrument making,  
 polygraphy, reprography, photo-cinema-technics,  
 chemical technology and chemical industry, bio-technology,  
 light industry, food-processing industry,  
 wood and wood-processing industry, construction and architecture,  
 agriculture and forestry economy, fish economy and aqua-culture, water economy,  
 internal trade, tourist-excursion service,  
 external trade, transport, housing-communal economy,  
 housekeeping, consumer services, medicine and public health services,  
 physical training and sport, military science, other branches of economics,  
 usage of theory of cognitive modeling technology  
 in applications of encyclopedias on technical, applied and economical sciences;  
*the applied scientific researches in area*  
**“Applications of encyclopedias on general and complex problems  
 of technical and applied sciences and branches of national economy”** –  
 usage of theory of encyclopedias on organization and management,  
 statistics, standardization, patent business, invention and rationalization,  
 labor safety, environment preservation and ecology of person,  
 space researches, metrology,  
 usage of theory of cognitive modeling technology  
 in applications of encyclopedias on general and complex problems  
 of technical and applied sciences and branches of national economy;  
*the applied scientific researches in area*  
**“Applications of philosophy of science, technics and technology”** –  
 usage of theory of general problems of modern philosophy of science, technics and technology,  
 usage of theory of global philosophy problems,  
 usage of theory of logic of philosophy and methodology of science,  
 usage of theory of social philosophy,  
 usage of theory of ethics, usage of theory of aesthetics,  
 usage of theory of philosophy of religion and atheism,  
 usage of theory of history of philosophy,  
 usage of theory of cognitive modeling technology  
 in applications of philosophy of science, technics and technology].  
 The applied scientific researches directions and departments of “The SIO “ACNS””  
 allow to develop the main and derivative scientific results of CMT.

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THE APPLIED SCIENTIFIC RESEARCHES DIRECTION

“COGNITIVE MODELING

IN THE PHYSICAL TRAINING AND SPORT” (“NFS”)

OF “THE SIO "ACADEMY OF COGNITIVE NATURAL SCIENCES””

The developed “The applied scientific researches direction  
"Cognitive modeling in the physical training and sport”” (“NFS”)  
treats to the applied scientific researches divisions  
of “The SIO "Academy of cognitive natural sciences”” (“The SIO "ACNS””)  
as main component of science and education system of the modern country  
for creation, distribution and use of the main and derivative  
scientific results of the cognitive modeling technology (CMT) (www.vetrovan.(spb.)ru)  
[see the applied scientific researches directions and departments of “The SIO "ACNS””]:

1) it is executed by the principle of “administrative-economy submission”;

2) works in several main directions, which allow to provide  
development of the applied main and derivative scientific results  
(my second report on SRW from 2006-2008(9) y. was submitted  
to “The SPbSETU "LETI”” and The Government of The RF  
for the translation, carrying out of int. action and receiving of “The Nobel Prize”);

3) includes several various main divisions:

I. “The applied scientific researches department  
"The applications of the sport, sports sciences and actions”” (“SSSNM”)

*[the applied scientific researches in area  
“Applications of physical training and sport” –  
usage of theory of physical training and sport,  
usage of theory of methodological and medical-biologic bases  
o f p h y s i c a l t r a i n i n g a n d s p o r t ,  
usage of theory of material-technical base of physical training and sport,  
usage of theory of methodical bases of kinds of sport and sports competitions,  
usage of theory of cognitive modeling technology  
in applications of physical training and sport].*

The applied scientific researches directions and departments of “The SIO "ACNS””  
allow to develop the main and derivative scientific results of CMT.

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#### THE APPLIED SCIENTIFIC RESEARCHES DIRECTION

#### “COGNITIVE MODELING IN THE MILITARY SCIENCES” (“NVN”) OF “THE SIO "ACADEMY OF COGNITIVE NATURAL SCIENCES””

The developed “The applied scientific researches direction “Cognitive modeling in the military sciences”” (“NVN”) treats to the applied scientific researches divisions of “The SIO "Academy of cognitive natural sciences”” (“The SIO "ACNS””) as main component of science and education system of the modern country for creation, distribution and use of the main and derivative scientific results of the cognitive modeling technology (CMT) (www.vetrovan.(spb.)ru) [see the applied scientific researches directions and departments of “The SIO "ACNS””]:

- 1) it is executed by the principle of “administrative-economy submission”;
- 2) works in several main directions, which allow to provide development of the applied main and derivative scientific results (my second report on SRW from 2006-2008(9) y. was submitted to “The SPbSETU "LETI”” and The Government of The RF for the translation, carrying out of int. action and receiving of “The Nobel Prize”);
- 3) includes several various main divisions:
  - I. “The applied scientific researches department “The applications of the architecture, construction, technics, history, education, politics and economics in the armed forces”” (“SASTIOPEVC”) [*the applied scientific researches in area “Applications of military sciences”* – usage of theory of doctrine about war and army, usage of theory of military history, usage of theory of military education, usage of theory of professional training of staff, usage of theory of military politics, usage of theory of military doctrines, usage of theory of military science, usage of theory of military-applied sciences, usage of theory of arms and military technics, usage of theory of armed forces, usage of theory of military economics, usage of theory of cognitive modeling technology in applications of military sciences].

The applied scientific researches directions and departments of “The SIO "ACNS”” allow to develop the main and derivative scientific results of CMT.



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The applied scientific researches directions  
of “The SIO "Academy of cognitive natural sciences"”  
Collection of scientific reports

Editor

Translator

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