

Vetrov Anatoly Nikolaevich, author of the unique cognitive modeling technology
www.vetrovan.(spb.)ru

The RF, Saint-Petersburg city

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
"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:
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
o f o i l , n a t u r a l a n d p a s s i n g g a s ,
u s a g e o f t h e o r y o f m e t h o d s o f l a b o r a t o r y
of mineral-petrographical and geo-chemical researches,
usage of theory of antropogen period, usage theory of neo-technics,
u s a g e o f t h e o r y o f g e o - m o r p h o l o g y ,
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
i n a p p l i c a t i o n s o f g e o l o g y o f o i l a n d g a s ;

*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 0th generation (logical and production models),
 nonformal classical of the 0th generation (semantic network, frame network and ontology),
 formal new of the 0th generation (calculus of theory of sets and corteges on domains
 and innovative calculus of theory of sets and graphs),
 nonformal new of the 0th generation (multilevel structural scheme
 and multilevel encapsulated pyramids combining theory of graphs and theory of sets),
 flat of the 1st generation (cognitive circle and cognitive disc),
 volumetric of the 1st generation (cognitive cylinder, cognitive cone and cognitive sphere),
 flat and volumetric of the 2nd generation (one-, two-, three-, four-, five- and more cognitive circle,
 cognitive disc, cognitive cylinder, cognitive cone and cognitive sphere),
 hybrid of the 3rd 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.