

Vladimer Chavchanidze
Institute of Cybernetics

2016
Scientific report

#1 Department of Mathematical Cybernetics

I. 1. Planned and performed scientific-research works
funded by the state budget of Georgia by 2016

(Refers to scientific-research institutes)

I.1

#	The name of the work prescribed and performed by the plan indicating scientific field and scientific direction	Work Supervisor	Work Performers
	"Research of fuzzy Algebra models of fuzzy logic" Mathematics; Mathematical logic and Algebra	Revaz Grigolia	Revaz Grigolia Vyacheslav Meskhi Ramaz Liparteliani Pridon Alshibaia
2	Solution of the three tasks of the recognition system; Theoretical cybernetics, Recognition of the patterns, expert systems	Neli Tkemaladze	V. Jikhvashvili M. Kuridze C. Mamulashvili

I. 2.

#	The name of the work prescribed and performed by the plan indicating scientific field and scientific direction	Work Supervisor	Work Performers
1	Direction-Information Technologies Quantum calculator based on a three-dimensional quantum system	G. Giorgadze	G. Bolotashvili M. Elizbarashvili D. Goshadze N. Chkhikvadze V.Zhgamadze G.Fruidge V. Jikia P.Alshibaia

#2 Stochastic Analysis and Mathematical Modeling Department**I. 1. Planned and performed scientific-research works
financed by the state budget of Georgia by 2016****(Refers to scientific-research institutes)**

#	The name of the work prescribed and performed by the plan indicating scientific field and scientific direction	Work Supervisor	Work Performers
1	Study of theoretical and applied issues of statistical analysis, modeling and management of stochastic processes	Doctor of Physical and Mathematical Sciences Zurab Piranashvili	Revaz Tevzadze Giorgi Jandieri Tamaz Sulaberidze Teimuraz Tsabadze Irakli Skhirtladze Besik Chikvinidze Liveri Kadagishvili Zurab Alimbarashvili Roland Bakuradze Naira Bekauri Givi Karumidze Zaira Berikishvili Lasha Pertakhia

#3 Department of Pattern Recognition Application System

**I. 1. Planned and performed scientific-research works
financed by the state budget of Georgia by 2016
(Refers to scientific-research institutes)**

#	The name of the work prescribed and performed by the plan indicating scientific field and scientific direction	Work Supervisor	Work Performers
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1	The 'intellectual' system of selective picking of tea leaves. (Applied cybernetics).	G.Lezhava.	Kamkamidze I., Vardosanidze A., Mkrtchiani E., Dalakishvili T., Oghlishvili B., Kandelaki M., Javakhishvili I., Mestvirishvili A., Nodia Sh
2	Follow-up control system. (Applied cybernetics)	G.Lezhava.	Kamkamidze I., Vardosanidze A., Mkrtchiani E., Dalakishvili T., Oghlishvili B., Kandelaki M., Javakhishvili I., Mestvirishvili A., Nodia Sh

#4 Department of Biocybernetic Systems

**I. 1. Planned and performed scientific-research works
financed by the state budget of Georgia by 2016
(Refers to scientific-research institutes)**

I. 2.

#	The name of the work prescribed and performed by the plan indicating scientific field and scientific direction	Work Supervisor	Work Performers
1	Identification of heterogeneity of biological tissues by infrared radiation. Biology, Biophysics	Doctor of Biological Sciences Besarion Partsvania	B. Partsvania N. Phonjavidze, T. Gogoladze, T. Sulaberidze, T.Surguladze

#5 Department of Computing Technique Elements and Nanomaterials

**I. 1. Planned and performed scientific-research works
financed by the state budget of Georgia by 2016
(Refers to scientific-research institutes)**

#	The name of the work prescribed and performed by the plan indicating scientific field and scientific direction	Work Supervisor	Work Performers
1	Synthesis of medical magnetic nanoparticles	Shalva Kekutia	N. Chkhaidze, V.Mikelashvili, J. Markhulia, L. Saneblidze, R. Tatarashvili

#6 Department of Coherent Optics and Electronics

**I. 1. Planned and performed scientific-research works
financed by the state budget of Georgia by 2015
(Refers to scientific-research institutes)**

#	The name of the work prescribed and performed by the plan indicating scientific field and scientific direction	Work Supervisor	Work Performers
1	Enhanced and energy-saving production of high-temperature	Nikoloz Margiani	N. Papunashvili, Z. Adamia, V.

	<p>improved property superconducting material by using nanotechnology</p> <p>Solid body physics, superconductivity</p>		<p>Zhghamadze, I. Q Kvartskhava, C. Mumladze, D. Dzanashvili</p>
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I. 2.

#	The name of the work prescribed and performed by the plan indicating scientific field and scientific direction	Work Supervisor	Work Performers
1	<p>The human skin in vivo optical spectroscopy</p> <p>Scientific direction: Biomedical optics and spectroscopy</p>	<p>Z. Melikishvili, (From the Institute of Cybernetics)</p>	<p>Z. Melikishvili, T. Medoidze, Z. Jalilashvili (From the Institute of Cybernetics)</p>
2	<p>DNA and nanophotonics</p> <p>Scientific Direction: Molecular Biophysics, Bionanophone</p>	<p>Z. Melikishvili, (From the Institute of Cybernetics)</p>	<p>Z. Melikishvili, T. Medoidze, Z. Jalilashvili (From the Institute of Cybernetics)</p>
3	<p>Molecular aggregations and anisotropy inducement by light in azo dye system</p>	<p>Acad.doc Tariel Ebralidze</p>	<p>Tariel Ebralidze, Nadia Ebralidze, Giorgi Mumladze</p>

#7 Department of Optically Controlled Anisotropic Systems

I. 1. Planned and performed scientific-research works financed by the state budget of Georgia by 2016 (Refers to scientific-research institutes)

#	The name of the work prescribed and performed by the plan indicating scientific field and scientific direction	Work Supervisor	Work Performers
1	ZnO Electric conductivity of nanopowder tablets	Oleg Gogolini	Rusiko Janelidze, Iudgin Blagidze, Henri Mahvelidze, Natela Papunashvili, Oleg Gogolini, Elene Tsitsishvili
2	Acquire and research of semiconductor nanostructured materials for the new generation photo electrical equipment Physics, semiconductor nanotechnology	Tinatin Laferashvili	A. Chanishvili T.Laperashvili O.Kvitsiani D. Laferashvili Sh. Lomitashvili

I. 2.

#	The name of the work prescribed and performed by the plan indicating scientific field and scientific direction	Work Supervisor	Work Performers
1	Development of a new type liquid crystal laser. Physics, Optics	Andro Chanishvili	Guram Chilaia, Zurab Vardosanidze, Svetlana Tavzarashvili, Marina Aronishidze, Ketevan Tevdorashvili

Laboratory of Holographic Recording and Processing of Information
(Department status)

**I. 1. Planned and performed scientific-research works
financed by the state budget of Georgia by 2016**
(Refers to scientific-research institutes)

I. 2.

#	The name of the work prescribed and performed by the plan indicating scientific field and scientific direction	Work Supervisor	Work Performers
1	Highly efficient polarization-sensitive materials for the polarization holography tasks. Physical and Chemical Sciences: 6-120 Optics, Quantum Electronics; 6-210 Chemical Physics.	Barbara Kilosanidze	Giorgi Kakauridze, Vladimer Tarasashvili, Valentina Shaverdova, Ana Purtseladze, Irakli Chaganava, Iyuri Mshvenieradze, Svetlana Petrová, Elene Osepaishvili

Laboratory of Optical-Chemical Research
(Department status)

**I. 1. Planned and performed scientific-research works
financed by the state budget of Georgia by 2016**
(Refers to scientific-research institutes)

#	The name of the work prescribed and performed by the plan indicating scientific field and scientific direction	Work Supervisor	Work Performers
1	Synthesis and research of compounds by spiopyrans of improved photochromic properties. Organic chemistry 1.4. Physical chemistry 1.3.	Jimsher Maisuradze	Academic Doctors:Lali Devadze, Shorena Akhobadze, Nino Sepashvili, Izolda Mzhavanadze, Tsisana Zurabishvili, Zhuzhuna Urchukhishvili, Ekaterine Arveladze, Mzia Gugava.

I. 2.

#	The name of the work prescribed and performed by the plan indicating scientific field and scientific direction	Work Supervisor	Work Performers
1	Creation and research of gradient polymer materials. Physical chemistry of polymers	Levan Nadareishvili	M.Areshidze Liana Sharashidze I. Pavlenishvili