

Vladimer Chavchanidze
Institute of Cybernetics

2017
Scientific report

#1 Department of Mathematical Cybernetics

I. 1. Planned and performed scientific-research works
funded by the state budget of Georgia by 2017

(Refers to independent scientific-research institutes with universities and LEPL 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	2	3	4
1	\ Direction-Information Technologies Quantum calculator based on a three-level quantum system	G. Giorgadze	G. Bolotashvili M. Elizbarashvili D. Goshadze N. Chkhikvadze V.Zhgamadze G.Fruidze V. Jikia P.Alishbaia R.Kurdiani
2	"Research of fuzzy Algebra models of fuzzy logic" Mathematics;	Revaz Grigolia	Revaz Grigolia Vyacheslav Meskhi Ramaz Liparteliani

	Mathematical logic and Algebra		Pridon Alshibaia
3	The task of linear displacement	G. Bolotashvili	G. Bolotashvili

#2 Stochastic Analysis and Mathematical Modeling Department

I. 1. Planned and performed scientific-research works financed by the state budget of Georgia by 2017

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Nº	The name of the work prescribed and performed by the plan indicating scientific field and scientific direction	Work Supervisor	Work Performers
1	2	3	4
1	Study of theoretical and applied issues of statistical analysis, modeling and management of stochastic processes; Mathematics, informatics; Theory and application of stochastic processes; Mathematical modeling	Doctor of Physical and Mathematical Sciences Zurab Piranashvili	Revaz Tevzadze—P/M Acad. Doct. Georgi Jandieri– P/M Doct. Tamaz Sulaberidze- P/M Doct. Teimuraz Tsabadze- P/M Doct. Irakli Skhirtladze - P/M Doct Besik Chikvinidze—Acad. Doct.. Liveri Kadagishvili- Cand.Tech.Sci. Zurab Alimbarashvili Roland Bakuradze Naira Beqauri Givi Karumidze Cand.Tech.Sci. Zaira Berikishvili Lasha Pertakhia

I. 2.

Nº	The name of the work prescribed	Work Supervisor	Work Performers
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	and performed by the plan indicating scientific field and scientific direction		
1	2	3	4
1	Classification of the group decisions making methods in terms of uncertainty	Teimuraz Tsabadze	Teimuraz Tsabadze

#3 Department of Pattern Recognition Application System

I. 1. Planned and performed scientific-research works

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(Refers to independent scientific-research institutes with universities and LEPL Scientific-research institutes)

I. I.2

N ^o	The name of the work prescribed and performed by the plan indicating scientific field and scientific direction	Work Supervisor	Work Performers
1	2	3	4
1	Research on the use of inductive output processor in hybrid intellectual systems	Goderdzi Lejava Cand.of techn. Scien.	Kamkamidze I., Vardosanidze A., Mkrtchiani E., Dalakishvili T., Oghlishvili B., Kandelaki M., Javakhishvili I, Mestvirishvili A., Nodia Sh., Tkhinvaleli R.
2	System of the selective tea leaf plucking robot	Goderdzi Lejava Cand.of techn. Scien.	Kamkamidze I., Vardosanidze A., Mkrtchiani E., Dalakishvili T., Oghlishvili B., Kandelaki M., Javakhishvili I, Mestvirishvili A., Nodia Sh., Tkhinvaleli R.
3	Description and classification of objects form on 2D digital imagery	Otar Tavdishvili	T.Sulaberidze, T. Todua, Z. Alimbarashvili

#4 Department of Biocybernetic Systems

I. 1. Planned and performed scientific-research works
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(Refers to independent scientific-research institutes with universities and LEPL 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	2	3	4
1	Identification of heterogeneity of biological tissues by infrared radiation. Biology, Medical Biophysics	Doctor of Biological Sciences Besarion Partsvania	B. Partsvania T. Sulaberidze, T. Gogoladze, T.Surguladze N. Phonjavidze,
2	Study of visual information processing by human on a reflection level		

#5 Department of Computing Technique Elements and Nanomaterials

I. 1. Planned and performed scientific-research works
financed by the state budget of Georgia by 2017

(Refers to independent scientific-research institutes with universities and LEPL 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	2	3	4

1	Development of new technologies for creation single-dimensional nanomaterials and research of their parameters (physics, nanotechnology)	Davit Jashiashvili	Z.Shiolashvili N.Makhatadze A.Jishiashvili D.Sukhanovi
2	Synthesis of magnetic nanoparticles for biomedical purposes. Nanotechnology, biomedical treatment	Shalva Kekutia	V.Mikelashvili J.Markhulia L.Saneblidze M.Chavchanidze R. Tatarashvili
3	Fundamental research of phenomenon caused by external field impacts in dielectric and metal compounds to create new materials	V. Kvachadze (Ph. Inst.)	N. Namoradze (Cyb. Inst.) I. Ratishvili (Ph. Inst.)

N6 Department of Coherent Optics and Electronics

I. 1. Planned and performed scientific-research works financed by the state budget of Georgia by 2017

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Nº	The name of the work prescribed and performed by the plan indicating scientific field and scientific direction	Work Supervisor	Work Performers
1	2	3	4
1	Study of oral mucous cancer by laser induced fluorescence Direction: Biomedical optics and spectroscopy	Z. Melikishvili	K. Gogilashvili (Ilia State University) Z. Jaliashvili, T. Medoidze, Z. Melikishvili
2	Study of the transfer of light	V. Bregvadze	V. Bregvadze, T. Giorgadze, I.

	transmitters and the excitation of excavator energy in biological systems. Direction: Biophysics	(El.Andronikashvili Institute of Physics)	Khutsishvili, T. Khuskivadze (all from El.Andronikashvili Institute of Physics) Z. Melikishvili
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I.2.

N ^o	The name of the work prescribed and performed by the plan indicating scientific field and scientific direction	Work Supervisor	Work Performers
1	2	3	4
1	Control of the function of live organism using optical methods. Direction: Biomedical optics and spectroscopy	Z. melikishvili and T. Ilkov (tBYW, San Jose California USA.)	T.Ilkov,S. Dutta (tBYV) Z. Jaliashvili, T.Medoidze, S. Chilachava (Student of Georgian Technical University) Z. Melikishvili
2	∂Acceleration of formation of high-temperature bismuth conventional superconducting materials and improving electrophysical parameters; Condensed environment of physics, superconductivity, nanotechnology	Nikoloz Margiani	Giorgi Mumladze, Natela Papunashvili, Iamze Kvartskhava, Zurab Adamia, Vakhtang Jghamadze
3	Molecular aggregations and photosynthesis of anisotropy in organic compounds Physics, optics, anisotropic systems	Tariel Ebralidze	Tariel Ebralidze Nadia Ebralidze Giorgi Mumladze,

#7 Department of Optically Controlled Anisotropic Systems

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№	The name of the work prescribed and performed by the plan indicating scientific field and scientific direction	Work Supervisor	Work Performers
1	2	3	4
1	Optical and transport properties of nanostructures of A2b6 and A3b5 groups. Optics, Solid Body Physics	Acad. Doct. O.Gogolini	Acad. Doct. R. Jnaelidze Doct. E.Tsitsishvili Iu. Blagadze Acad.doct. G. Mshvelidze
2	Creation and research of III-V semiconductor nanostructured materials of quantum points for their practical purpose. Nanotechnology, Semiconductor Physics, Electrochemistry.	T.Laferashvili	A. Chanishvili, O. Kviciani, D. Laferashvili, Sh. Lomitashvili
3	Study of thermal, electrical and photographic optical properties of polymer nanocomposites doped with silver nanoparticles and thermocouple luminescence. 2.10. Nano-technology, nano-materials	Gia Petriashvili	Lali devadze, Tsisana Zurabishvili, Nino Sefashvili, Nino Fonjavidze

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	indicating scientific field and scientific direction		
1	2	3	4
1	Develop a new type of liquid crystal laser. Physics, Optics	A. Chanishvili	G. Chilaya, I. Nakhutsrishvili, Z. Vardosanidze, S.Tavzarashvili, K. Tevdorashvili, M. Aronishidze, G.Petriashvili
2	III-V Quantum pointed nanostructures to increase efficiency of solar elements. Nanotechnology, semiconductor physics, photovoltaics	T.Laferashvili	O.Kviciani
3	Optically controlled spatially modified laser generation in dye doped polymer and liquid crystal layers	Zurab Vardosanidze	Zurab Vardosanidze Andro Chanishvili Gia Petriashvili Nino Fonjavidze Svetlana Tavzarashvili Marina Aronishidze Ketevan Tevdorashvili
4	Research of Weigert effect in the gelatin layers doped with nitrogen	Zurab Vardosanidze	Zurab Vardosanidze Andro Chanishvili Gia Petriashvili Nino Fonjavidze Svetlana Tavzarashvili Marina Aronishidze Ketevan Tevdorashvili

Laboratory of Holographic Recording and Processing of Information

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I.2.

№	The name of the work prescribed	Work Supervisor	Work Performers

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1	2	3	4
1	Modifying technology of high efficiency polarization-sensitive materials for polarization-holographic elements 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

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1	2	3	4
1	Functionalization of carbon nanostructures by photochrome spiropirans	Jimsher Maisuradze	Shorena Akhobadze Zhuzhuna Urchukhishvili Izolda Mzhavanadze Ekaterine Arveladze Mzia Gugava
2	Creation and research of gradient polymer materials. Physical chemistry of polymers	Levan Nadareishvili	Manana Areshidze InezaPavlenishvili Lia Sharashidze

