TATIANA A. LEVANOVA, PhD

CURRICULUM VITAE

CONTACT INFORMATION

Home Address	603076 Russia, Nizhny Novgorod, Lenin ave, 48d-46
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CURRENT POSITION

- Teaching Assistant, Lobachevsky University, Nizhny Novgorod, Russia;
- Researcher, Lobachevsky University, Nizhny Novgorod, Russia.

EDUCATION

2016	**PhD, Saratov State Technical University, Russia.** PhD Thesis: "Mathematical modeling of regimes of sequential activity in networks of neuron-like elements." Supervisor: Prof. G.V.Osipov;
2008-2009	**Engineer Appl. Math, Lobachevsky State University Nizhny Novgorod, Russia.** Undergraduate Thesis: "Functional structures in neural networks with random couplings." Supervisor: Prof. G.V.Osipov;
2004-2008	**B.Sc. Appl. Math, Lobachevsky State University Nizhny Novgorod, Russia.** Undergraduate Thesis: "Algorithms of graph clusterization." Supervisor: Prof. V.E.Alexeyev.

FIELD OF RESEARCH

Keywords: nonlinear dynamics, computational neuroscience, chaos.

SKILLS

- Programming and Markup Languages: C#, LATEX, HTML;
- Mathematical Toolkits: MATLAB, Mathematica;
- Languages: Russian (Mothertongue); English (B2); German (A1);
- Strong managerial skills.

WORK EXPERIENCE

Sept 2012 – present time	Teaching assistant, Lobachevsky University, Nizhny Novgorod, Russia;
Jan 2017 – present time	Researcher, Lobachevsky University, Nizhny Novgorod, Russia;

Apr. 2017-May 2017	Visiting Researcher, University of Potsdam, Germany;
Sept 2010 – Dec. 2016	Junior researcher, Lobachevsky University, Nizhny Novgorod, Russia;
Jan. 2010 - Sept. 2012	Engineer, Lobachevsky University, Nizhny Novgorod, Russia;
Oct. 2009 - Nov. 2009	Catholic University Leuven, Belgium;
Sept. 2008 - Dec. 2009	Software engineer, Tecom Inc. Nizhny Novgorod, Russia;

HONORS AND AWARDS

2018	Best poster award, Dynamics Days Europe 2018, Loughborough, UK
2016	Fellowship for young scientists, Lobachevsky University, Russia;

TEACHING EXPERIENCE:

- **A course of lectures** ”Contemporary concepts of natural science”;
- **Practical classes and seminars**: “Optimization”, “Information theory”, “Control theory”, “Differential equations”, ”Contemporary concepts of natural science”;
- **Special course** 'Analytical and numerical methods in dynamical systems';
- **Electronic study guide** 'Analytical and numerical methods in dynamical systems' // Nizhny Novgorod: Lobachevsky University, 2015, 60 p. (**Levanova T.A.**, Komarov M.A., Kryukov A.K., Kostin V.A., Osipov G.V.) (in Russian);
- **Electronic study guide** ‘Andronov-Hopf bifurcation’ // Nizhny Novgorod: Lobachevsky University, 2017, 73 p. (Bolotov M.I., Gonchenko S.V., Gonchenko A.S., Grines E.A., Kazakov A.O., **Levanova T.A**., Lukyanov V.I.) (in Russian)

INTELLECTUAL PROPERTY:

- Certification of official registration of computer program № 2018615477, date 08.05.2018, “Sequential activity in neuronal ensembles”, authors: **Levanova T.A.**, Korotkov A.G.
- Certification of official registration of computer program № 2013610901, date 09.01.2013, "Virtual heart", authors: Grigoryeva S.A., **Levanova T.A.**, Komarov M.A., Kryukov A.K., Petrov V.S., Osipov G.V.

PUBLICATIONS

Most important papers

1. Korotkov A.G., Kazakov A.O., **Levanova T.A.**, Osipov G.V. Chaotic regimes in the ensemble of FitzhHugh-Nagumo elements with weak couplings. IFAC-PapersOnLine, 2018 (accepted).
2. Korotkov A.G., Kazakov A.O., **Levanova T.A.**, Osipov G.V. The dynamics of ensemble of neuron-like elements with excitatory couplings. CNSNS, 2018 (in print);
3. Bakhanova Yu.V., Kazakov A.O., Korotkov A.G., **Levanova T.A.**, Osipov G.V. Spiral attractors as the root of a new type of “bursting activity” in the Rosenzweig-MacArthur model. EPJ ST, 2018, V. 227 (7–9), pp. 959–970;
4. **Levanova T. A.**, Kazakov A.J., Osipov G.V., Kurths J. Dynamics of ensemble of inhibitory coupled Rulkov maps. EPJ ST, 2016, V.225. P.147;
5. **Levanova T. A.**, Osipov G.V., Pikovsky A. Coherence properties of cycling chaos. CNSNS, 2014, V. 19 (8), 2734;
6. **Levanova T. A.**, Komarov M. A., Osipov G.V. Sequential Activity and Multistability in Ensemble of Coupled Van der Pol Oscillators. EPJ ST, 2013, V.222 (10), P. 2417;
7. Mikhaylov A.O., Komarov M. A**., Levanova T. A.**, Osipov G.V. Sequential switching activity in ensembles of inhibitory coupled oscillators, Europhysics Lett., 2013, V.101, 20009;

Major Presentations at Professional Meetings

1. Korotkov A.G., Kazakov A.O., **Levanova T.A.**, Osipov G.V., 'The dynamics of ensemble of neuron-like elements with excitatory couplings', International conference 'Dynamics Days Europe' (Loughborough, UK, 3-7 September, 2018) *Poster*;
2. Korotkov A.G., Kazakov A.O., **Levanova T.A.**, Osipov G.V., Neuron-Like Activity in the Ensemble of Fitzhugh-Nagumo Elements with Weak Excitatory Couplings, International conference 'Volga Neuroscience Meeting' (Nizhny Novgorod – Samara – Nizhny Novgorod, 22-27 July 2018) *Poster*;
3. **Levanova T.A.**, Korotkov A.G., Kazakov A.O., Osipov G.V., The Impact of Electrical Couplings on the Dynamics of Discrete Neuron-Like Elements, International conference 'Volga Neuroscience Meeting' (Nizhny Novgorod – Samara – Nizhny Novgorod, 22-27 July 2018) *Poster*;
4. Korotkov A.G., Kazakov A.O., **Levanova T.A.**, Osipov G.V., The Dynamics of Ensemble of Neuron-Like Elements with Excitatory Couplings, International conference 'Volga Neuroscience Meeting' (Nizhny Novgorod – Samara – Nizhny Novgorod, 22-27 July 2018) *Poster*;
5. **Levanova T.A.**, Pikovsky A., 'Synchronous and chimera regimes in arrays of Josephson Junctions', Bilateral Rusisan-German Simposium on collective nonequilibrium dynamics in complex systems (Nizhny Novgorod, 4-5 October, 2017) *Contributed talk;*
6. **Levanova T.A.**, Kazakov A.O., Korotkov A.G., Osipov G.V., 'Dynamics of neuron-like elements with chemical and electrical couplings', International Conference-School 'Dynamics, Bifurcations and Chaos' (Nizhny Novgorod, Russia, 2-9 July 2017) *Contributed talk;*
7. Levanova T.A., Kazakov A.O., Osipov G.V. Multistable regimes in the motif of Rulkov maps with inhibitory couplings, International Conference-School 'Dynamics, Bifurcations and Chaos' (Nizhny Novgorod, Russia, 20-24 July 2015) *Contributed talk;*
8. **Levanova T.A.**, Kazakov A.O., Osipov G.V., Transient dynamics in ensemble of coupled Rulkov maps, International Conference 'Shilnikov Workshop-2014' (Nizhny Novgorod, Russia, 17-19 December 2014) *Contributed talk;*
9. **Levanova T.A.**, Osipov G.V., Pikovsky A.S., Coherent properties of cycling chaos, Õ international school-conference 'Chaos-2013' (Saratov, Russia, 7-12 October 2013) *Contributed talk;*
10. Mikhaylov A.O., Komarov M.A., **Levanova T.A.**, Osipov G.V., Sequential switching activity in ensembles of inhibitory coupled oscillators, International conference 'Dynamics, Bifurcations and Strange Attractors' (Nizhny Novgorod, Russia, 1-5 July 2013) *Contributed talk***;**

MAIN RESEARCH PROJECTS AND GRANTS

Principal Investigator

2017 - *present time*	Grant 17-72-10228, Russian Scientific Foundation, 'Methods of nonlinear dynamics for problems of bioelectronic medicine'
2016-2017	Grant 16-32-00835, Russian Foundation for Basic Research, 'The study of the impact of inhibitory couplings on dynamics in the ensembles of neuron-like elements'

Project Coordinator

2018	Grant 18-01-20108, Russian Foundation for Basic Research, 'The project of the organization of the international conference Shilnikov Workshop 2018'
2018	Grant 18-02-20074, Russian Foundation for Basic Research, 'The project of the Neurodynamics conference organization within the framework of the international symposium Volga Neuroscience Meeting 2018'

2016 – *present time*	Grant 14-12-00811-P, Russian Scientific Foundation, 'Phase dynamics of oscillatory systems'
2016 – *present time*	Grant 14-41-00044-P, Russian Scientific Foundation, 'Dynamics and bifurcations of dissipative and conservative systems'
2016 – present time	Contract 1.539.2016/FPM, Ministry of Education and Science, Grant for Federal Professor in Mathematics
2016 – present time	Contract 1.3287.2017/PCh, Ministry of Education and Science, 'Mathematical theory of dynamical chaos and its application to the models in natural sciences'
2017	Grant 17-01-20514, Russian Foundation for Basic Research, , 'The project of the organization of the international conference Shilnikov Workshop 2017'
2016	Grant 16-02-20460, Russian Foundation for Basic Research, The project of the organization of the conference "Dynamics of living systems, applications in neurobiology" ("Dynamics in Life Sciences, Neuroscience Applications") within the framework of the international symposium on neurosciences "Volga Neuroscience Meeting"
Participant and Project Coordinator	
2018 – present time	Contract 14.Y26.31.0022, 'Megagrant', Ministry of Education and Science, 'Scalable Artificial Intelligence Networks for Data Analysis in Growing Dimensions'
2017 - *present time*	Grant 17-12-01534, Russian Scientific Foundation, 'Collective nonequilibrium dynamics in complex systems'
2017 - *present time*	Grant 17-02-00467, Russian Foundation for Basic Research, 'Studies of collective dynamics of mixed media composed of the elements that demonstrate qualitatively different behavior and that have complex topology of coupling. '
2017	Proposal M-2017a-4, G-RISC German-Russian Interdisciplinary Science Center, 'Chimera patterns in oscillatory ensembles'
2016 - *present time*	Grant 16-01-00364, Russian Foundation for Basic Research, 'Developing mathematical methods of the theory of dynamical chaos'
2016 - *present time*	Contract 02.G25.31.0157, Ministry of Education and Science, 'Software and hardware complex 'Cyberheart'
2014 - 2016	Grant 14-12-00811, Russian Scientific Foundation, 'Phase dynamics of oscillatory systems'
2014 - 2016	Grant 14-41-00044, Russian Scientific Foundation, 'Dynamics and bifurcations of dissipative and conservative systems'
Participant	
2014 - 2016	Contract 14.Z50.31.0033, 'Megagrant', Ministry of Education and Science, 'New approaches to study of climate processes and predicting of extreme events'
2014 – 2016	Contract 1.115.2014-K, Ministry of Education and Science, 'Collective dynamics of distributed nano-systems: from chaos to control'
2014 - 2016	Contract 14.575.21.0031, Federal national program, 'Development of system components of an innovative robotic complex for rehabilitation of patients with violations of functions of the lower extremities owing to injuries and diseases of a head and spinal cord'
2012	Grant 14.B37.21.0247, Federal national program, 'Chaotic dynamics'
2012 - 2013	Grant 14.B37.21.0863, Federal national program, 'Dynamical and statistical methods in the theory of complex systems and their applications to physical and neuronal problems'

2011 - 2013	Grant 11.519.11.2015, Federal national program, 'Computational and in vitro studies of mechanoelectrical activity of a heart'
2011 - 2013	Grant 11.519.11.2022, Federal national program, 'In vitro and computational study of mechanisms of arrhythmia in human heart'
2010 - 2012	Grant 10-02-00940, Russian Foundation for Basic Research, 'Synchronization and control in complex networks of non-identical oscillators with multiple amplitude- and timescales with application in neurodynamics'
2011 – 2013	Grant 11-02-92003, Russian Foundation for Basic Research, 'Spatio-temporal feedback control of complex dynamics related to cardiology'
2011 - 2012	Grant 11-07-97013, Russian Foundation for Basic Research, 'Supercomputing systems and technologies in the study of living systems with applications in cardiology'

ORGANIZATION ACTIVITIES

Scientific secretary and member of organizing committee of **15** international conferences on nonlinear dynamics and neuroscience held in Russia

2017 - 2018	Russian-German Symposium on collective nonequilibrium dynamics in complex systems
2016, 2018	'Volga Neuroscience Meeting'
2016	Russian-Belgian Workshop on Computational Biomedicine
2015 - 2018	'Dynamics, Bifurcations, and Strange Attractors'
2014 - 2018	'Shilnikov Workshop'
2015	'Infinite-dimensional dynamics, dissipative systems, and attractors'