Olesia Dogonasheva

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EDUCATION

École normale supérieure, Doctorale Cerveau, cognition, comportement (ED3C), Paris — 2023
PhD

HSE University, Psychology department, Moscow — 2023
PhD

Alferov University, Nanobiotechnology department, Saint-Petersburg — 2020
MA in Physics

ITMO University, Department of higher mathematics, Saint-Petersburg — 2015
BA in Applied Mathematics and Computer Science

COMPLEMENTARY EDUCATION

Bioinformatics Institute, Saint-Petersburg — 2020
Statistics, data analysis, machine learning, bioinformatics tools

Computer Science Center, Saint-Petersburg — 2012
Algorithms and data structures, C++

PUBLICATIONS

O. Dogonasheva, D. Kasatkin, B. Gutkin, D. Zakharov "Robust universal approach to identify travelling chimeras and synchronized clusters in spiking networks", *Chaos, Solitons and Fractals: the interdisciplinary journal of Nonlinear Science, and Nonequilibrium and Complex Phenomena*, Received for production, 2021

CONFERENCE PROCEEDINGS

O. Dogonasheva, B. Gutkin, D. Zakharov "Multistability of coherent states in ring networks of type II neurons with asymmetrical nonlocal inhibitory connectivity", *Journal of Computational Neuroscience*, vol. 49 (Suppl 1), pp. 201–202, 2021

D. Zakharov, O. Dogonasheva, B. Gutkin "A general approach to characterize structured synchronization processes in spiking neural networks based on an adaptive synchronization measure", *Journal of Computational Neuroscience*, vol. 49 (Suppl 1), pp. 63, 2021

O. Dogonasheva, B. Gutkin, D. Zakharov "Calculation of travelling chimera speeds for dynamical systems with ring topologies", *IEEE Xplore*, 2021

D. Zakharov, O. Dogonasheva, B. Gutkin "Bistability of globally synchronous and chimera states in a ring of phase oscillators coupled by a cosine kernel", *IEEE Xplore*, 2021

D. Zakharov, O. Dogonasheva, B. Gutkin, "Role of Pyramidal Cell M-current in Weak Pyramidal/Interneuronal Gamma Cluster Formation," *IEEE Xplore*, pp. 261–264, 2020

CONFERENCES

O. Dogonasheva, B. Gutkin, D. Zakharov "Calculation of travelling chimera speeds for dynamical systems with ring topologies", *BF-NAICS 2021: Baltic Forum: Neuroscience, AI and Complex Systems*, Kaliningrad, Russia, Sep 2021.

O. Dogonasheva, B. Gutkin, D. Zakharov "Multistability of coherent states in ring networks of type II neurons with asymmetrical nonlocal inhibitory connectivity", *30th Annual Computational Neuroscience Meeting*, Jul 2021.

O. Dogonasheva, B. Gutkin, D. Zakharov "A new universal approach for studying synchronization processes in networks of active elements based on adaptive synchronization measure", *Nonlinear days 2021*, Saratov, Russia, Apr 2021.

O. Dogonasheva, G. Novikov, "A new method for the molecular geometry optimization during the quantum-chemical modeling of chemical and biochemical reactions", *SPbOpen 2019*, Saint-Petersburg, Russia, Apr 2019.

O. Dogonasheva, I. Popov "Solution of spectral problems for quantum graphs with delta potentials of spiral types in a magnetic field", *IV Congress of young scientists of Russia*, Saint-Petersburg, Russia, 2015.

O. Dogonasheva, I. Popov "DNA topology quantum graphs in a magnetic field", *Mathematical Challange of Quantum Transport in Nanosystems*, Saint-Petersburg, Russia, 2014.

PATENTS	**Patent for a computer program No. 2021616670**, Software package for automatic simulation of chemical reactions networks during the deposition of molecular coatings on surfaces	2021
	Patent for a computer program No. 2020615220, Software package ReaNet for automatic modeling of thermal chemical and photochemical reactions	2020
AWARDS & SCHOLARSHIPS	**Vernadsky Fellowship Award**, Ambassadeur de France en Russie	2021
	Idea Foundation Fellowship, Research Center "IDEAS"	2021
	Grant from Free University Berlin, Project "Implementations of explainable deep learning methods to histopathological analysis of animal tumor HE-images"	2020
	Winner of the competition "Start - Digital Technology", Innovation Promotion Fund, Moscow, Russia	2020
	Prizewinner in the "International gemini Mars design competition", The Mars society, USA	2016
SCHOOLS & INTERNSHIPS	**Mathematics, Theoretical Physics and Mathematical Methods of Data Analysis in Neuroscience**, Scientific School in Sirius Mathematics Center, Sochi, Russia	2021
	Neuromatch Academy, Summer school in Computational Neuroscience	2020
	Bioinformatics Summer School, MIPT, Moscow, Russia	2019
INVITED TALKS	**Institute of Radio-engineering and Electronics RAS, Saratov, Russia**, "Travelling chimera states in the ring of II-type Morris-Lecar neurons with asymmetric nonlocal inhibitory connections"	2020
TEACHING EXPERIENCE	**ITMO University**, Saint-Petersburg	2014 – 2017

- Higher mathematics, 3 terms course
- Probability theory and mathematical statistics, 2 terms course

RESEARCH EXPERIENCE	**Higher School of Economics**, Moscow	Present

- Studying of a synchronization and chimera states in spiking neural networks
- Modelling of the effects of TMS on the rhythmic activity in the brain
- Studying how brain rhythms influence on speech coding

	Skoltech, Moscow	2020

- Discovery of allosteric binding site in G protein-coupled receptors

	Bioinformatics Institute, Saint-Petersburg	2019

- Phenome-wide functional analysis of human genetic association data

	Alferov University, Saint-Petersburg	2018 – 2020

Researcher, Nanobiotechnology laboratory

- Development of optimization algorithms to automatic search of chemical reaction pathways

- Implementation of a genetic algorithm for the amino acid substitutions selection in the chromophore to increase the absorption coefficient
- Implementation of machine learning algorithms to optimize force field parameters

ITMO University, Saint-Petersburg   2014 – 2017

Assistant, Department of higher mathematics
- Solving spectral problems for spiral-type quantum graphs

Scientific Center for Robotics and Technical Cybernetics, Saint-Petersburg   2014 – 2015

Technician, Mathematical modelling department
- Solving of the inverse kinematics problem for a six-chain robot manipulator
- Ice dynamics modelling for the project of rescue robots on the oil platforms

ACTIVITIES

**Youth Section of the Federation of Cosmonautics
of the Northwestern District of the Russian Federation**,   since 2013

Member

REFERENCES

- **Professor Boris Gutkin**
  Director of Research at the Centre National pour la Recherche Scientifique (CNRS) France,
  Director, Group for Neural Theory, Laboratoire de Neuroscience Cognitive, INSERM U960, DEC, ENS
  Invited Professor, HSE University, Moscow, Russia
  29 rue d'Ulm Paris 75005
  bgutkin@hse.ru

- **Denis Zakharov**
  Senior Research Fellow
  Centre for Cognition & Decision Making, Institute for Cognitive Neuroscience
  HSE University
  3 Krivokolenny Pereulok, Moscow, Russia
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