

Alexandra Skripchenko

Curriculum Vitae

Personal Data

Name: Alexandra (Sasha) Skripchenko
Date of Birth: February 7th, 1989
Nationality: Russian Federation
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Academic Positions

September 2015–present **Assistant Professor**, *Faculty of Mathematics, Higher School of Economics, Moscow.*

September 2014– August 2015 **Postdoc**, *Faculty of Mathematics, Higher School of Economics, Moscow.*
Supervisor: Vladlen Timorin

September 2013– August 2014 **Postdoc**, *Institut de Mathématiques de Jussieu, Université Paris VII, Paris.*
supported by Foundation Science Mathématiques de Paris
Supervisor: Anton Zorich

March 2013– August 2013 **Postdoc**, *Institut de Mathématiques de Jussieu, Université Paris VII, Paris.*
Supervisor: Artur Avila

Research interests

- Dynamical systems: symbolic dynamics and ergodic theory;
- Low-dimensional topology: measured foliations on surfaces;
- Geometric group theory: \mathbb{R} -trees and automorphisms of free groups.

Education

2009–2012 **Graduate Student**, *Department of Mechanics and Mathematics, Moscow State University, Moscow.*

Ph.D. Moscow State University (defense date - December 14, 2012)

- Thesis: Interval identification systems and their applications to foliation theory and dynamical systems;
- Advisor: Ivan A. Dynnikov.

2004–2009 **Undergraduate Student**, *Department of Mechanics and Mathematics, Moscow State University, Moscow.*

M.S. Moscow State University, June 2009, summa cum laude in mathematics

- GPA 5.0 of 5.0;
- Major in geometry and topology.

1999–2004 **Student**, *School No. 2, Moscow.*

graduated with the highest distinction (gold medal), GPA 5.0 of 5.0

Publications

- Symmetric interval identification systems of order three, *Discrete Contin. Dyn. Sys.*, Vol. 32, no. 2, 2012, 643 – 656; arXiv: 1010.1820;
- On connectedness of chaotic sections of some 3-periodic surfaces, *Ann. Glob. Anal. Geom.*, Vol. 43, 2013, 253 – 271; arXiv: 1112.5870;
- On typical leaves of a measured foliated 2-complex of thin type (with Ivan Dynnikov), *Amer. Math. Soc. Transl. (2)*, Vol. 234, 2014, 173–199; arXiv: 1309.4884;
- Polygonal billiards with one sided scattering (with Serge Troubetzkoy), *Annales de l'Institut Fourier*, Vol. 65, no. 5. 2015, 1881–1896; arXiv: 1306.4243
- Symmetric band complexes of thin type and chaotic sections which are not actually chaotic (with Ivan Dynnikov), *Trans. Moscow Math. Soc.*, Vol. 76, no. 2, 2015, 287–308, arXiv: 1501.06866;
- Entropy and complexity of polygonal billiards with spy mirrors (with Serge Troubetzkoy), *Nonlinearity*, Vol. 28, 2015, 3443–3456; arXiv: 1501.04584;
- On the Hausdorff dimension of the Rauzy gasket (with Artur Avila and Pascal Hubert), arXiv: 1311.5361, accepted for publication in *Bulletin de la SMF*;
- Diffusion for chaotic plane sections of 3-periodic surfaces (with Artur Avila and Pascal Hubert), arXiv: 1412.7913, accepted for publication in *Inventiones mathematicae*.

Preprints

- On the Hausdorff dimension of minimal interval exchange transformations with flips (with Serge Troubetzkoy), arXiv: 1510.02362 (submitted);
- Minimality of interval exchange transformations with restrictions (with Ivan Dynnikov), arXiv: 1510.03707 (submitted).

Short-Term Academic Visits

- 03/2016–04/2016 **Invited researcher**, *Institut Mathématiques de Jussieu*, Paris, France, supported by Foundation Science Mathématiques de Paris.
- 02/2016 **Invited researcher**, *University of Bristol*, Bristol, UK.
- 03/2015–05/2015 **Invited researcher**, *Institut Mathématiques de Marseille*, Marseille, France, supported by Metchnikov Scholarship.
- 02/2015 **Visiting scholar**, *Université Paris VII*, Paris, France.
- 2010–2015 **Frequent visiting scholar**, *Université Aix-Marseille*, Marseille, France.
- 09/2014 **Visiting scholar**, *University Tor Vergata*, Rome, Italy.
- 01/2014 **Visiting scholar**, *Institut Fourier*, Grenoble, France.
- 2013–2014 **Frequent Visiting scholar**, *Steklov Institut of RAS*, Moscow, Russia.

06/2012 **Visiting scholar**, *Université de Rennes-1*, Rennes, France.

Awards and Scholarships

- 02/2015 Metchnikov Scholarship for Russian - French scientific exchange;
- 12/2014 Dynasty Foundation Prize for young Russian mathematicians;
- 02/2014 Lavrentiev Prix for Russian postdocs in France;
- 2013–2014 Postdoctoral fellowship by Foundation Science Mathématiques de Paris;
- 09/2011 Grant of GDRI "Réseau franco-russe de formation et de recherche en mathématiques" (CNRS program for young Russian researches).

Selected Conference Talks

- 04/2016 "Renormalization in Dynamics", Pisa, Italy (upcoming);
- 09/2015 "Dynamics, Combinatorics and Representations", Saint-Petersburg, Russia;
- 12/2013 "Approximation and numeration", Paris, France;
- 06/2013 "Continued Fractions, Interval Exchanges and Applications to Geometry", Pisa, Italy;
- 01/2013 "SubTile 2013", Marseille, France;
- 05/2012 "Alexandroff Readings", Moscow, Russia;
- 07/2011 "Geometric Topology - Dubrovnik VII", Dubrovnik, Croatia;
- 06/2011 "Geometric Group Theory", Haifa, Israel.

Selected Seminars

- 11/2015 *Discrete geometry and geometry of numbers*, Moscow State University, Russia;
- 05/2015 *Seminar of Laboratory of Algebraic Geometry*, Higher School of Economics, Moscow, Russia;
- 03/2015 *Dynamique des algorithmes du pgcd: une approche Algorithmique, Analytique, Arithmétique et Symbolique*, LIAFA, Paris, France;
- 03/2015 *Representation theory and dynamical systems*, Steklov Institute of RAS, Saint-Petersburg, Russia;
- 02/2015 *Moscow Mathematical Society meeting*, Moscow State University, Moscow, Russia;
- 02/2015 *Théorie ergodique et systèmes dynamiques d'Orsay*, Université Paris-Sud, Paris, France;
- 02/2015 *Séminaire de théorie ergodique*, Institut de Mathématiques de Jussieu, Paris, France;
- 12/2014 *Ergodic Theory Seminar*, Moscow State University, Moscow, Russia;
- 11/2014 *Dobrushin Laboratory Seminar*, Institute of Information Transmission Problems, Moscow, Russia;
- 10/2014 *Dynamique, Arithmétique et Combinatoire*, Institut de Mathématiques de Luminy, Marseille, France;
- 09/2014 *Geometric structures on manifolds*, Higher School of Economics, Moscow, Russia;
- 09/2014 *Dynamical systems working seminar*, University Tor Vergata, Rome, Italy;

- 09/2014 *Characteristic classes and intersection theory*, Higher School of Economics, Moscow, Russia;
- 06/2014 *Géométrie et dynamique dans les espaces de modules*, IHP, Paris, France;
- 03/2014 *Séminaire de théorie ergodique*, Institut de Mathématiques de Jussieu, Paris, France;
- 01/2014 *Séminaire de topologie*, Institut Fourier, Grenoble, France;
- 12/2013 *Séminaire de géométrie et dynamique*, ENS, Lyon, France;
- 11/2013 *Geometry, topology and mathematical physics*, Moscow State University, Moscow, Russia;
- 10/2013 *Teichmüller Theory Seminar*, LATP, Marseille, France;
- 09/2013 *Séminaire de topologie*, Université Montpellier 2, Montpellier, France;
- 05/2013 *Dynamique, Arithmétique et Combinatoire*, Institut de Mathématiques de Luminy, Marseille, France;
- 11/2012 *Dynamical Systems*, Nizhny Novgorod State University, Nizhny Novgorod, Russia;
- 03/2012 *Discrete geometry and geometry of numbers*, Moscow State University, Russia;
- 09/2011 *Algèbre, Dynamique et Topologie*, Université Aix-Marseille, Marseille, France;
- 10/2010 *Geometry, topology and mathematical physics*, Moscow State University, Moscow, Russia;
- 09/2010 *Teichmüller Theory Seminar*, LATP, Marseille, France;
- 05/2009 *Algebraic Topology*, Moscow State University, Moscow, Russia;

Participation in School and Workshops

- 07/2015 *Dynamics and Geometry in Teichmüller Space*, Marseille, France;
- 05/2014 *Combinatorics of Moduli Spaces, Cluster Algebras, and Topological Recursion*, Moscow, Russia;
- 12/2013 *Hyperbolicity and Dimension*, Marseille, France;
- 06/2012 *ICTP–ESF School and Conference in Dynamical Systems*, Trieste, Italy;
- 04/2012 *Ergodic geometry and dynamics in the moduli space*, Marseille, France;
- 04/2012 *Laminations and symbolic dynamics*, Marseille, France;
- 12/2011 *Flows on surfaces, symbolic dynamics and dynamics in moduli spaces*, Moscow, Russia;
- 09/2010 *3-dimensional geometry and topology*, Marseille, France.

Teaching Activity:

- Autumn 2015 **Lecturer**, Faculty of Mathematics, Higher School of Economics, course: "Probability I".
- Autumn 2015 **Co-organizer**, Faculty of Mathematics, Higher School of Economics, seminar: "Geometry and Dynamics".
- Autumn 2014 **Lecturer**, Faculty of Applied Mathematics and Cybernetics, Higher School of Economics, course "Monte-Carlo method: how do investment bankers forecast".
- Autumn 2012 **Teacher**, International Baccalaureate, High Level Mathematics Course.

2009–2013 **Examiner**, *Faculty of Mechanics and Mathematics, Moscow State University*, courses “Analytic Geometry”, “Linear Algebra and Geometry”, “Differential Geometry” and “General Topology”.

2010–2011 **Member**, *Selection committee on entrance exams*, Moscow State University.

Supervision of students:

September 2015 - present **Master Thesis Advisor**, *Faculty of Mathematics, Higher School of Economics*, Title of the thesis “Invariant measures for minimal interval exchange transformations with flips”.

Spring 2015 **Bachelor Thesis Advisor**, *Faculty of Applied Mathematics and Cybernetics, Higher School of Economics*, Title of the thesis “Closed orbits of triangular billiards”.

Workshops and conferences organized:

February 2017 (upcoming) **Co-organizer**, *Thematic month “Dynamical systems”*, CIRM, Marseille, France.

December 2011 **Assistant**, *Organization of the conference “Flows on surfaces, symbolic dynamics and dynamics in moduli spaces”*, (with Anton Zorich, Pascal Hubert, Alexander Bufetov and Alexey Glutsyuk), Laboratoire CNRS J.-V.Poncelet.

Non-mathematical employment history

06/2008– **Senior Consultant**, *American Appraisal Associate*, Moscow.

08/2012 Business Valuation department

Key responsibilities: financial modeling, corporate finance, project management

Languages

Russian Native

English Fluent

French Good

Italian Basic