

Yulia Meshkova

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Birthdate: May 13th, 1991
Citizenship: Russian Federation
Gender: Female
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Research interests

mathematical physics;
partial differential equations;
homogenization theory;
spectral theory of operators

Education

2014–2018	PhD student in Mathematical Physics, St. Petersburg State University, Russia. PhD (24 December 2018). Advisor: Dr. Suslina T. A.
2012–2014	MSc in Physics, diploma with distinction, St. Petersburg State University, Russia.
2008–2012	BSc in Physics, diploma with distinction, St. Petersburg State University, Russia.

Professional experience

2013–2019	Researcher at the research center „Chebyshev Laboratory”, St. Petersburg State University, St. Petersburg, Russia.
2016	Teaching assistant at Department of Mathematics and Information Technology , Saint Petersburg Academic University, St. Petersburg, Russia.
2020	Postdoctoral researcher at Helsinki University, Helsinki, Finland. Advisor: Tuomo Kuusi .

Awards, grants, and scholarships

2014	Finalist of The August Möbius Contest (student contest of research papers organized by Moscow Center for Continuous Mathematical Education).
2015–2016	Russian Government Scholarship to PhD students in priority areas of modernization and technological development of Russian economy.
2016	Rokhlin grant for Young Mathematicians.
2016–2017	Grant for Young Mathematicians , the “Dynasty” foundation.
2017–2018	Scholarship of the President of the Russian Federation to PhD students in priority areas of modernization and technological development of Russian economy.
2019	Jan.–Mar., postdoctoral fellowship of the Mittag-Leffler Institute, Stockholm, Sweden. Research Program „ Spectral methods in mathematical physics .” Sep.–Dec., postdoctoral fellowship of the University of Bonn, Bonn, Germany. Hausdorff Junior Trimester Program „ Randomness, PDEs and Nonlinear Fluctuations ” at Hausdorff Research Institute for Mathematics (HIM) in Bonn.

Presentations at conferences and workshops

2012	International conference “KROMSH-2012” (Sevastopol, Ukraine, 17–29 September 2012). International student conference “Science and Progress” (St. Petersburg, Russia, 12–16 November 2012).
2013	International conference “Days on Diffraction 2013” (St. Petersburg, Russia, 27–31 May 2013). International conference “KMMK” (Sudak, Ukraine, 22 September – 4 October 2013).
2014	International conference “Days on Diffraction 2014” (St. Petersburg, Russia, 26–30 May 2014). International conference in spectral theory “The Sixth St. Petersburg Conference in Spectral Theory” (St. Petersburg, Russia, 3–8 July 2014). The Seventh international conference on differential and functional differential equations (Moscow, Russia, 22–29 August 2014). International Conference “KROMSH-2014” (Sudak, Russia, 21–30 September 2014). International student conference “Science and Progress” (St. Petersburg, Russia, 10–14 November 2014). International conference “Theoretical and applied aspects of mathematics, informatics and education” (Arkhangelsk, Russia, 16–21 November 2014).
2015	International conference “Days on Diffraction 2015” (St. Petersburg, Russia, 25–29 May 2015). International conference “Asymptotic Problems: Elliptic and Parabolic Issues” (Vilnius, Lithuania, 1–5 June 2015). The fifth international conference “Multiscale Modeling and Methods: Upscaling in Engineering and Medicine” (Moscow, Russia, 25–27 June 2015). International conference “KROMSH-2015” (Batiliman (Laspi), Russia, 17–29 September 2015).
2016	International conference on differential equations and dynamical systems (Suzdal, Russia, 8–12 July 2016).

- A trilateral German-Russian-Ukrainian summer school “Spectral Theory, Differential Equations and Probability” (Johannes Gutenberg Universität Mainz, Germany, September 4th – 15th 2016).
- International conference “KROMSH-2016” (Batiliman (Laspi), Russia, 17–29 September 2016).
- International student conference “Science and Progress” (St. Petersburg – Peterhof, Russia, 17–21 October 2016).
- 2017 Christmas meetings with Pierre Deligne (IUM, Moscow, Russia, 4–6 January 2017).
- International conference on partial differential equations - Silkroad Mathematics Center series international conferences (Beijing, China, 10–21 April 2017). (Poster talk.)
- International conference “Modern Methods, Problems and Applications of Operator Theory and Harmonic Analysis VII” (Rostov-on-Don, Russia, 23–28 April 2017).
- International conference “Days on Diffraction 2017” (St. Petersburg, Russia, 19–23 June 2017).
- International conference on mathematical control theory and mechanics, session in the memory of V. V. Zhikov (Suzdal, Russia, 7–11 July 2017).
- The 8th international conference on differential and functional differential equations (Moscow, Russia, 13–20 August 2017).
- Insubria Summer School in Mathematical Physics “Spectral and scattering theory: from selfadjoint operators to boundary value problems” (University of Insubria, Como, Italy, 18–22 September 2017). (Poster talk.)
- International conference “KROMSH-2017” (Batiliman (Laspi), Russia, 17–29 September 2017).
- Workshop “Homogenization Theory and Applications (HomTAp)” (WIAS, Berlin, Germany, 4–6 October 2017).
- Texas Analysis and Mathematical Physics Symposium 2017 (The University of Texas at Austin, Austin, Texas, USA, 3–5 November 2017).
- St. Petersburg winter youth conference on probability theory and mathematical physics (St. Petersburg, Russia, 19–21 December 2017).
- 2018 The KUMUNU (Universities of Kansas, Missouri and Nebraska) Conference in PDE, Dynamical Systems and Applications (University of Kansas in Lawrence, USA, 21–22 April 2018).
- 10th St. Petersburg Conference in Spectral Theory dedicated to the memory of M. Sh. Birman (St. Petersburg, Russia, 9–12 June 2018).
- Young Researchers Symposium (McGill University, Montréal, Quebec, Canada, 20–21 July 2018).
- XIX International Congress on Mathematical Physics (Montréal, Quebec, Canada, 23–28 July 2018).
- 7th International Conference on Mathematical Modeling in Physical Sciences (Moscow, Russia, 27–31 August 2018).
- Inverse and Spectral Problems for (Non)-Local Operators (Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany, 10–14 September 2018). (Poster talk.)
- International conference “KROMSH-2018” (Batiliman (Laspi), Russia, 17–29 September 2018).
- 2019 Kick-off conference, Research Program „Spectral methods in mathematical physics” (Institut Mittag-Leffler, Sweden, 14–19 January 2019).
- International conference “Days on Diffraction 2019” (St. Petersburg, Russia, 3–7 June 2019).

- Workshop „Small Scales and Homogenization” (Cardiff, UK, 24–26 June 2019).
- International Workshop on Operator Theory and its Applications (IWOTA) (Instituto Superior Técnico, Lisbon, Portugal, 22–26 July 2019).
- 12th International ISAAC congress (University of Aveiro, Portugal, 29 July – 2 August 2019).
- Quantum Graphs and Quantum Random Walks in Mathematics, Computer Science and Physics (Lake Como School of Advanced Studies, Como, Italy, 5–9 August 2019). (Poster talk.)
- QMath14: Mathematical Results in Quantum Physics (Aarhus University, Aarhus, Denmark, 12–16 August 2019).
- Quantissima in the Serenissima III, Mathematical challenges in classical & quantum statistical mechanics (Palazzo Pesaro-Papafava, Venice, Italy, 19–23 August 2019).
- Summer School „New Frontiers in Singular SPDEs and Scaling Limits” (Hausdorff Research Institute for Mathematics, Bonn, Germany, 23–27 September 2019). (Poster talk.)
- Asymptotic Analysis & Spectral Theory (University Paris-Sud, Orsay, France, 30 September – 4 October 2019).
- 2020 The 3rd Haifa Probability School: Workshop on Random Geometry and Stochastic Analysis (Haifa, Israel, 24–28 February 2020).
- 2021 XX International Congress on Mathematical Physics (Geneva, Switzerland, 2–7 August 2021). (Poster presentation in Human Rights Session.)
- 2022 Tenth International Conference „Inverse Problems: Modeling and Simulation” (Malta, 2022). (Planned.)

Seminar talks

- 2014 Seminar of Chair of Mathematics and Mathematical Physics, Department of Physics, St. Petersburg State University; St. Petersburg Department of V. A. Steklov Institute of Mathematics of the Russian Academy of Sciences, St. Petersburg, Russia, 21 May 2014.
- V. I. Smirnov Seminar on Mathematical Physics, St. Petersburg Department of V. A. Steklov Institute of Mathematics of the Russian Academy of Sciences, St. Petersburg, Russia, 24 November 2014.
- 2016 St. Petersburg Seminar on Dynamics, St. Petersburg State University, Chebyshev Laboratory, St. Petersburg, Russia, 10 October 2016.
- Seminar of Chair of Mathematics and Mathematical Physics, Department of Physics, St. Petersburg State University; St. Petersburg Department of V. A. Steklov Institute of Mathematics of the Russian Academy of Sciences, St. Petersburg, Russia, 19 October 2016.
- Research seminar „Asymptotics, operators and functionals,” University of Bath, Bath, United Kingdom, 31 October 2016.
- Mathematical Physics and Harmonic Analysis Seminar, Texas A&M University, College Station, Texas, USA, 17 November 2016.
- 2017 Séminaire d’Analyse Numérique et Calcul Scientifique, Laboratoire de Mathématiques de Besançon (LMB), Besançon, France, 4 May 2017.
- Mathematical Physics and Harmonic Analysis Seminar, Texas A&M University, College Station, Texas, USA, 27 October 2017.

- Seminar of Chair of Mathematics and Mathematical Physics, Department of Physics, St. Petersburg State University; St. Petersburg Department of V. A. Steklov Institute of Mathematics of the Russian Academy of Sciences, St. Petersburg, Russia, 29 November 2017.
- 2018 PDE & Math Physics seminar, Department of Mathematics and Statistics at UNC Charlotte, Charlotte, North Carolina, USA, 18 April 2018.
 Baylor Analysis Seminar, Department of Mathematics, Baylor University, Waco, Texas, USA, 25 April 2018.
 Research seminar „Asymptotics, operators and functionals,” University of Bath, Bath, United Kingdom, 8 May 2018.
 Applied Mathematics Seminar, Durham University, Durham, United Kingdom, 11 May 2018.
 Seminar on differential equations, Department of mathematical modelling, Moscow Power Engineering Institute (MPEI), Moscow, Russia, 7 November 2018.
 Seminar on differential equations of mathematical physics, Institute of Mathematics with Computing Centre - Subdivision of the Ufa Federal Research Centre of Russian Academy of Science, Ufa, Russia, 13 November 2018.
 Seminar on analysis, Chebyshev Laboratory, St. Petersburg State University, St. Petersburg, Russia, 15 November 2018.
- 2019 Junior Seminar, Research Program „Spectral methods in mathematical physics,” Institut Mittag-Leffler, Stockholm, Sweden, 06 February 2019.
 Seminar, Research Program „Spectral methods in mathematical physics,” Institut Mittag-Leffler, Stockholm, Sweden, 07 February 2019.
 Applied Mathematics Seminar, Durham University, Durham, United Kingdom, 28 June 2019.
 Geometric and Functional Analysis Seminar, University of Helsinki, Helsinki, Finland, 27 August 2019.
 Seminar, Hausdorff Junior Trimester Program „Randomness, PDEs and Nonlinear Fluctuations,” Hausdorff Research Institute for Mathematics, Bonn, Germany, 12 September 2019.
 Nonlinear analysis seminar, University of Cologne, Cologne, Germany, 2 December 2019.
 Group Seminar on analysis, Institute for Applied Mathematics, Bonn, Germany, 13 December 2019.

Research papers

- 2013
1. Meshkova Yu. M., *Homogenization of the Cauchy problem for parabolic systems with periodic coefficients*, **Algebra i Analiz**, **25**:6 (2013), 125–177 (in Russian); English transl.: St. Petersburg Mathematical Journal, **25**:6 (2014), 981–1019.
- 2015
2. Meshkova Yu. M., Suslina T. A., *Homogenization of solutions of initial boundary value problems for parabolic systems*, **Funktsional. Anal. i Prilozhen.**, **49**:1 (2015), 88–93 (in Russian); English transl.: Functional Analysis and Its Applications, **49**:1 (2015), 72–76.

2016

3. Meshkova Yu. M., Suslina T. A., *Two-parametric error estimates in homogenization of second order elliptic systems in $\mathbb{R}^d$* , **Applicable Analysis**, **95**:7 (2016), 1413–1448.
4. Meshkova Yu. M., Suslina T. A., *Homogenization of initial boundary value problems for parabolic systems with periodic coefficients*, **Applicable Analysis**, **95**:8 (2016), 1736–1775.

2017

5. Meshkova Yu. M., Suslina T. A., *Homogenization of the Dirichlet problem for elliptic and parabolic systems with periodic coefficients*, **Funktsional. Anal. i Prilozhen.**, **51**:3 (2017), 87–93 (in Russian); English transl.: *Functional Analysis and Its Applications*, **51**:3 (2017), 230–235.
6. Meshkova Yu. M., Suslina T. A., *Homogenization of the first initial boundary-value problem for parabolic systems: operator error estimates*, **Algebra i Analiz**, **29**:6 (2017), 99–158 (in Russian); English transl.: *St. Petersburg Mathematical Journal*, **29**:6 (2018), 935–978.
7. Meshkova Yu. M., Suslina T. A., *Homogenization of the Dirichlet problem for elliptic systems: Two-parametric error estimates*, arXiv:1702.00550 (2017).
8. Meshkova Yu. M., *On operator error estimates for homogenization of hyperbolic systems with periodic coefficients*, arXiv:1705.02531 (2017); accepted to **Journal of Spectral Theory**.

2019

9. Meshkova Yu. M., *Homogenization with the corrector for periodic parabolic systems in the $L_2(\mathbb{R}^d)$ -norm*, **Algebra i Analiz**, **31**:4 (2019), 137–197 (in Russian); English transl.: *St. Petersburg Mathematical Journal*, **31**:4 (2020), 675–718.
10. Meshkova Yu. M., *On homogenization of periodic hyperbolic systems*, **Matematicheskie Zametki**, **105**:6 (2019), 937–942 (in Russian); English transl.: *Mathematical Notes*, **105**:5–6 (2019), 929–934.
11. Meshkova Yu. M., *Variations on the theme of the Trotter-Kato theorem for homogenization of periodic hyperbolic systems*, arXiv:1904.02781 (2019).

2020

12. Meshkova Yu. M., *Note on quantitative homogenization results for parabolic systems in $\mathbb{R}^d$* , arXiv:1912.12547 (2019); **Journal of Evolution Equations**, published on-line, DOI: 10.1007/s00028-020-00600-2.
13. Meshkova Yu. M., *On homogenization of the first initial-boundary value problem for periodic hyperbolic systems*, **Applicable Analysis**, **99**:9 (2020), 1528–1563.

Research visits

2018	9–13 May 2018, Durham University, Durham, United Kingdom. Host: Shane Cooper , PhD.
	11–15 December 2018, University of Sannio, Benevento, Italy. Host: Giuseppe Cardone , PhD.
2019	13 January – 10 March 2019, Research Program „Spectral methods in mathematical physics,” Institut Mittag-Leffler, Stockholm, Sweden.
	27–28 August 2019, University of Helsinki, Helsinki, Finland. Host: prof. Tuomo Kuusi .
	2 September – 19 December 2019, Hausdorff Junior Trimester Program „Randomness, PDEs and Nonlinear Fluctuations,” Hausdorff Research Institute for Mathematics (HIM) in Bonn, Germany.
2020	29 February – 26 August 2020, Program „Renormalization and universality in Conformal Geometry, Dynamics, Random Processes, and Field Theory,” The Simons Center for Geometry and Physics, New York, USA.

External links

arXiv.org	http://arxiv.org/a/meshkova_y_1
Google Scholar	http://scholar.google.com/citations?user=Wa0cycgAAAAJ&hl=en
zbMATH ID	meshkova.yu-m
MathSciNet ID	1074110
ORCID ID	orcid.org/0000-0002-1045-3332
ResearcherID	G-1747-2015
Scopus ID	56412961500
ResearchGate	https://www.researchgate.net/profile/Yulia_Meshkova