

# YULIA PETROVA. CURRICULUM VITAE

## PERSONAL DATA

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NAME: Petrova Yulia (Iuliia) Petrovna  
DATE OF BIRTH: 29 June 1991, Ukhta, Russia (ex. USSR)  
  
CURRENT POSITION: Assistant Professor (Professora Adjunta), PUC-Rio  
Pontifícia Universidade Católica do Rio de Janeiro  
CURRENT ADDRESS: R. Marquês de São Vicente, 124 (room 854)  
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HOMEPAGE: <https://yulia-petrova.github.io/>  
MARITAL STATUS: married, no children  
  
LAST CV UPDATE: 19/06/2024



## RESEARCH INTERESTS

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- *Hyperbolic conservation laws*: well-posedness, Riemann problem, traveling and shock waves
- *Fluid dynamics*: multiphase flow in porous media, viscous/gravitational fingering phenomenon
- *Spectral theory*: asymptotics of eigenvalues for compact operators
- *Probability theory*: Gaussian processes, small ball probabilities
- *Industrial applications*: enhanced oil recovery (EOR) methods

## EDUCATION

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Nov 2018 | PhD in Mathematics and Physics, St. Petersburg State University, Russia  
Supervisor: [Alexander I. Nazarov](#). PhD thesis: «Exact  $L_2$ -small ball asymptotics for finite-dimensional perturbations of Gaussian processes» (in Russian). [Short version](#) (in Russian)  
JUN 2013 | MSc in Mathematics, [chair of Mathematical Physics](#), St. Petersburg State University, Russia

## PROFESSIONAL EXPERIENCE

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2023– PRESENT | Assistant Professor at [PUC-Rio](#) as a part of “Projeto Paz”, Rio de Janeiro, Brazil  
  
2021– 2023 | Postdoc of excellence at [Instituto de Matematica Pura e Aplicada \(IMPA\)](#)  
Rio de Janeiro, Brazil. Researcher at [Center PI](#), IMPA  
  
2017–2021 | Researcher at [Chebyshev laboratory](#), St. Petersburg State University, Russia  
Participant of industrial projects with PJSC «Gazprom Neft»  
  
2018–2021 | Teaching at [Department of Mathematics and Computer Science](#)  
St. Petersburg State University, Russia  
  
2014–2018 | Teaching at [Department of Mathematics and Information Technology](#)  
St. Petersburg Academic University, Russia  
  
2012–2015 | Teaching at [Institute of Physics, Nanotechnology and Telecommunications](#)  
St. Petersburg Polytecnic University, Russia

## RESEARCH AWARDS

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2019 | [Laureat of the «Young Mathematician» prize of the St. Petersburg Mathematical Society](#)  
2018–2019 | [«Gazprom Neft» Scholarship](#)  
2018 | [Winner of 22nd Möbius Contest](#) in nomination «Undergraduates and graduates»  
2009 | [Euler Fellowship for undergraduate students](#)

## RECOMMENDATION LETTERS

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- [Yalchin Efendiev](#), Texas A&M, USA (yalchinrefendiev@gmail.com)
- [Dan Marchesin](#), IMPA, Rio de Janeiro, Brazil (marchesi@impa.br)
- [Jean-Michel Roquejoffre](#), Univ. Paul Sabatier, France (jean-michel.roquejoffre@math.univ-toulouse.fr)
- [Mikhail Lifshits](#), St. Petersburg State University, Russia (mikhail@lifshits.org)
- [Alexander Nazarov](#), St. Petersburg department of PDMI, Russia (al.il.nazarov@gmail.com)

## RESEARCH GRANTS

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2024–2026	Participant of CNPQ Universal 406460/2023-0 (Brazil): Multiphase flow in porous media.
2024–2026	Individual grant FAPERJ APQ 1, Auxílio básico a pesquisa (Brazil): Fluid dynamics in porous media
2021	Co-principal investigator of Russian Science Foundation RSF grant 21-11-00047 (Russia): Stochastic processes and fields with application to data analysis
2019–2021	Participant of the Russian Science Foundation RSF grant 19-71-30002 (Russia): Analysis, geometry, mathematical physics and applications
2019–2020	Participant of the <a href="#">President grant MD-1791.2019.1</a> (Russia): Parabolic equations describing displacement of viscous fluids in porous media and systems with hysteresis
2017–2018	Participant of Russian Science Foundation RSF Grant 17-11-01003 (Russia): Asymptotic spectral analysis: gaps, near-threshold anomalies, “invisibility” and eigenvalues
2016–2018	Participant of RFBR Grant 16-01-00258a (Russia): Approximation of stochastic processes and functionals of them
2013–2016	Participant of St. Petersburg State University Grant 6.38.670.2013 (Russia): Partial Differential Equations and applications

## PUBLISHED / ACCEPTED PAPERS

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13. (with F.Bakharev, A.Enin, S.Matveenko, D.Pavlov, N. Rastegaev, S.Tikhomirov) *Velocity of viscous fingers in miscible displacement: Intermediate concentration*. To appear in Journal of Computational and Applied Mathematics. [arXiv:2310.14260](#)
12. (with B. Plohr, D. Marchesin) *Vanishing adsorption admissibility criterion for contact discontinuities in the polymer model*. To appear in Journal of Hyperbolic Differential Equations. [arXiv:2211.10326](#).
11. (with A.I. Nazarov)  *$L_2$ -small ball asymptotics for some demeaned Gaussian processes*. Statistics and Probability Letters, 206:109990, 2024.
10. (with F. Bakharev, A. Enin, N. Rastegaev) *Impact of dissipation ratio on vanishing viscosity solutions of the Riemann problem for chemical flooding model*. Journal of Hyperbolic Differential Equations, 20(2):407–432, 2023.
9. (with A.I. Nazarov)  *$L_2$ -small ball asymptotics for Gaussian random functions: A survey*. Probability Surveys, 20:608–663, 2023.
8. (with F. Bakharev, A. Enin, K. Kalinin, N. Rastegaev, S. Tikhomirov) *Optimal polymer slugs injection profiles*. Journal of Computational and Applied Mathematics, 425:115042, 2023.
7. (with F. Bakharev, A. Enin, A. Groman, A. Kalyuzhnuk, S. Matveenko, I.Starkov, S. Tikhomirov) *Velocity of viscous fingers in miscible displacement: Comparison with analytical models*. Journal of Computational and Applied Mathematics, 402:113808, 2022.
6.  *$L_2$ -small ball asymptotics for a family of finite-dimensional perturbations of Gaussian functions*. Zapiski Nauchnykh Seminarov POMI, Nikitin’s memorial volume, 501:236–258, 2021. [Russian]. Engl. transl.: Journal of Mathematical Sciences, 273(5): 816–831, 2023.
5. (with F. Bakharev, L. Campoli, A. Enin, S. Matveenko, S. Tikhomirov, A. Yakovlev) *Numerical investigation of viscous fingering phenomenon for raw field data*. Transport in Porous Media, 132:443–464, 2020.
4. *On spectral asymptotics for a family of finite-dimensional perturbations of operators of trace class*. Doklady Math., 98(1):367–369, 2018.
3. *Exact  $L_2$ -small ball asymptotics for some Durbin processes*. Zapiski Nauchnykh Seminarov POMI, 466:211–233, 2017. [Russian]. Engl. transl.: Journal of Mathematical Sciences, 244(5):842–857, 2020.
2. *Spectral asymptotics for problems with integral constraints*. Mat. Zametki, 102(3):405–414, 2017 [Russian]. Engl. transl.: Mathematical Notes, 102(3-4):369–377, 2017.
1. (with A.I. Nazarov) *The small ball asymptotics in Hilbertian norm for the Kac–Kiefer–Wolfowitz processes*. Teor. Veroyatnost. i Primenen., 60(3):482–505, 2015 [Russian]. Engl. transl.: Theory of Probability and its Applications, 60(3):460–480, 2016.

## PREPRINTS

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14. (with S. Tikhomirov, Ya. Efendiev) *Propagating terrace in a two-tubes model of gravitational fingering*. Submitted. [arXiv:2401.05981](#).

## CONFERENCE PROCEEDINGS AND REPORTS

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16. (with S. Tikhomirov, Ya. Efendiev) Oberwolfach report 2409 “Hyperbolic Balance Laws: Interplay between Scales and Randomness”. *On the linear growth of the mixing zone in a semi-discrete model of Incompressible Porous Medium equation*, 2024. Available [here](#).
15. (with S. Tikhomirov, F. Bakharev, A. Groman, A. Kalyuzhnyuk, A. Enin, K. Kalinin, N. Rastegaev) *Calculation of graded viscosity banks profile on the rear end of the polymer slug*. Paper SPE-206426-MS, SPE Russian Petroleum Technology Conference, October 2021.

## PATENTS AND REGISTERED COMPUTER PROGRAMS

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18. (with O. Chebyshova, I. Koltsov, M. Bondar, G. Sherbakov, S. Milchakov, D. Apushkinskaya, F. Bakharev, S. Tikhomirov, K. Kalinin, S. Matveenko, D. Pavlov, and N. Rastegaev)  
*Express simulator of enhanced oil recovery methods*. 2023. Computer Program.  
Registration number: RU2023617893. Registration date: 17/04/2023.  
Registration institution: Federal Service for Intellectual Property of Russian Federation.
17. (with A. Groman, F. Bakharev, S. Tikhomirov, N. Rastegaev, A. Enin, and K. Kalinin)  
Patent No. 2772808 C1, Russian Federation, IPC E21B 43/16, C09K 8/58.  
*Method for enhanced oil recovery: No. 2021133106: Appl. 11/15/2021 : publ. May 25, 2022*  
Applicant Limited Liability Company “Gazpromneft-Technological Partnerships”.

## PARTICIPATION AT CONFERENCES & SCHOOLS

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AUG 2024	(planned) <a href="#">Congresso Latino-Americano e do Caribe de Matemática, CLAM</a> , João Pessoa, Brazil, “Conservation laws: math. analysis and industrial-based models”	
JUN 2024	(planned) <a href="#">Mostly Maximum Principles</a> , PUC-Rio, Rio de Janeiro, Brazil	
JUN 2024	<a href="#">Equadiff 2024</a> , Karlstad, Sweden. MS: “Mathematics of porous media”. Talk: “On the linear growth of the mixing zone in a semi-discrete model of IPM”	<a href="#">.pdf</a> <a href="#">.pptx</a>
JUN 2024	<a href="#">SPP2410 Workshop: Analysis of Dissipation in Inviscid and Compressible Fluid Dynamics</a> , Konstanz, Germany. Poster.	Poster
FEB 2024	<a href="#">Hyperbolic Balance Laws: interplay between scales and randomness</a> , Oberwolfach, Germany. Talk: “On the linear growth of the mixing zone in a semi-discrete model of Incompressible Porous Medium (IPM) equation”	<a href="#">.pdf</a>
FEB 2024	<a href="#">Spring School “Multiplicative chaos and cascades”</a> , TU Darmstadt, Germany Talk: “Small ball probabilities for Gaussian processes”	<a href="#">.pdf</a>
JAN 2024	<a href="#">ICMC Summer Meeting on Differential Eqs</a> , São Carlos, Brazil. Talk: “Vanishing adsorption admissibility criterion for contact discontinuities in the polymer model”	<a href="#">.pdf</a> <a href="#">.pptx</a>
OCT 2023	<a href="#">VI Workshop on Fluids and PDE</a> , Campinas, Brazil. Talk: “Vanishing adsorption admissibility criterion for contact discontinuities in the polymer model”	<a href="#">.pdf</a>
JULY 2023	<a href="#">School: Deterministic and random features of fluids</a> , EPFL, Lausanne, Switzerland	
JUNE 2023	<a href="#">Shocking Developments: New Directions in Compressible and Incompressible Flows</a> , Conference in Honor of Alexis Vasseur’s 50th Birthday, Leipzig, Germany	
MAY 2023	Mini-conference dedicated to 60-th birthday of A.I. Nazarov. Online. Talk.	<a href="#">.pdf</a>
FEB 2023	<a href="#">Multiscale Analysis and Methods for Quantum and Kinetic Problems</a> . Singapore. Talk: “Two tube model of miscible displacement: traveling waves and normal hyperbolicity”	Video <a href="#">.pdf</a> <a href="#">.pptx</a>
JAN 2023	<a href="#">13th Americas Conference on Diff. Equations and Nonlinear Analysis and ICMC Summer Meeting on Differential Equations</a> . São Carlos, Brazil. Talk: “Two tube model of miscible displacement: travelling waves and normal hyperbolicity”	Slides: <a href="#">.pdf</a> <a href="#">.pptx</a>
OCT 2022	<a href="#">Conference IMPA 70 years &amp; International Conference on Dynamical Systems. Celebrating the 60th Birthday of Marcelo Viana</a> , Rio de Janeiro, Brazil	
JULY 2022	<a href="#">O.A. Ladyzhenskaya centennial conference on PDE’s</a> . St. Petersburg, Russia.	Poster
JULY 2022	<a href="#">Hyperbolic Balance Laws &amp; Beyond</a> . Magdeburg, Germany	Poster
JUNE 2022	<a href="#">International Conference on Hyperbolic Problems (HYP)</a> . Malaga, Spain “On admissibility criteria for contact discontinuities in Glimm-Isaacson model”	Slides

MAY 2022	<a href="#">Workshop: Branching systems, reaction-diffusion equations and population models</a> , Centre de recherches mathématiques (CRM), Montreal. Online.	
DEC 2021	International conference “Probabilistic methods in analysis”, in Sirius, Sochi, Russia. Plenary talk: “Small ball probabilities for Gaussian processes”	<a href="#">Slides</a>
DEC 2021	<a href="#">Workshop: “Nonlinear PDEs and Modelling”</a> , St. Petersburg, Russia. Talk: “Looking for exact mixing velocities in miscible displacement: two-tube model”	<a href="#">Slides</a>
AUG 2021	<a href="#">InterPore2021. Brazilian Chapter.</a>	<a href="#">Slides</a>
JUNE 2021	<a href="#">InterPore2021. Online conference.</a> Talk: “Graded viscosity banks on the rear end of the polymer slug”	<a href="#">Slides</a>
AUG 2019	<a href="#">Third ZiF Summer School</a> “Randomness in Physics and Mathematics” From Stochastic Processes to Networks. Bielefeld, Germany	<a href="#">Poster</a>
MAY 2019	<a href="#">Stochastic models II</a> . Euler Institute, St. Petersburg, Russia Talk: “Exact $L_2$ -small ball probabilities for Durbin processes”	<a href="#">Slides</a>
JAN 2018	<a href="#">The third Indo-Russian meeting in probability and statistics</a> . Bangalore, India Talk: “Exact small ball asymptotics in $L_2$ -norm for finite-dimensional perturbations of Gaussian processes: spectral method”	<a href="#">Slides</a>
DEC 2017	<a href="#">St. Petersburg winter conference on Probability Theory and Mathematical physics</a> . PDMI-MIAN. Talk: “On exact spectral asymptotics of finite-dimensional perturbations of integral operators of trace class”	<a href="#">Slides</a>
JUNE 2017	<a href="#">Symposium on Probability Theory and Random Processes</a> , St. Petersburg “Exact $L_2$ -small ball asymptotics for perturbations of Brownian bridge”	<a href="#">Slides</a>
APRIL 2017	<a href="#">International conference on partial differential equations</a> , Beijing, China “Spectral asymptotics in some problems with integral constraints”	<a href="#">Poster</a>
JUNE 2016	<a href="#">Days of Diffraction-2016</a> , St. Petersburg, Russia Talk: “Spectral asymptotics in some problems with integral constraints”	<a href="#">Slides</a>
MAY 2016	<a href="#">The 2nd Russian-Indian Joint Conference in Statistics and Probability</a> . Talk: “Small ball asymptotics for detrended Green Gaussian processes”	<a href="#">Slides</a>
SEPT 2015	<a href="#">Yu.V.Linnik Centennial Conference</a> , St. Petersburg, Russia Talk: “The $L_2$ -small ball asymptotics for the Kac-Kiefer-Wolfowitz processes”	
JULY 2015	<a href="#">7th St.Petersburg Conference in Spectral Theory</a> , St. Petersburg, Russia Talk: “Asymptotics of eigenvalues for some integro-differential operators”	<a href="#">Slides</a>
JULY 2014	<a href="#">Students school on PDEs and Geometric Measure Theory</a> , CIME, Italy	
JULY 2010	<a href="#">XIII Diffiety School on Mathematics</a> , Santo Stefano del Sole, Italy	
JULY 2009	<a href="#">XII Diffiety School on Mathematics</a> , Santo Stefano del Sole, Italy	

## INVITED TALKS AT SEMINARS

OCT 2023	Coloquium Instituto de Matematica UFRJ, Rio, Brazil. Seminar organizer: Cesar J. Niche. Talk: “Viscous fingering: teoria e aplicações” (in Portuguese)	<a href="#">.pdf</a> <a href="#">.pptx</a>
SEPT 2023	<a href="#">98° EDAÍ, dynamical systems seminar (PUC-Rio, UFRJ, UFF)</a> , Rio, Brazil. Seminar organizers: Lorenzo J. Diaz, Manuel Stadlbauer, Gabriela Estevez. Talk: “Travelling waves: dynamical perspective” (in Portuguese)	<a href="#">.pdf</a> <a href="#">.pptx</a>
MARCH 2023	<a href="#">Q.T.P. seminar at PUC-Rio (Que Termina em Pizza)</a> , Rio, Brazil. Seminar organizer: Lorenzo J. Diaz. Talk: “Viscous fingering: theory and applications”	<a href="#">.pdf</a> <a href="#">.pptx</a>
NOV 2022	<a href="#">Oberseminar “Nonlinear Dynamics” at Freie Universität Berlin</a> , Germany (joint talk with S.Tikhomirov). Seminar organizers: Bernold Fiedler, Isabelle Schneider, Eckehard Schöll, Matthias Wolfrum. Talk: “Two tube model of miscible displacement: travelling waves and normal hyperbolicity”	<a href="#">Slides</a>
JULY 2022	<a href="#">Seminário de Probabilidade at Instituto de Matemática</a> , UFRJ, Rio, Brazil. Seminar organizers: Giulio Iacobelli and Maria Eulalia Vares. Talk: “Small ball probabilities for Gaussian processes”	<a href="#">Slides</a>
JULY 2022	<a href="#">Seminário Luiz Adauto de Análise/EDP at Instituto de Matemática</a> , UFRJ, Rio, Brazil. Seminar organizer: Daniel Marroquin. Talk: “On chemical flooding models: Riemann problem solutions and viscous fingering phenomenon”	<a href="#">Slides</a>
MAY 2022	<a href="#">Oberseminar “Nonlinear Dynamics” WIAS Berlin</a> , Germany. Online. Seminar organizers: Bernold Fiedler, Isabelle Schneider, Eckehard Schöll, Matthias Wolfrum. Talk: “On the impact of dissipation ratio on vanishing viscosity solutions of Riemann problems for chemical flooding models”	<a href="#">Slides</a>



12 MAY 2022	<a href="#">2-do Encontro Mulheres Matematicas do IMPA</a> , Rio, Brazil. Online. Organizers: Claudia Lorena Duarte, Daniela Paiva Penuela, Zoraida Fernandez Rico. Sessão Temática - Dinâmica dos Fluidos.	<a href="#">Slides</a>
APRIL 2022	CeMEAI seminar at ICMC/USP in São Carlos, Brazil. Organizer: Tiago Pereira. Talk: “On solutions of Riemann problem for chemical flooding model”	<a href="#">Slides</a>
APRIL 2022	Seminar of Applied and Computational Mathematics, IMPA, Rio, Brazil. Organizers: Alexei Mailybaev, Dan Marchesin. Talk: “Toy model of viscous fingering”	<a href="#">Slides</a>
APRIL 2022	Seminar on Analisis and PDE at IMPA, Rio, Brazil. Seminar organizer: Felipe Linares. Talk: “On the impact of dissipation ratio on vanishing viscosity solutions of Riemann problems for chemical flooding models”	<a href="#">Slides</a>
MARCH 2022	Seminario das Mulheres IMPA, Rio, Brazil. Seminar organizer: Zoraida Fernandez-Rico. Talk: “Small ball probabilities for Gaussian Processes”	<a href="#">Slides</a>
MARCH 2022	Centro PI seminar at IMPA, Rio, Brazil. Seminar organizers: Roberto Imbuzeiro, Paulo Orenstein. Talk: “Oil Recovery: Fundamental research and Industrial applications”	<a href="#">Slides</a>
FEB 2022	<a href="#">Applied Math/PDE Seminar UC Davis</a> , California, USA. Online. Seminar organizers: Blake Temple, Steve Shkoller, Sameer Iyer. Talk: “On solutions of a Riemann problem for a chemical flooding model”	<a href="#">Slides</a>
NOV 2021	<a href="#">Gabriel Lame Chair Seminar at Chebyshev Laboratory</a> , St. Petersburg, Russia. Online. Seminar organizer: Jean-Michel Roquejoffre. Talk: “On the impact of diffusion ratio on vanishing viscosity solutions of Riemann problems for chemical flooding models”	<a href="#">Slides</a>
OCT 2021	<a href="#">Seminario de EDP e Matematica Aplicada</a> . Online. Seminar organizers: Juan Limaco, Mauro Rincon, Max Souza, Marcelo Calvacanti. Talk: “Admissibilidade das descontinuidades de contato: aplicação para recuperação melhorada de petróleo” (in Portuguese)	
MAY 2021	Colloquium of Industrial Projects at Chebyshev Laboratory, St. Petersburg, Russia. Organizer: Sergey Tikhomirov. Talk: “On mathematical results in Enhanced Oil Recovery project” (in Russian)	<a href="#">Slides</a>
FEB 2020	Student colloquium at Chebyshev Laboratory, St. Petersburg, Russia. Talk: “Mathematical models describing the process of oil recovery”	
JAN 2020	<a href="#">Seminar “Industrial mathematics”</a> , Chebyshev Laboratory, St. Petersburg. Organizers: F. Bakharev, Sergey Tikhomirov, Yulia Petrova, Slava Borovitskiy. Talk: “On the solution of the Riemann problem for a hyperbolic system of conservation laws simulating the injection of a polymer into an oil reservoir”	
FEB 2018	Oberseminar, Technical University Darmstadt, Germany. Seminar organizer: Frank Aurzada. Talk: “Exact $L_2$ -small ball probabilities for finite-dimensional perturbations of Gaussian processes”	
JAN 2018	Oberseminar Analysis, Mathematische Physik & Dynamische Systeme, TU Dortmund, Germany. Seminar organizer: Ivan Veselic. Talk: “Exact $L_2$ -small ball probabilities for finite-dimensional perturbations of Gaussian processes”	
JAN 2018	Seminar “Calculus of Variations and applications”, Ludwig-Maximilians Universit, Munich, Germany. Organizer: Rupert Frank. Talk: “Exact $L_2$ -small ball probabilities for finite-dimensional perturbations of Gaussian processes”	
JAN 2018	Postgraduate Seminar in Probability, Department of Mathematics, TU Munich, Germany. Seminar organizer: Nina Gantert. Talk: “Exact $L_2$ -small ball probabilities for finite-dimensional perturbations of Gaussian processes”	
NOV 2017	Seminar of the Department of Probability Theory, Moscow State University, Russia. Seminar organizer: Albert Shiryaev. Talk: “Exact asymptotics of small deviations in $L_2$ -norm for finite-dimensional perturbations of Gaussian processes: a spectral approach”	
OCT 2017	St. Petersburg Seminar on Probability Theory and Mathematical Statistics. Organizer: Il’dar Ibragimov. Talk: “Exact asymptotics of small deviations in $L_2$ -norm for finite-dimensional perturbations of Gaussian processes”	
DEC 2015	Seminar “Operator Models in Mathematical Physics”, Moscow State University, Russia. Seminar organizer: Andrey Shkalikov. Talk: “Asymptotic behavior of eigenvalues for integro-differential operators”	

## TEACHING EXPERIENCE

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2024.1	Lectures and seminars “Proofs from the BOOK”, BS & MS	<a href="#">Link</a>
2023.2	Lecture course “Introduction to Fourier analysis”, MS & PhD	
2023.1	Lecture course “Shock waves in conservation laws and reaction-diffusion eqs”, MS Department of Mathematics, PUC-Rio, Rio de Janeiro, Brazil	<a href="#">Link</a>
2021.1	Tutorial “Calculus of variations”, BS	<a href="#">Materials</a>
2020.2	Tutorial “Probability theory”, BS	<a href="#">Materials</a>
2020.1	Tutorial “Functions of complex variables (Calculus IV)”, BS	<a href="#">Materials</a>
2019.2	Tutorial “Calculus I” and “Calculus III”, BS	<a href="#">Materials</a>
2019.1	Tutorial “Calculus II”, BS	
2018.2	Tutorial “Calculus I”, BS Faculty of Mathematics and Computer Science St. Petersburg State University, Russia	
11/2019	Assistant to the course “Dynamical systems”, MS COMSATS University Islamabad, Lahore Campus, Pakistan ICTP-CUI Visiting Scholars Program for Training and Research in Math	
01/2019	Mini-course of 4 lectures on “Random walks” (for high-school students) Educational Program in Mathematics and Computer Science at “Sirius” Sochi, Russia	
2018.2	Tutorial “Calculus I”, BS	
2018.1	Tutorial “Calculus II”, BS	
2017.2	Tutorial “Calculus I”, BS	
2017.1	Tutorial “Calculus II” and “Calculus IV”, BS	<a href="#">Materials</a>
2016.2	Tutorial “Calculus I” and “Calculus III”, BS	<a href="#">Materials</a>
2016.1	Tutorial “Calculus IV”, BS	
2015.2	Tutorial “Calculus I” and “Calculus III”, BS	
2015.1	Tutorial “Calculus II”, BS	
2014.2	Tutorial “Calculus I”, BS St. Petersburg Academic University, Russia	
2014.1	Tutorial “Partial differential equations II”, BS	
2013.2	Tutorial “Partial differential equations I”, BS	
2013.1	Tutorial “Partial differential equations II”, BS	
2012.2	Tutorial “Partial differential equations I”, BS St. Petersburg Polytecnic University, Russia	
2012–2017	Teaching <i>Olympiad Mathematics</i> in “Formulo de Integreco” International educational center for gifted high-school students	<a href="#">Materials</a>

## MENTORING STUDENTS

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2023–2024 | Master student: João Pedro Pasinato (PUC-Rio)

## REVIEWER

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2023 – | Nonlinearity

## MEMBER OF MATHEMATICAL SOCIETIES

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St. Petersburg Mathematical Society  
Brazilian Mathematical Society (SBM)

## LANGUAGES

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RUSSIAN:	Native speaker
ENGLISH:	Fluent
PORTUGUESE:	Proficient. <a href="#">Avançado superior na preparação Celpe-Bras</a> , October 2022
SPANISH:	Proficient. Intermediate talking, proficient reading and writing

## ADDITIONAL EXPERIENCE

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Organizational:	<ul style="list-style-type: none"><li>• co-organizer of CRANED, joint seminar in analysis and PDEs in Rio (2024)</li><li>• co-organizer of seminar “<a href="#">Que Termina em Pizza</a>” Q.T.P. at PUC-Rio (2024)</li><li>• co-organizer of seminar “Applied and Comput. Mathematics” at IMPA (2022)</li><li>• co-organizer of the seminar «<a href="#">Industrial Mathematics</a>» from Feb 2019 till Feb 2022 at Chebyshev Laboratory, St. Petersburg, Russia. See also <a href="#">YouTube</a></li></ul>
Industrial:	I was a part of a long-term industrial project in Chebyshev Laboratory on Enhanced Oil Recovery (EOR) methods jointly with petroleum company «Gazprom Neft» in 2018–2021 in St. Petersburg, Russia. As a result of this collaboration we have a patent and a registered computer program. As a part of a project I also made physical experiments (Hele-Shaw cell — <a href="#">link</a> )
Programming:	COMSOL Multiphysics, Matlab, Git, basics of Python. Among numerical methods I worked with FEM, FVM, FDM
Adaptivity:	I easily adapt to different countries. I have been to almost all European countries, India, China, Pakistan, Egypt, Mexico. Now I am working in Brazil
Olympiads:	At school I frequently was the winner of city olympiads in maths, physics, chemistry and informatics. Several times I was the winner of math olympiad of republic level. I was actively teaching olympiad mathematics during my university studies
Thesis committee:	PhD thesis: Júlia Domingues Lemos (IMPA, 2022). Master thesis: Giulia Carvalho Fritis (UFJF, 2023), Temirlan Abildaev (SPSU, 2020). Bachelor thesis: Alexander Tarasov (SPSU, 2019), Tatyana Moseeva (SPSU, 2020).
Divulagation of mathematics:	Lecture at cultural center Adelante “El matrimonio entre natureza e arquitetura” ou “Las matemáticas en la obra de Antoni Gaudí”, 2015, St. Petersburg, <a href="#">link</a> (spanish)

## LINKS

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ORCID	<a href="https://orcid.org/0000-0003-0595-3727">https://orcid.org/0000-0003-0595-3727</a>
ARXIV	<a href="https://arxiv.org/a/0000-0003-0595-3727.html">https://arxiv.org/a/0000-0003-0595-3727.html</a>
GOOGLE SCHOLAR	<a href="https://scholar.google.com/citations?hl=en&amp;user=cchgBPMAAAAJ">https://scholar.google.com/citations?hl=en&amp;user=cchgBPMAAAAJ</a>
LATTES	<a href="http://lattes.cnpq.br/1307618187534439">http://lattes.cnpq.br/1307618187534439</a>
MATHSCINET	<a href="https://mathscinet.ams.org/mathscinet/author?authorId=1187391">https://mathscinet.ams.org/mathscinet/author?authorId=1187391</a>
ZBMATH	<a href="https://zbmath.org/authors/?q=petrova.yulia">https://zbmath.org/authors/?q=petrova.yulia</a>