

CURRICULUM VITAE

PROKHOROV ANDREI

CONTACTS

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CURRENT POSITION

- 2020– Postdoctoral Assistant Professor, Department of Mathematics, University of Michigan, Ann Arbor.
- 2017– Researcher, Saint-Petersburg State University

EDUCATION

- 2019 PhD, Department of Mathematical Sciences at Indiana University-Purdue University Indianapolis.
Dissertation: "Connection problem for Painlevé tau functions". Advisor: A. Its.
- 2014 Master of Physics, St. Petersburg State University.
Thesis: "Regularity of electromagnetic fields in convex domains".
Advisor: N. Filonov.
- 2012 Bachelor of Physics, St. Petersburg State University.
Thesis: "The Maxwell operator in a waveguide with periodic coefficients".
Advisor: N. Filonov.

REFEREED PUBLICATIONS

- E. C. Bailey, S. Bettin, G. Blower, J. B. Conrey, A. Prokhorov, M. O. Rubinstein, N. C. Snaith, "Mixed moments of characteristic polynomials of random unitary matrices" , Journal of Mathematical Physics, 60:8 (2019), 083509.

- T. Bothner, A. Its, A. Prokhorov, “On the analysis of incomplete spectra in random matrix theory through an extension of the Jimbo-Miwa-Ueno differential” *Advances in Mathematics*, Volume 345, (2019), 483–551.
- A. Its, O. Lisovyy, A. Prokhorov, “Monodromy dependence and connection formulae for isomonodromic tau functions”, *Duke Math. J.* 167:7 (2018), 1347–1432.
- A. Its, A. Prokhorov, “Connection problem for the tau-function of the Sine-Gordon reduction of Painlevé-III equation via the Riemann-Hilbert approach” , *IMRN*, 2016:22, (2016), 6856–6883.
- A. Prokhorov, N. Filonov, “The Maxwell operator with periodic coefficients in a cylinder”, *Algebra i Analiz*, 29:6 (2017), 182-196. English translation at *St. Petersburg Math. J.* 29 (2018), 997–1006.
- A. Prokhorov, N. Filonov, “Regularity of electromagnetic fields in convex domains”, *Zap. Nauchn. Sem. POMI*, 425, (2014), 55–85; English translation at *J Math Sci* 210:6 (2015), 793-813.

NON-REFEREED PUBLICATIONS

- A. Its, A. Prokhorov, “On Some Hamiltonian Properties of the Isomonodromic Tau Functions”, *Reviews in Mathematical Physics* 30:7, (2018).

RESEARCH PRESENTATIONS

- Bernoulli-IMS One World Symposium, Virtually, August 24th - 28th, 2020.
Talk: “ On $\beta = 6$ Tracy-Widom distribution and the second Calogero-Painlevé system. ”.
- Junior Integrable Probability Seminar, Virtually, July 9th, 2020.
Talk: “ Integrable structure behind the multitime KPZ fixed point distribution. ”.
- Workshop “Complex analysis in mathematical physics and applications”, Isaac Newton Institute for Mathematical Studies, Cambridge, UK, October 28th - November 1st, 2019.
Poster: “Asymptotic of solution of three-component Painlevé II equation”.
- Forty-Seventh Annual Mathematics Conference “Differential Equations and Dynamical Systems and their Applications”, Miami University, Oxford, OH, USA, September 20 - 21, 2019.
Talk: “Connection problem for Painlevé tau functions.”.
- Workshop “Painlevé equations in the Midwest”, University of Michigan, Ann Arbor, MI, USA, August 23 - 24, 2019.
Talk: “Asymptotic of solution of three-component Painlevé II equation”.

- The Eleventh IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, University of Georgia, Athens, GA, USA, April 17 - 19, 2019.
Talk: “Asymptotic of 3-component Painlevé-II equation”.
- AMS Fall Central Sectional Meeting ,University of Michigan, Ann Arbor, October 20-21, 2018.
Talk: “On some Hamiltonian properties of isomonodromic tau functions”.
- Midwestern Workshop on Asymptotic Analysis, IU, Bloomington, October 5-7, 2018.
Poster: “On some Hamiltonian properties of isomonodromic tau functions”.
- Workshop “Tau Functions of Integrable Systems and Their Applications” , BIRS, Banff, Canada, September 2-7, 2018.
Talk: “On some Hamiltonian properties of isomonodromic tau functions”.
- Invited speaker at the probability seminar at University of Virginia, Charlottesville, October 25, 2017.
Talk: “Limiting distribution of smallest eigenvalue of thinned complex Wishart matrices”
- Midwestern Workshop on Asymptotic Analysis, IUPUI, Indianapolis, October 6-8, 2017.
Poster: “The smallest eigenvalue distribution of incomplete Laguerre Unitary Ensemble” .
- School on Dyson-Schwinger equations, topological expansions, and random matrices, Columbia University, New York, August 28 - September 1, 2017.
Poster: “The smallest eigenvalue distribution of incomplete Laguerre Unitary Ensemble” .
- Graduate Summer School on Random Matrices at PCMI, Utah, Park city, June 25 - July 15, 2017.
Poster: “The smallest eigenvalue distribution of incomplete Laguerre Unitary Ensemble” .
- School on “Quantum integrable systems, conformal field theories and stochastic processes” , Institut d’Études Scientifiques de Cargèse, Cargèse, France, September 12-23, 2016.
Talk “Asymptotics of tau-function for Painlevé equations”.
- Workshop “Moduli spaces, integrable systems, and topological recursions” , CRM, Montréal, Canada, January 9-13, 2016.
Talk “Connection problem for the isomonodromic tau-function of the Sine-Gordon reduction of Painlevé-III equation” .
- Workshop “Asymptotics in integrable systems, random matrices and random processes and universality” .
In honour of Percy Deift’s 70th birthday.
CRM, Montréal, Canada, June 7-11, 2015.

Poster “Connection problem for the tau-function of the Sine-Gordon reduction of Painlevé-III equation via the Riemann-Hilbert approach”.

- 6th St. Petersburg Conference in Spectral Theory, dedicated to the memory of M. Sh. Birman. Russia, St. Petersburg, July, 3-8, 2014. Talk “Regularity of electromagnetic fields in nonsmooth domains”.
- Crimean International Mathematical Conference. Ukraine, Crimea, Sudak, September 22 - October 4, 2013. Talk “Regularity of electromagnetic fields in nonsmooth domains”.
- Annual International Conference “Days on Diffraction”. Russia, St. Petersburg, May, 27-31, 2013. Talk “On absolute continuity of spectrum of the periodic Maxwell operator in a cylinder.”
- The Twenty Third Crimean Autumn Mathematical School-Symposium. Ukraine, Crimea, Laspi-Batiliman, September, 17-29, 2012. Talk “The Maxwell operator in the waveguide with periodic coefficients”.

PARTICIPATION AT CONFERENCES

- Summer School on Random Matrices, University of Michigan, Ann Arbor, June 13-24, 2016.
- Workshop “Painlevé equations and their applications”, AIM, California, San Jose, February 6-10, 2017.
- Summer School on Random Matrices, University of Michigan, Ann Arbor, June 18-29, 2018.

TEACHING EXPERIENCE

- 01/2019–12/2020 Teaching Math 216 (Introduction to differential equations) at University of Michigan, Ann Arbor.
- 09/2019–12/2019 Teaching Math 115 (Calculus I) at University of Michigan, Ann Arbor.
- 01/2019–05/2019 Teaching Math 15400 (Trigonometry) at Indiana University-Purdue University Indianapolis.
- 09/2018–12/2018 Teaching Math 15300 (College Algebra) at Indiana University-Purdue University Indianapolis.
- 09/2018–12/2018 Teaching Math 11000 (Fundamentals of Algebra) at Indiana University-Purdue University Indianapolis.
- 09/2017–05/2018 Teaching Math M118 (Finite Mathematics) at Indiana University-Purdue University Indianapolis.

05/2017–06/2017 Teaching Math 51000 (Vector Calculus)
at Indiana University-Purdue University Indianapolis.

08/2016–12/2016 Teaching Math 17100 (Multidimensional Mathematics)
at Indiana University-Purdue University Indianapolis.

08/2015–12/2015 Tutor at the Mathematical Assistance Center
at Indiana University-Purdue University Indianapolis.

WORK EXPERIENCE

02/2014–06/2014 Researcher at St.Petersburg State University.

09/2013–10/2013 Researcher at St.Petersburg State University.

09/2011–12/2012 Research Assistant at the Chebyshev Laboratory
at Saint-Petersburg State University.

SERVICE

- American Mathematical Society Graduate Student Chapter at Indiana University-Purdue University Indianapolis (<https://sites.google.com/view/ams-iupui>)
- 09/2017–06/2018 President
- 09/2016–06/2017 Vice-President
- 09/2015–06/2016 Secretary
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HONORS/AWARDS

- Third Diploma at the Regional Student Mathematics Olympiad of Saint-Petersburg, 2011.
- Second Diploma at the Student Mathematics Olympiad of North West of Russia, 2012 .
- First Year Fellowship from School of Science, IUPUI, 2014.
- Outstanding Advanced Mathematics Graduate Student, IUPUI, 2016.
- Charalambos D. Aliprantis Prize, IUPUI, 2017. (This scholarship is awarded to mathematics graduate students who exemplify outstanding scholastic achievements as well as leadership qualities.)
- Yuri Abramovich Memorial Scholarship, IUPUI, 2018. (This scholarship supports continuing undergraduate and graduate students who have a keen interest in the study of mathematics, who demonstrate academic excellence, especially in mathematics courses beyond the sophomore level and who show promise for a career in mathematics.)
- Outstanding Advanced Mathematics Graduate Student, IUPUI, 2019.