

Curriculum Vitae

NAME

Mikhail Gabdullin

ADDRESS

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PERSONAL

Date of birth: August 10, 1991

Place of birth: Sverdlovsk, Russia

Homepage: <http://gabdullin.math.tilda.ws/>

Languages: English (fluent), French (elementary), Russian (native)

CURRENT EMPLOYMENT

2023 – present

J. L. Doob Research Assistant Professor (UIUC)

2020 – present

Researcher (Steklov Mathematical Institute, Moscow)

2018 – 2023

Researcher (Moscow State University, Laboratory of Multidimensional
Approximation and Discretization)

2013 – 2021

Researcher (Institute of Mathematics and Mechanics UrB RAS, Yekaterinburg)

EDUCATION

Ural State University, Department of Mechanics and Mathematics: B.S (2013)
and M.S. (2015) in Mathematics;

Moscow State University, Faculty of Mechanics and Mathematics: Ph.D.
(2015–2019); advisor Sergei Konyagin;

Ph.D. thesis “Character sums: estimates and applications”

RESEARCH ACTIVITY

Research in Number Theory: estimates of character sums, distribution
of quadratic residues, prime avoiding numbers, values of arithmetic functions

Research in Harmonic Analysis: convergence of trigonometric series, trigonometric polynomials with frequencies in the set of squares

PRIZES AND GRANTS

- Young Russian Mathematics winner (2020)
- The best paper of Steklov Institute (2020)

Participant of

- Grant Russian Scientific Fond 14-11-00433, 19-11-00001
- Steklov International Mathematical Center

TEACHING

- Course “Number theory”: Moscow Institute of Physics and Technology, Spring Term 2020

Abstract. In this course, we consider the following topics. Dirichlet’s theorem on arithmetic progressions (elementary and analytic approaches), Fourier analysis on finite abelian groups, various applications of the polynomial method (the combinatorial Nullstellensatz, the Cauchy-Davenport inequality, the capset problem in the vector spaces over a finite field), probabilistic methods in number theory. No previous knowledge are required.

- An organizer of Annual Olympiad on Mathematical Analysis (Ural Federal University, 2015 – 2022)
- Olympiad mathematics courses for schoolchildren: Moscow State University, 2015-2016
- The Lebesgue Integral and Measure Theory: Ural Federal University, 2015

PUBLICATIONS

1. *Numbers of the form $k + f(k)$* (joint with V. Iudelevich and F. Luca), <https://arxiv.org/abs/2306.16035>

2. *Prime avoiding numbers is a basis of order 2*,
<https://arxiv.org/abs/2209.03058>
3. *Trigonometric polynomials with frequencies in the set of squares and divisors in a short interval*, <https://arxiv.org/abs/2205.13611>
4. *Karatsuba divisor problem and related questions* (joint with V. Iudelevich and S. Konyagin), to appear in Sb. Math.
5. *The stochasticity parameter of quadratic residues*, Int. Math. Res. Not. IMRN, 2022, 1–24
6. *Numbers of the form $kf(k)$* (joint with V. Iudelevich and F. Luca), Int. J. Number Theory, 2023, 1–12
7. *Trigonometric series with noninteger harmonics*, J. Math. Anal. Appl., 508:1 (2022), 125792, 11 pp.
8. *Sets whose differences avoid squares modulo m* (joint with K. Ford), Proc. Amer. Math. Soc., 149 (2021), 3669–3682
9. *Lower Bounds for the Wiener Norm in \mathbb{Z}_p^d* , Math. Notes, 107:4 (2020), 574–588
10. *Sets in \mathbb{Z}_m whose difference sets avoid squares*, Sb. Math., 209:11 (2018), 1603–1610
11. *Estimates for character sums in finite fields of order p^2 and p^3* , Proc. Steklov Inst. Math., 303 (2018), 36–49
12. *On divergence of Fourier series in $\varphi(L)$ spaces containing L* , Math. Notes, 99(6), 878–886 (2016).
13. *On the squares in the set of elements of a finite field with constraints on the coefficients of its basis expansion*, Math. Notes, 101(1), 234–249 (2016)
14. *On squares in special sets of finite fields*, Chebysh. Sb., 17:2 (2016), 56–63
15. *On the divergence of trigonometric Fourier series in classes $\varphi(L)$ contained in L* , Proc. Steklov Inst. Math. (Suppl.), 297, suppl. 1 (2015), 81–87

16. *An estimate of the geometric mean of the derivative of a polynomial in terms of its uniform norm on a closed interval*, Proc. of Krasovskii Inst. of Mathematics and Mechanics UB RAS, 18(4), 2012, 153–161 (in Russian)

VISITING APPOINTMENTS

- The Second Conference of Russian Mathematical Centers, Moscow (11/2022)
- Alfréd Rényi Institute of Mathematics, Budapest (07/2022)
- Number Theory Conference, Debrecen (07/2022)
- Combinatorial and Additive Number Theory, (05/2022, online)
- Approximation Theory and Applications (dedicated to the 100th anniversary of S.B. Stechkin), Moscow, (09/2021)
- Combinatorial and Additive Number Theory, (05/2021, online)
- London Number Theory Seminar (invited speaker) (06/2019)
- “Uniform Distribution Theory”, CIRM, Marseilles (10/2018)
- Canadian Number Theory Association Conference, “CNTA XV”, Quebec (07/2018)
- “Journées Arithmétiques”, Caen (07/2017)
- Mathematical Science Research Institute, Berkeley (01/2017–02/2017)
- Alfréd Rényi Institute of Mathematics, Budapest (07/2016)
- “Uniform Distribution Theory”, Sopron (07/2016)
- “Theory of Approximation Functions and its Applications”, Kamianets-Podilsky (05/2012)